



European  
Commission

ISSN 2443-8014 (online)

# Fiscal Sustainability Report

2015

INSTITUTIONAL PAPER 018 | JANUARY 2016

EUROPEAN ECONOMY



*Economic and  
Financial Affairs*

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Luxembourg: Publications Office of the European Union, 2016

KC-BC-16-018-EN-N (online)  
ISBN 978-92-79-54311-1 (online)  
doi:10.2765/412671 (online)

KC-BC-16-018-EN-C (print)  
ISBN 978-92-79-54310-4 (print)  
doi:10.2765/7398 (print)

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European Commission

Directorate-General for Economic and Financial Affairs

# Fiscal Sustainability Report 2015

## ACKNOWLEDGEMENTS

This report was prepared in the Directorate-General for Economic and Financial Affairs under the direction of Marco Buti (Director-General) and Servaas Deroose (Deputy Director-General), and the supervision of Lucio PENCH (Director for Fiscal Policy) and Giuseppe Carone (Head of Unit).

Katia Berti was the coordinator of the report. Main contributors to the report were Katia Berti (Chapters 1, 2, 6 and 7), Alessandra Caretta (Chapters 4 and 7), Per Eckefeldt (Chapter 3), Luigi Giamboni (Chapter 7), Veli Laine (Chapter 7), Stephanie Pamies (Chapters 2, 5 and 7), Anda Patarau (Chapters 5 and 7). Contributions to Chapters 6, 7 and Annex 2 were provided by Lauri Esala (DG ECFIN). Contributions to Section 5.2.2 and Annex 7 were provided by Peter Benczur (DG JRC), Jessica Cariboni (DG JRC), Francesca Erica Di Girolamo (DG JRC), Alessandro Malchiodi (DG FISMA), Massimo Marchesi (DG FISMA), Andrea Pagano (DG JRC) and Marco Petracco Giudici (DG JRC).

Section 5.2.2 and Annex 7 further benefited from comments by Ivo Jarofke (DG FISMA) and F. Kroesl (DG FISMA). Section 5.3 and Annex 9 benefited from comments by I. Toming (DG ECFIN), M. Szczesna (EUROSTAT) and Laura Wahrig (EUROSTAT).

The country fiches in Chapter 7 benefited from contributions from the country desks in DG ECFIN, Directorates E, F and G.

Statistical support was provided by Pedro Arevalo, Lauri Esala and Etienne Sail. Secretarial support and layout was provided by Nancy Saba.

Comments on the report would be gratefully received and may be sent to:

### **DG ECFIN – Unit C2**

European Commission  
Directorate-General for Economic and Financial Affairs  
Directorate C: Fiscal policy  
Unit C2: Sustainability of public finances  
Office CHAR 12/053  
B-1049 Brussels  
E-mail: ECFIN-Secretariat-C2@ec.europa.eu  
or

### **Giuseppe Carone**

European Commission  
Directorate-General for Economic and Financial Affairs  
Directorate C: Fiscal policy  
Unit C2: Sustainability of public finances  
Office CHAR 12/048  
B-1049 Brussels  
E-mail: Giuseppe.Carone@ec.europa.eu

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## FOREWORD

The sustainability of public finances has been brought to the fore by significantly increasing debt levels in the aftermath of the economic and financial crisis that started in 2008. Whilst high public debt was not at the origin of the crisis in most euro area countries, the present higher public debt ratios pose a risk to sustainability. The legacy of the crisis in terms of debt overhang has been made particularly severe by contemporaneously high levels of debt in the public and the private sector in a number of EU countries. This has made deleveraging more difficult. At the same time, where high debt levels linger, growth may pick up more slowly, which makes it important to set the appropriate pace on the path to deleveraging in the public and the private sector.

The current macroeconomic context of very low inflation, together with subdued GDP growth, poses additional challenges to the reduction of public debt burdens in the EU. In this type of environment, nominal growth only contributes to a limited extent to the reduction of public debt over GDP, and the latter can only be achieved through growth-friendly fiscal consolidation. At the same time, financing costs for public debt remain low, reflecting a historically low interest rate. The interest rate-growth rate differential is projected to remain negative in the EU in the next years, thus supporting deleveraging, while in the long run the expected normalisation of interest rates would raise the interest bill.

Sustainable public finances, and smaller public debt burdens in particular, remain important elements to ensure that EU countries have sufficient fiscal space to cope with adverse macroeconomic developments over the economic cycle. The conduct of fiscal policy should therefore importantly ensure that buffers are built in good times to be ready to be used to support the economy in bad times, along the spirit of the rules enshrined in the Stability and Growth Pact. In a longer term perspective, ensuring the sustainability of public finances is important to create fiscal space to cope with projected implicit liabilities related to ageing (pensions, healthcare and long-term care). Though latest projections of age-related public spending show more favourable expected developments relative to the past, the burden on public finances is still expected to be significant. This has to be considered when assessing fiscal sustainability over the medium to long run.

From a policy perspective, a thorough discussion and assessment of the sustainability of public finances in the EU seems the more relevant today. The European Commission's Fiscal Sustainability Report contributes to this discussion by examining fiscal sustainability challenges faced by Member States over the short, medium and long run. The underlying drivers of the challenges are thoroughly analysed in the report. Even when the fiscal position of a country appears to be sound, sudden episodes of fiscal stress may occur following the materialisation of fiscal or macro-financial risks. Medium-term sustainability challenges are assessed by having regard to the underlying country's initial budgetary position, the level and projected evolution of the country's public debt and projected implicit liabilities related to an ageing population. In the long run, on the other hand, it is not the level of debt that matters most, but its projected evolution, taking also into account the projected cost of an ageing population. The identification of the nature, the scale and the urgency of the challenges faced by individual Member States is provided in the report as a key ingredient to support the formulation of appropriate policy responses. In this respect, the report also provides input to the EU's process of multilateral economic surveillance in the context of the European Semester.

Among the countries object of analysis in this report (the 26 EU countries that are not covered by macroeconomic adjustment programmes), none appears to face significant fiscal stress risks from fiscal or macro-financial developments in the short run. Indeed, overall risks of short-term fiscal stress have very significantly receded relative to the worst years of the crisis (2010-12). On the other hand, some vulnerabilities are still present. In particular, for a number of EU countries the share (and, to a smaller but still significant extent, the change in the share) of non-performing loans on banks' balance sheets and very high public debt levels continue to represent important sources of vulnerability that might generate fiscal risks should financial market instability increase.

Over the medium term, more than half of the 26 Member States analysed in this report are still deemed to be at high or medium fiscal sustainability risk. For the majority of the countries concerned, challenges are related to the still high projected stock of public debt in 10 years from now, under the assumption of a normalisation of macroeconomic conditions (in terms of higher inflation, real GDP growth and interest rates) and the continuation of current fiscal positions. For the majority of countries, projected age-related public spending contributes to increasing the fiscal adjustment required to ensure fiscal sustainability in the medium term, requiring further reforms on pensions, healthcare and long-term care systems (depending on the country) aimed at containing costs and raising efficiency.

Over the long run, only one country, among the 26 considered in this report, would appear to face high sustainability risks, while more than half of the countries would still face medium risks. For most of the latter, challenges appear to be related to projected public spending over the long run, due to an ageing population (public spending on pensions, healthcare or long-term care, depending on the country). For the EU as a whole, the size of long-term sustainability challenges has nonetheless decreased significantly relative to the beginning of the crisis, under the effects of pension reforms introduced in the past, as well as recent fiscal consolidation.

Overall, fiscal sustainability challenges are significantly lower in the EU today relative to the outset of the crisis. Significant challenges nonetheless remain over the medium term, mostly due to the public debt stocks cumulated during the crisis years, and over the long term, mostly related to the projected increase in age-related public spending. Ensuring appropriately paced deleveraging is key in this context to support the return to more sustained growth prospects and contribute to bring inflation back to the ECB target. We hope that the analysis contained in this report will make a valuable contribution to this discussion.

Marco Buti  
Director-General  
Economic and Financial Affairs

## EXECUTIVE SUMMARY

### Introduction

Fiscal sustainability against the legacy of the economic and financial crisis...

The sustainability of public finances has been brought to the fore by significantly increasing debt levels in the aftermath of the economic and financial crisis that started in 2008. For the EU-28, this has meant an increase in gross public debt by about 30 pps. of GDP between 2007 and 2015, with a downward reversal in the increasing trend of the debt ratio observed only in 2015 for the first time since the beginning of the crisis (after reaching a peak of almost 89% in 2014).

Whilst high public debt was not at the origin of the crisis in most euro area countries, lack of fiscal space at the outset prevented proper use of fiscal policies and we have to face now higher public debt levels due to the effects of the crisis. The legacy of the crisis in terms of debt overhang has been made particularly severe by contemporaneously high levels of debt in the public and the private sector in a number of EU countries. This has made deleveraging more difficult. At the same time, where high debt levels linger, growth may pick up more slowly, which makes it important to set the appropriate pace on the path to deleveraging in the public and the private sector.

...and in the context of current and forecasted macroeconomic developments

The current macroeconomic context of very low inflation, together with moderate GDP growth, poses additional challenges to the reduction of public debt burdens in the EU. In this type of environment, nominal growth is only able to contribute to a limited extent to the reduction of public debt ratios, and the latter can only be achieved through growth-friendly fiscal consolidation (with particular attention to cutting unproductive public spending, eliminating waste and raising efficiency). At the same time, financing costs for public debt remain low, reflecting a historically low interest rate. The interest rate-growth rate differential is projected to remain negative in the EU for some years, thus supporting deleveraging, while in the long run the expected normalisation of interest rates would raise the interest bill.

Sustainable public finances in perspective

Sustainable public finances, and smaller public debt burdens in particular, remain important elements to ensure that EU countries have sufficient fiscal space to cope with adverse macroeconomic developments over the economic cycle. The conduct of fiscal policy should therefore importantly ensure that buffers are built in good times to be ready to be used to support the economy in bad times, along the spirit of the rules enshrined in the Stability and Growth Pact.

Besides differences in debt levels and their fundamental driving forces, important differences in vulnerability to fiscal and macro-financial risks (which can lead to episodes of fiscal stress) are present across countries. To ensure fiscal sustainability, especially in the short term, these differences need to be factored in.

In a longer term perspective, ensuring the sustainability of public finances is important to create fiscal space to cope with projected implicit liabilities for governments related to ageing (pensions, healthcare and long-term care). Though latest projections of age-

related public spending show more favourable expected developments relative to the past, the burden on public finances is still expected to be significant. This element has to be additionally factored in when assessing fiscal sustainability over the medium to long run.

From a policy perspective, a thorough discussion and assessment of the sustainability of public finances in the EU seems the more relevant today. This is what this report aims at. The report presents in detail the toolkit for fiscal sustainability analysis developed and regularly used by the Commission services in country surveillance in the context of the European Semester. Results based on Autumn 2015 Commission forecasts are reported for all EU countries that are currently not under macroeconomic adjustment programmes.<sup>(1)</sup> Country-specific assessments are also included in the report.

The analysis in this report incorporates the long-term budgetary projections (on age-related public expenditure, covering pensions, healthcare and long-term care, education and unemployment benefits) presented in the Commission's 2015 Ageing Report (based on Eurostat population projections – EUROPOP 2013). The projections were produced jointly by the Economic Policy Committee (EPC) and the Commission services (Directorate-General for Economic and Financial Affairs), based on the ECOFIN Council mandate to the EPC to update the budgetary projections presented in the previous edition of the Ageing Report (2012).

## Fiscal sustainability assessment: approach used and results

### A horizontal fiscal sustainability assessment framework

Sustainability challenges faced by Member States (including those expected to be brought about by population ageing), as well as the fiscal space that appears to be available to them, are evaluated in this report based on a horizontal fiscal sustainability assessment framework, bringing together in a synthetic way results on debt sustainability analysis (hereafter DSA) and fiscal sustainability indicators. The framework allows gaining a horizontally consistent overview of fiscal sustainability challenges per time dimension (short, medium and long run) across countries, based on a series of explicit and transparent criteria. The approach is meant to allow an identification of the scale, nature and timing of fiscal sustainability challenges, to help devising appropriate policy responses. Quantitative results and ensuing risk assessments should nonetheless always be complemented with a broader reading and interpretation of results, so as to give due account to country-specific contexts.

All results presented in this report are based on European Commission Autumn 2015 forecasts. A summary overview of country-specific

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<sup>(1)</sup> Cyprus and Greece are therefore excluded. The latter are already monitored, with higher frequency, in the context of specific programme reviews.

### Assessment of short-term challenges: approach used and results

results is provided in Tables 2 and 3.

Fiscal sustainability challenges over the short term (the upcoming year) are evaluated based on the *S0* indicator, as done in the previous edition of the report. *S0* is a composite indicator aimed at evaluating the extent to which there might be a fiscal stress risk in the short term (the upcoming year), stemming from the fiscal, as well as the macro-financial and competitiveness sides of the economy. A set of 28 fiscal and financial-competitiveness variables proven to perform well in detecting fiscal stress in the past is used to construct the indicator (see Chapter 1).

Countries are deemed to face potential high short-term risks of fiscal stress, whenever *S0* is above its critical threshold. In all other cases, countries are deemed to be at low short-term risk.

Based on *S0*, no EU country (among those object of analysis in this report) appears to be at high risk in the short run. Indeed, risks of short-term fiscal stress have very significantly receded relative to the first crisis years (the comparison of 2015 values for *S0*, signalling risks for 2016, with 2009 values, highlighting risks for 2010, witnesses a striking difference in this respect).

Though no overall short-term risks appear to emerge based on the overall indicator, vulnerabilities might still be highlighted by individual variables incorporated in the analysis on a country by country basis. These are indeed carefully examined in the country-specific assessments annexed to the report.

### Assessment of medium-term challenges: approach used and results

The assessment of medium-term sustainability challenges relies on the joint use of two tools, the debt sustainability analysis (DSA) and the *S1* indicator.

The Commission services' DSA makes use of both deterministic and stochastic projections over a 10-year horizon (see Chapter 2). Alternative scenarios are designed so as to capture possible future alternative "states of the world". The aim is to have a comprehensive set of debt projection results supporting conclusions in a context of uncertainty about future realizations. Scenarios are conceived to be used in an integrated way to reach assessments on debt sustainability. The *baseline scenario* used in the Commission services' DSA is a no-fiscal policy change scenario. It relies on Commission forecasts for the next two years, after which fiscal policy is assumed to remain constant as of the last forecast year for the remaining of the projection period (translated into a constant government structural primary balance, SPB).

The *medium-term sustainability indicator S1* shows the additional adjustment required, in terms of a *cumulated* gradual improvement in the government SPB over 5 years (starting from the year after the forecasts, currently 2018), to reach a 60% public debt-to-GDP ratio (the EU Treaty reference value) by 2030, including financing for any future additional expenditure arising from an ageing population (until

the target date) (see Chapter 1). <sup>(2)</sup>

Countries are deemed to be at high medium-term sustainability risk when they appear to be at overall high risk based on DSA results or based on S1 (under the baseline no-fiscal policy change scenario). A country is therefore considered to face high sustainability challenges if either its DSA or baseline S1 or both point in that direction.

As far as S1 is concerned, countries are deemed to face potential high/medium/low risks in the medium term, depending on the value taken by the indicator under the baseline no-fiscal policy change scenario, relative to its lower and upper thresholds of risk (0 and 2.5 pps. of GDP respectively). <sup>(3)</sup>

Countries that appear to face potential high medium-term risks are Belgium, Ireland, Spain, France, Croatia, Italy, Portugal, Romania, Slovenia, Finland and United Kingdom. For 10 of these 11 countries, risks are deemed to be high based on both the DSA and S1. The only exception is Romania, which would be at medium risk for S1, while at high risk for the DSA (due to a debt ratio at the end of projections, under the baseline no-fiscal policy change scenario, above the 60% Treaty reference value, and a significantly higher and still increasing debt ratio at the end of projections under the sensitivity tests).

Among the 10 high-risk countries, for which assessments based on DSA and S1 are aligned, 6 countries (Belgium, Spain, France, Croatia, Italy and Portugal) are deemed to be at high risk for their DSA due to their high level of debt as a percentage of GDP *at the end of projections* (above 90%) under the baseline no-fiscal policy change scenario (which of course leads to even higher debt ratios under negative sensitivity tests). For the two countries, among the aforementioned, having a debt below 100% of GDP in 2015 (France and Croatia), the ratio would be still increasing at the end of the 10-year projection period under a no-fiscal policy change assumption (reaching levels above 100% by the end of projections), and the probability of a debt ratio in 2020 greater than in 2015 from stochastic projections would be very significant (almost 50% and 65% respectively).

As far as the other countries with high risk in the medium-term are concerned, Ireland is considered at high risk for its DSA due to a debt ratio at the end of baseline projections that highlights medium risk

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<sup>(2)</sup> The medium-term fiscal sustainability indicator S1 therefore incorporates in its definition the EU Treaty reference value of 60% public debt over GDP as a target to be reached over the time horizon under examination (by 2030). In this sense, the S1 indicator is different from the long-term sustainability indicator S2 (that will be introduced later), which does not have a specific debt target, nor time dimension, but is rather based on the requirement to stabilise the debt ratio. Over the long run (beyond 2030), we therefore consider fiscal sustainability to be ensured by a non-explosive debt ratio (as generally done in the relevant economic literature), while in the medium term the sustainability assessment has additional regard to EU fiscal rules (the 60% debt limit). This difference needs to be kept in mind when reading results on the two indicators.

<sup>(3)</sup> As in the FSR 2012, the lower and upper thresholds of risk for S1 are set having regard to the benchmark structural fiscal adjustment in the SGP (a structural adjustment of up to 0.5 pp. of GDP per year). Given that the adjustment is assumed to take place over 5 years, according to the S1 standard definition, the upper threshold of risk is set at 2.5 pps. of GDP, while the lower threshold is at 0 pp. of GDP. This means that a country is deemed to be at high risk if S1 is above 2.5 pps. and at medium risk if S1 is between 0 and 2.5 pps.

(well beyond the 60% reference value but still below 90%), together with potential high risks highlighted by the historical SPB scenario. The remaining 4 countries (Romania, Slovenia, Finland and United Kingdom) are all highlighted at high risk for the DSA because of a debt ratio at the end of projections at medium risk (above 60% but below 90%), coupled with high risks under deterministic sensitivity tests simulating possible upward risks to the macro-fiscal variables. For all these countries, the debt ratio would still be on an increasing path at the end of projections, in 2026, under the baseline and/or sensitivity test scenarios. <sup>(4)</sup>

Based on the analysis of S1 results, for 5 countries (Belgium, Spain, France, Italy and Portugal), among the 11 countries facing high sustainability challenges in the medium term, the main determinant is assessed to be the distance of the countries' debt ratios relative to the 60% debt target incorporated in S1. For 2 of these countries (Spain and Italy), projected age-related costs have overall a mitigating effect contributing to reducing the required fiscal adjustment under S1, <sup>(5)</sup> while for the other 3 countries (Belgium, France and Portugal) ageing cost contribute to raising the required adjustment. For Croatia (other high-risk country in the medium term), both the initial budgetary position and the distance from the 60% debt target are the main components of the required adjustment, with projected ageing costs having a mitigating effect. For the remaining 4 high sustainability risk countries highlighted by S1 (Ireland, Slovenia, Finland and United Kingdom), the overall contribution of projected age-related spending to the required fiscal adjustment is, on the contrary, particularly important (above 0.7 pp. of GDP). For Finland, in particular, ageing costs are the main determinant of the high risk highlighted by S1, while for Ireland, Slovenia and United Kingdom the impact of ageing costs is still important, though not representing the largest S1 sub-component (which is instead the distance from the 60% debt ratio).

Five EU countries are deemed to be at medium sustainability risk in the medium term (Lithuania, Hungary, Netherlands, Austria and Poland). For three of these countries (Netherlands, Austria and Poland), the medium risk assessment is aligned between the DSA and S1. For these countries, the DSA highlights medium risk because of debt ratios at the end of projections above 60% (though below 90%) under no-fiscal policy change. As far as the impact of the projected cost of ageing (over the medium term) is concerned, this plays a certain role in determining medium-term risks for Austria, and to a smaller extent for Poland, while overall projected cost of ageing over the medium term contributes to reducing the required fiscal adjustment for Netherlands (though for the latter the overall cost of ageing contribution hides negative projected developments on healthcare and long-term care).

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<sup>(4)</sup> For Finland, high risks are additionally highlighted by stochastic projections, with a probability of a debt ratio in 2020 greater than in 2015 as high as 80%.

<sup>(5)</sup> Though for Spain positive projected developments on public spending on pensions are counterbalanced by negative developments on healthcare spending.

Among the other two medium-risk countries in the medium term, for Lithuania, medium risks are highlighted by S1 (almost exclusively due to the impact of the projected public spending on cost of ageing), while the country would be at low risk based on its DSA. For Hungary, the situation is reverted in that the country is at medium risk based on the DSA (due to a debt ratio above 60% at the end of projections under the baseline no-fiscal policy change assumption), while being at low risk for S1 (mostly due to positive projected developments in terms of cost of ageing).

The remaining 10 EU countries (Bulgaria, Czech Republic, Denmark, Germany, Estonia, Latvia, Luxembourg, Malta, Slovak Republic and Sweden) are deemed to be at low risk in the medium-term (based on the joint use of DSA and S1).

#### Assessment of long-term challenges: approach used and results

Long-term fiscal sustainability challenges are identified based on the long-term fiscal sustainability indicator S2, under the baseline no-fiscal policy change scenario, as traditionally done in previous issues of the report.<sup>(6)</sup> The *long-term sustainability indicator S2* shows the upfront adjustment to the current SPB (kept then constant at the adjusted value forever) required in order to stabilise the debt-to-GDP ratio over the infinite horizon, including financing for any additional expenditure arising from an ageing population. The S2 indicator does not therefore incorporate any specific debt ratio requirement. In fact, the adjustment implied by the indicator might also lead to debt stabilising at relatively high levels, thus the indicator has to be taken with caution for high-debt countries in relation to SGP requirements.

Based on autumn 2015 Commission forecasts and ageing cost projections from the Ageing Report 2015, only one country (SI) appears to be at high long-term sustainability risk, primarily due to projected cost of ageing developments (with spending on pensions accounting for most of the projected impact on public finances). 14 EU countries (Belgium, Bulgaria, Czech Republic, Lithuania, Luxembourg, Malta, Netherlands, Austria, Poland, Romania, Slovak Republic, Finland, Sweden and United Kingdom) appear to face medium sustainability risk in the long-term. For as many as 8 of these countries (Belgium, Czech Republic, Lithuania, Luxembourg, Malta, Austria, Slovak Republic and United Kingdom), these challenges are brought about primarily (exclusively for Luxembourg and Malta) by projected age-related costs.<sup>(7)</sup> For other 5 countries (Bulgaria, Poland, Romania, Finland and Sweden), on the contrary, long-term challenges are primarily brought about by their initial budgetary position (IBP) (though for Sweden and Finland the risk related to cost of ageing component is also significant, mostly due to long-term care, and not much smaller than the IBP component). For the Netherlands, long-

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<sup>(6)</sup> Countries are considered at high/medium/low sustainability risk in the long run depending on the value taken by the baseline S2 indicator relative to its lower and upper thresholds of risk (2 pps. and 6 pps. respectively). Countries with S2 above 6 pps. of GDP are therefore deemed to be at high risk, while at medium risk if S2 is between 2 and 6 pps. of GDP.

<sup>(7)</sup> Primarily pensions for Lithuania, Luxembourg, Malta; primarily healthcare for Czech Republic and Slovak Republic; pensions and healthcare equally for United Kingdom; healthcare and long-term care equally for Austria; pensions and long-term care broadly equally for Belgium.

term challenges are brought about by the cost of ageing <sup>(8)</sup> and the IBP to the same extent. The remaining 11 EU countries (Denmark, Germany, Estonia, Ireland, Spain, France, Croatia, Italy, Latvia, Hungary and Portugal) appear to be at low sustainability risk in the long run, conditional on fiscal policy unchanged at the last Commission forecast year, as assumed in the baseline scenario.

If less favourable ageing cost projections were to materialise over the long term (especially due to higher healthcare spending, as assumed under the so called "AWG risk scenario" in the 2015 Ageing report), significant changes would intervene in terms of long-term fiscal sustainability challenges. Four countries (Czech Republic, Malta, Romania and Slovak Republic) would be facing high, rather than medium, risks over the long term, while other 8 countries (Denmark, Germany, Estonia, Ireland, France, Latvia, Hungary and Portugal) would face medium, rather than low, risks.

Fiscal sustainability assessments per time dimension per country are synthetically reported in Table 1 and challenges are briefly discussed in Table 4. Beyond the quantitative results for all the variables/indicators described so far, the identification of sustainability challenges is based on a broader reading and interpretation of results, so as to give due account to country-specific contexts. Other relevant factors described in Chapter V of this report, like risks related to the structure of public debt financing and governments' contingent liabilities, are also brought into the picture of the overall assessment of fiscal sustainability challenges by country.

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<sup>(8)</sup> Primarily long-term care for Netherlands.

Table 1: Fiscal sustainability assessment by Member State

	Overall SHORT-TERM risk category	Debt sustainability analysis - overall risk assessment	S1 indicator - overall risk assessment	Overall MEDIUM-TERM risk category	Overall LONG-TERM risk category
BE	LOW	HIGH	HIGH	HIGH	MEDIUM
BG	LOW	LOW	LOW	LOW	MEDIUM
CZ	LOW	LOW	LOW	LOW	MEDIUM
DK	LOW	LOW	LOW	LOW	LOW
DE	LOW	LOW	LOW	LOW	LOW
EE	LOW	LOW	LOW	LOW	LOW
IE	LOW	HIGH	HIGH	HIGH	LOW
ES	LOW	HIGH	HIGH	HIGH	LOW
FR	LOW	HIGH	HIGH	HIGH	LOW
HR	LOW	HIGH	HIGH	HIGH	LOW
IT	LOW	HIGH	HIGH	HIGH	LOW
LV	LOW	LOW	LOW	LOW	LOW
LT	LOW	LOW	MEDIUM	MEDIUM	MEDIUM
LU	LOW	LOW	LOW	LOW	MEDIUM
HU	LOW	MEDIUM	LOW	MEDIUM	LOW
MT	LOW	LOW	LOW	LOW	MEDIUM
NL	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM
AT	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM
PL	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM
PT	LOW	HIGH	HIGH	HIGH	LOW
RO	LOW	HIGH	MEDIUM	HIGH	MEDIUM
SI	LOW	HIGH	HIGH	HIGH	HIGH
SK	LOW	LOW	LOW	LOW	MEDIUM
FI	LOW	HIGH	HIGH	HIGH	MEDIUM
SE	LOW	LOW	LOW	LOW	MEDIUM
UK	LOW	HIGH	HIGH	HIGH	MEDIUM

Source: Commission services.

Table 2: Summary heat map on fiscal sustainability challenges

Heat map for short-term risks in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>S0 overall index</b>	0.10	0.21	0.11	0.25	0.02	0.19	0.38	0.21	0.17	0.26	0.21	0.34	0.18
S0 Fiscal sub-index	0.16	0.17	0.18	0.17	0.06	0.07	0.14	0.34	0.25	0.35	0.34	0.17	0.06
S0 Financial competitiveness sub-index	0.07	0.23	0.08	0.29	0.01	0.24	0.48	0.16	0.14	0.23	0.15	0.42	0.24
<b>Fiscal risks from fiscal context</b>													
Primary balance (% of GDP)	0.2	-1.8	-0.7	-1.7	2.4	0.3	1.1	-1.6	-1.8	-1.3	1.7	-0.2	0.6
Change in gross debt (% of GDP)	0.1	4.8	-1.8	-4.9	-3.5	-0.4	-7.7	1.5	0.9	4.1	0.7	-2.4	2.2
Change in share of short-term public debt (p.p.)	0.6	19.2	-0.5	-0.5	-0.6	-1.0	-3.6	-0.9	-0.7	-0.5	-0.6	-0.5	-0.6
Gross financing needs (% of GDP)	13.9	5.2	7.5	8.9	5.0		3.4	18.8	14.5	16.0	20.4	2.6	5.7
<b>Fiscal risks from macro-financial context</b>													
Private debt (% of GDP) *	181.4	124.3	72.7	220.4	100.4	116.1	263.3	164.6	143.2	120.6	119.3	96.4	52.5
Private credit flow (% of GDP) *	1.0	-0.3	1.8	1.7	1.1	6.4	13.7	-7.4	3.3	0.3	-0.9	-11.9	-1.2
Net international Investment Position (% of GDP) *	57.2	-73.4	-35.6	47.0	42.3	-43.6	-106.7	-94.1	-19.5	-88.6	-27.9	-60.9	-46.4
Change in share of non-performing loans (p.p.)	-1.9	-0.2	0.4	1.2	0.7	0.7	-2.1	-1.0	-1.0	1.1	2.9	2.1	-2.0
<b>Fiscal risks from financial market developments</b>													
Sovereign yield spreads(bp) - 10 year	30	201	-1	27	0		51	105	31	329	94	44	82
<b>Overall SHORT-TERM risk category</b>	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Heat map for medium-term risks in the EU countries													
S1 indicator in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>S1 indicator - Baseline scenario</b>	3.8	-1.2	-0.6	-3.3	-0.8	-4.0	2.7	2.5	4.4	4.5	4.2	-2.1	0.5
of which CoA	0.3	-0.6	0.7	-0.8	0.9	0.2	1.3	-1.0	0.3	-0.4	-0.2	-0.3	1.5
Required Structural Primary balance related to S1 - Percentile rank	9%	83%	68%	88%	36%	94%	10%	19%	11%	9%	1%	85%	37%
<b>S1 indicator - AWG risk scenario</b>	4.0	-0.8	-0.1	-2.9	-0.2	-3.6	3.1	3.0	4.8	4.8	4.3	-1.6	1.1
of which CoA	0.5	-0.3	1.1	-0.4	1.4	0.5	1.6	-0.7	0.6	-0.2	-0.1	0.1	1.9
Required Structural Primary balance related to S1 - Percentile rank	8%	81%	63%	85%	28%	92%	8%	16%	9%	7%	1%	82%	29%
<b>S1 indicator - Historical SPB scenario</b>	3.7	-5.3	2.5	-9.0	0.2	-5.6	8.9	5.3	9.1	11.3	8.0	-2.1	4.2
of which CoA	0.5	-0.7	0.9	-0.8	1.2	0.2	1.6	-1.3	0.4	-0.5	-0.2	-0.3	2.0
Required Structural Primary balance related to S1 - Percentile rank	3%	96%	54%	100%	34%	100%	0%	6%	0%	0%	0%	91%	18%
<b>S1 indicator - overall risk assessment</b>	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Sovereign-debt sustainability risks in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>Baseline no-policy change scenario</b>	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	98.9	42.0	46.9	27.4	50.6	12.0	85.0	91.8	101.0	105.3	110.1	33.4	50.1
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2016	2026	2026	2015	2016	2026
Average Structural Primary Balance (2017-2026) Percentile rank	46%	73%	61%	52%	26%	58%	33%	53%	65%	58%	20%	66%	45%
<b>Historical SPB scenario</b>	MEDIUM	LOW	MEDIUM	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Debt level (2026)	89.0	27.1	61.6	10.0	56.9	15.3	102.7	96.8	108.7	119.8	114.3	38.5	65.0
Debt peak year	2016	2019	2026	2015	2015	2026	2026	2016	2026	2026	2015	2016	2026
Average Structural Primary Balance (2017-2026) Percentile rank	29%	53%	78%	25%	34%	63%	65%	62%	74%	76%	24%	72%	68%
<b>Stability and Growth Pact (SGP) scenario</b>	MEDIUM	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	LOW	LOW
Debt level (2026)	76.5	33.2	36.8	32.6	44.2	4.7	63.4	74.9	76.9	83.9	100.6	31.1	40.1
Debt peak year	2016	2019	2016	2015	2015	2015	2015	2016	2016	2016	2015	2016	2015
Average Structural Primary Balance (2017-2026) Percentile rank	18%	55%	52%	43%	24%	49%	20%	19%	27%	23%	11%	59%	42%
<b>Negative shock (-0.5p.p.) on nominal GDP growth</b>	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	104.6	44.1	49.2	29.3	53.9	12.5	89.5	97.2	106.4	111.2	110.0	35.1	52.7
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2019	2026	2026	2015	2016	2026
<b>Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt</b>	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	103.8	44.2	49.7	28.9	53.6	12.6	89.1	97.6	106.6	112.5	111.0	35.4	53.3
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2019	2026	2026	2015	2016	2026
<b>Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years</b>	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	99.7	43.2	49.5	32.5	53.2	14.7	89.9	94.0	102.1	106.4	113.7	34.4	50.7
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2016	2026	2026	2015	2016	2026
<b>Stochastic projections</b>	HIGH	MEDIUM	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	LOW
Probability of debt in 2020 greater than in 2015 (%)	35%	55%	53%	14%	3%	74%	28%	38%	47%	64%	11%	42%	45%
Difference of the 10th and 90th percentile in 2020 (p.p. of GDP)	30.2	36.9	30.0	16.8	17.4	3.6	48.4	22.8	14.1	53.4	21.7	47.0	25.7
<b>Debt sustainability analysis - overall risk assessment</b>	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
<b>Overall MEDIUM-TERM risk category</b>	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Heat map for long-term risks in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>S2 indicator - Baseline scenario</b>	2.5	2.4	3.2	1.2	1.7	0.7	1.0	0.1	0.6	-0.8	-0.9	0.9	2.9
of which Pensions	1.0	0.0	0.6	-1.5	1.7	-1.1	1.0	-0.7	-1.7	-2.7	-0.9	-1.6	1.2
Health care	0.1	0.3	0.8	0.6	0.4	0.4	1.0	0.8	0.7	0.6	0.6	0.4	0.1
Long-term care	1.1	0.1	0.5	1.6	0.0	0.4	0.7	1.1	0.6	0.0	0.6	0.1	0.7
Required Structural Primary balance related to S2 - Percentile rank	15%	37%	17%	37%	11%	38%	27%	47%	51%	70%	28%	52%	16%
<b>S2 indicator - AWG risk scenario</b>	3.6	4.4	7.0	2.4	4.1	2.8	3.1	1.9	2.6	0.5	-0.5	3.3	5.3
of which Pensions	1.0	0.0	0.6	-1.5	1.6	-1.1	1.0	-0.7	-1.7	-2.8	-0.9	-1.6	1.2
Health care	0.5	0.8	1.4	1.3	0.8	0.9	1.6	1.5	1.2	1.3	0.9	1.1	0.6
Long-term care	1.9	1.5	3.7	2.0	2.0	2.0	2.2	2.3	2.1	0.7	0.8	1.9	2.6
Required Structural Primary balance related to S2 - Percentile rank	9%	17%	0%	23%	1%	16%	10%	23%	23%	49%	24%	20%	3%
<b>S2 indicator - Historical SPB scenario</b>	1.1	0.3	5.5	-1.5	2.7	1.4	3.9	0.7	1.6	1.0	-0.5	1.7	5.1
of which Pensions	0.8	0.7	0.5	-1.0	1.5	-1.0	1.5	-0.4	-0.5	-1.8	-2.7	-0.8	-1.0
Health care	0.2	0.2	0.7	0.5	0.3	0.3	0.8	0.7	0.5	0.5	0.5	0.4	0.0
Long-term care	1.1	0.1	0.4	1.8	0.0	0.4	0.7	1.0	0.6	0.0	0.6	0.1	0.6
Required Structural Primary balance related to S2 - Percentile rank	27%	71%	4%	76%	6%	29%	6%	37%	33%	41%	24%	37%	4%
<b>Overall LONG-TERM risk category</b>	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM

\* = variable's values are taken with a 1-year lag, according to the definition of the variable in the S0 indicator.

Source: Commission services.

Table 3: Summary heat map on fiscal sustainability challenges

	Heat map for short-term risks in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>S0 overall index</b>	0.09	0.16	0.13	0.19	0.07	0.27	0.24	0.14	0.08	0.21	0.22	0.15	0.36
S0 Fiscal sub-index	0.00	0.14	0.07	0.17	0.06	0.17	0.23	0.07	0.07	0.18	0.17	0.17	0.40
S0 Financial competitiveness sub-index	0.13	0.16	0.15	0.20	0.08	0.32	0.25	0.18	0.08	0.23	0.24	0.14	0.34
<b>Fiscal risks from fiscal context</b>													
Primary balance (% of GDP)	0.4	1.2	1.0	-0.8	0.5	-1.0	2.0	0.4	0.0	-1.1	-2.0	-0.8	-1.8
Change in gross debt (% of GDP)	-0.7	-0.3	-2.4	0.4	2.4	1.0	-2.0	-0.5	3.4	-0.8	3.2	-0.2	0.1
Change in share of short-term public debt (p.p.)	0.9	-1.1	-1.8	-0.5	0.9	0.0	3.7	0.5	1.1	-1.3	0.4	7.5	2.1
Gross financing needs (% of GDP)	0.0	12.9	4.7	6.5	7.3	8.1	13.9	5.4	9.3	7.4	6.9	5.9	8.8
<b>Fiscal risks from macro-financial context</b>													
Private debt (% of GDP) *	342.2	91.3	146.4	228.9	127.1	77.9	189.6	62.2	100.1	76.2	150.0	194.4	157.7
Private credit flow (% of GDP) *	0.5	-0.5	7.8	-1.6	0.2	4.7	-8.7	-2.4	-4.6	3.9	0.4	6.5	3.4
Net international Investment Position (% of GDP) *	36.0	-73.8	39.5	60.8	2.2	-68.3	-113.3	-57.2	-43.7	-69.4	-0.7	-6.5	-25.3
Change in share of non-performing loans (p.p.)	0.5	0.2	1.2	0.2	2.0	-0.6	4.9	-2.0	-0.6	0.4	0.8	0.9	-0.3
<b>Fiscal risks from financial market developments</b>													
Sovereign yield spreads(bp) - 10 year	-7	281	107	15	25	220	185	306	120	13	24	30	136
<b>Overall SHORT-TERM risk category</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>
	Heat map for medium-term risks in the EU countries												
	S1 indicator in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>S1 indicator - Baseline scenario</b>	-4.4	-0.6	-0.2	0.6	1.3	1.0	4.7	1.4	3.0	-0.7	2.6	-1.3	3.3
of which CoA	1.1	-1.0	0.8	-0.3	0.5	0.2	0.1	0.3	0.7	0.0	1.6	0.3	0.8
Required Structural Primary balance related to S1 - Percentile rank	88%	50%	44%	52%	22%	61%	1%	69%	19%	71%	24%	76%	16%
<b>S1 indicator - AWG risk scenario</b>	-4.2	-0.1	0.1	0.8	1.6	1.4	5.1	1.7	3.3	-0.1	2.8	-0.8	3.4
of which CoA	1.2	-0.6	1.1	-0.1	0.7	0.5	0.3	0.5	0.9	0.5	1.8	0.7	1.0
Required Structural Primary balance related to S1 - Percentile rank	86%	41%	38%	47%	19%	55%	1%	65%	16%	64%	21%	71%	14%
<b>S1 indicator - Historical SPB scenario</b>	-7.4	2.3	2.0	-0.6	2.3	2.4	13.1	1.4	6.5	1.7	-1.0	-5.8	9.1
of which CoA	1.3	-1.2	1.0	-0.3	0.6	0.2	0.0	0.3	0.9	0.1	2.0	0.4	1.1
Required Structural Primary balance related to S1 - Percentile rank	98%	34%	32%	57%	15%	44%	0%	63%	4%	63%	29%	93%	1%
<b>S1 indicator - overall risk assessment</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
	Sovereign-debt sustainability risks in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>Baseline no-policy change scenario</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>
Debt level (2026)	13.6	60.1	54.9	62.7	72.5	62.5	111.8	61.1	81.2	51.5	75.5	42.7	89.8
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2015	2015	2026	2015	2026
Average Structural Primary Balance (2017-2026) Percentile rank	34%	40%	41%	63%	37%	73%	26%	82%	60%	63%	63%	62%	57%
<b>Historical SPB scenario</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	9.8	73.5	64.6	56.0	73.6	65.9	131.6	57.5	88.4	63.1	53.9	26.4	104.9
Debt peak year	2016	2015	2015	2015	2015	2026	2026	2026	2026	2026	2018	2015	2026
Average Structural Primary Balance (2017-2026) Percentile rank	28%	65%	60%	49%	39%	76%	61%	79%	71%	76%	26%	32%	77%
<b>Stability and Growth Pact (SGP) scenario</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>
Debt level (2026)	8.4	63.1	40.7	55.0	65.3	45.1	97.0	35.1	57.4	39.1	55.5	38.5	76.0
Debt peak year	2016	2015	2015	2015	2015	2017	2015	2017	2015	2015	2017	2015	2015
Average Structural Primary Balance (2017-2026) Percentile rank	34%	35%	27%	40%	29%	48%	13%	51%	24%	41%	39%	56%	41%
<b>Negative shock (-0.5p.p.) on nominal GDP growth</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	14.5	63.9	58.0	66.3	76.9	65.4	118.6	63.7	85.5	54.1	79.3	44.9	94.5
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2026	2026	2026	2026	2026
<b>Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	14.2	64.8	57.0	66.4	75.9	66.0	117.8	64.8	85.3	53.9	79.8	45.7	93.2
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2026	2026	2026	2026	2026
<b>Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	14.6	61.2	56.2	65.8	75.9	63.1	117.4	76.1	84.1	51.5	76.7	43.1	99.4
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2015	2015	2026	2015	2026
<b>Stochastic projections</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>MEDIUM</b>
Probability of debt in 2020 greater than in 2015 (%)	40%	25%	29%	28%	30%	64%	28%	74%	35%	46%	80%	39%	41%
Difference of the 10th and 90th percentile in 2020 (p.p. of GDP)	15.4	30.6	34.0	19.6	33.4	20.4	29.5	36.5	30.2	31.2	19.9	13.3	21.2
<b>Debt sustainability analysis - overall risk assessment</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
<b>Overall MEDIUM-TERM risk category</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
	Heat map for long-term risks in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>S2 indicator - Baseline scenario</b>	4.2	1.5	4.6	4.5	2.7	3.5	0.7	4.4	6.8	3.5	3.9	2.3	3.2
of which Pensions	2.9	0.3	1.9	0.1	0.5	-0.2	-0.2	0.1	3.2	0.9	-0.4	-0.8	1.0
Health care	0.4	0.5	1.5	0.7	0.9	0.8	1.7	0.6	0.9	1.3	0.5	0.3	1.0
Long-term care	1.3	0.3	0.9	2.7	0.9	0.6	0.2	0.6	1.0	0.2	1.6	1.3	0.3
Required Structural Primary balance related to S2 - Percentile rank	3%	24%	3%	9%	11%	20%	18%	15%	0%	17%	13%	26%	22%
<b>S2 indicator - AWG risk scenario</b>	5.7	4.4	6.2	5.3	4.2	4.7	2.4	6.4	8.2	6.6	5.2	4.7	4.4
of which Pensions	2.9	0.3	1.9	0.1	0.5	-0.2	-0.2	0.1	3.2	0.9	-0.4	-0.8	1.0
Health care	0.7	1.1	2.1	1.1	1.4	1.5	2.4	1.1	1.4	2.2	1.0	0.9	1.5
Long-term care	2.6	2.7	1.9	3.0	2.0	1.2	1.2	2.0	1.9	2.5	2.5	3.2	0.9
Required Structural Primary balance related to S2 - Percentile rank	0%	4%	0%	4%	3%	12%	7%	4%	0%	1%	6%	9%	14%
<b>S2 indicator - Historical SPB scenario</b>	3.9	3.3	6.4	3.5	2.9	4.2	4.0	4.2	8.2	5.4	1.0	0.0	5.7
of which Pensions	2.4	0.9	1.9	0.2	0.6	-0.1	-0.6	0.0	3.6	1.2	-1.1	-0.5	0.9
Health care	0.4	0.5	1.3	0.5	0.8	0.8	1.6	0.5	0.8	1.2	0.4	0.2	0.9
Long-term care	1.3	0.3	0.8	2.6	0.9	0.5	0.2	0.5	1.0	0.2	1.4	1.0	0.3
Required Structural Primary balance related to S2 - Percentile rank	4%	10%	0%	14%	10%	16%	1%	17%	0%	5%	44%	62%	6%
<b>Overall LONG-TERM risk category</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>

\* = variable's values are taken with a 1-year lag, according to the definition of the variable in the S0 indicator.

Source: Commission services.

Table 4: Fiscal sustainability challenges by Member State

<i>Member State</i>	<i>Fiscal sustainability assessment</i>
<b>BE</b>	<p>Overall, for Belgium no significant short-term risks of fiscal stress appear at the horizon, though some variables (like the level of gross financing needs and the private sector debt) point to possible short-term challenges.</p> <p>Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still high stock of debt at the end of projections (2026) and the sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated macro-financial and fiscal shocks point to a probability close to 40% of a debt ratio in 2020 greater than in 2015, entailing high risks given the high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, due, in order of importance, to the high initial debt-to-GDP ratio and the projected cost of ageing.</p> <p>Medium sustainability risks appear for Belgium over the long run. These are primarily related to the projected impact of age-related public spending (notably long-term care and pensions).</p>
<b>BG</b>	<p>Overall, for Bulgaria no significant short-term risks of fiscal stress appear at the horizon, though some variables (such as the primary deficit, the change in the share of short-term public debt, the net international investment position and the share of non-performing loans) point to possible short-term challenges.</p> <p>Despite the deficit in the structural primary balance and the debt to GDP ratio being on an increasing trend, no sustainability risks appear over the medium-term thanks to the very low starting level of the debt ratio. Reverting to historical values of the SPB or compliance with the preventive arm of the Stability and Growth Pact (SGP) would assure further improvement in the medium-term sustainability of public finances. This assessment is confirmed by the analysis of the sustainability gap indicator S1.</p> <p>In the long-term, assuming fiscal policy remaining constant, the deficit in the structural primary balance will impinge on the sustainability of public finances. Indeed Bulgaria appears to be at medium risk because of the unfavourable initial budgetary position slightly compounded by the age-related expenditures on health care and long term care.</p>
<b>CZ</b>	<p>Overall, for the Czech Republic no significant short-term risks of fiscal stress arise, though some variables point to possible short-term challenges.</p> <p>No risks appear in the medium term from a debt sustainability analysis perspective due to the relatively low stock of debt at the end of the projection horizon (2026) and the relative resilience to potential shocks to nominal growth, interest rates or primary balance. No medium-term risks emerge from the analysis of the sustainability gap indicator S1 either, thanks to the debt ratio being far below the 60% Treaty reference value, while the projected age-related spending and the unfavourable initial budgetary position take only a part of the available fiscal space.</p> <p>Over the long run, however, medium sustainability risks appear for the Czech Republic, assuming fiscal policy constant at the structural primary deficit forecasted by the Commission services for 2017 beyond that year. These risks derive primarily from the projected impact of age-related public spending (notably healthcare and pensions), compounded by the slightly unfavourable initial budgetary position.</p>

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Table (continued)

<p><b>DK</b></p>	<p>Overall, for Denmark no short-term risks of fiscal stress arise, though some variables (such as the primary deficit, the private sector debt and the change in the share of non-performing loans in the banking sector), point to possible short-term challenges.</p> <p>No risks appear in the medium term from a debt sustainability analysis perspective due to the low stock of debt at the end of projections (2026) and resilience to potential shocks to nominal growth, interest rates or primary balance. No medium-term risks emerge from the analysis of the sustainability gap indicator S1 either, thanks to the debt ratio being far below the 60% Treaty reference value, decreasing age-related public spending and the favourable initial budgetary position.</p> <p>Finally, no sustainability risks appear for Denmark over the long run, assuming fiscal policy constant at the structural primary surplus forecasted by the Commission services for 2017 beyond that year. This risk-free outlook derives primarily from a relatively limited unfavourable contribution of the initial budgetary position and from the different contributions to age-related public spending balancing each other out in the long-term.</p>
<p><b>DE</b></p>	<p>Overall, for Germany no short-term risks of fiscal stress appear at the horizon, though some variables (such as the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>No sustainability risks appear over the medium run thanks to the high government structural primary balance forecasted by the Commission services for 2017 (1.9% of GDP). Despite some pressures due the age-related expenditure, Germany would continue to be considered at low risk even in case of reverting to the historical SPB trends (which implies a reduction in the SPB of 0.9 pp compared to the baseline). This assessment is confirmed by the analysis of the sustainability gap indicator S1.</p> <p>No sustainability risks appear over the long run as the favourable initial budgetary position would mitigate the projected increase in age-related expenditure (mainly driven by pension expenditure).</p>
<p><b>EE</b></p>	<p>Overall, for Estonia no significant short-term risks of fiscal stress appear at the horizon, though some variables (namely, the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks appear, likewise, to be low in the medium term from a debt sustainability analysis perspective due to the still low stock of debt at the end of projections (2026) even when considering possible shocks to nominal growth and interest rates. This assessment is also confirmed by the analysis of the sustainability gap indicator S1.</p> <p>No sustainability risks appear over the long run due to contained projected ageing costs (with in particular a decrease of pension spending thanks to the pension reforms implemented in the past) and a close to neutral initial budgetary position.</p>
<p><b>IE</b></p>	<p>Overall, for Ireland no significant short-term risks of fiscal stress appear at the horizon, though some macro-financial variables (such as private sector credit flows, the share of non-performing loans and the nominal house price index) point to possible short-term challenges.</p> <p>Risks appear to be high in the medium term from a debt sustainability analysis perspective due to the still high debt at the end of projections (2026) and the high sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability close to 30% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting debt level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high initial debt-to-GDP ratio and the projected costs of ageing, thus leading to overall high risks for the country in the medium term.</p> <p>No significant sustainability risks appear over the long run, despite increasing costs of ageing, due a relatively favourable initial budgetary position.</p>

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Table (continued)

<b>ES</b>	<p>Overall, for Spain no significant short-term risks of fiscal stress arise, though some variables (such as the primary deficit and gross financing needs) point to possible short-term challenges.</p> <p>Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the stock of debt still high at the end of projections (2026). Jointly simulated shocks to growth, interest rates and the primary balance point to a probability of nearly 40% of a debt ratio in 2020 being greater than in 2015, which entails high risks given the already relatively high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high initial debt-to-GDP ratio as well as the initial budgetary position, thus leading to overall high risks for the country in the medium term.</p> <p>No sustainability risks appear for Spain over the long run notably thanks to reforms containing long-term expenditure pressures, in particular pension expenditures.</p>
<b>FR</b>	<p>Overall, for France no significant short-term risks of fiscal stress appear at the horizon, although some variables (such as the primary deficit, gross financing needs and the private sector debt) point to possible short-term challenges.</p> <p>Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still high stock of debt at the end of projections (2026) and the high sensitivity to possible macro-fiscal shocks. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability of nearly 50% of a debt ratio in 2020 being greater than in 2015, which entails high risks given the already relatively high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again mainly due to the high initial debt-to-GDP ratio, thus leading to overall high risks for the country in the medium term.</p> <p>No significant sustainability risks appear over the long run, under the no-fiscal policy change baseline scenario, notably thanks to pension reforms implemented in the past.</p>
<b>HR</b>	<p>Overall, for Croatia no significant short-term risks of fiscal stress appear at the horizon, though some variables (namely the primary deficit, the net international investment position and the level and the change in the share of non-performing loans) point to important short-term challenges.</p> <p>Risks appear to be high in the medium term from a debt sustainability analysis perspective, given the still high stock of debt at the end of projections (2026) and high sensitivity of the projections to shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability of more than 60% of a debt ratio in 2020 being greater than in 2015, which entails high risks given the already relatively high starting level. High medium-term risks are confirmed also by the analysis of the sustainability gap (indicator S1), again due to the high debt-to-GDP ratio and the unfavourable initial budgetary position, thus leading to overall high risks for the country in the medium term.</p> <p>In view of the projected decrease in pension spending, no sustainability risks appear in the long-run, due to decreasing ageing-related spending.</p>

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Table (continued)

<p><b>IT</b></p>	<p>Overall, for Italy no significant short-term risks of fiscal stress appear, though some variables (gross and net debt; gross financing needs; the share and the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks appear to be high in the medium term from a debt sustainability analysis perspective due to the still high debt at the end of projections (2026) and the high sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability higher than 10% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting debt level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high debt-to-GDP ratio being well above the 60% Treaty reference value, thus leading to overall high risks for the country in the medium term.</p> <p>No sustainability risks appear over the long run, assuming full implementation of the pension reforms adopted in the past and conditional on maintaining the government structural primary balance at a level as high as forecasted by the Commission services for 2017 (2.5% of GDP) well beyond that year.</p>
<p><b>LV</b></p>	<p>Overall, for Latvia no significant short-term risks of fiscal stress appear at the horizon, though some macro-financial indicators (such as the net international investment position and the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks appear to be low in the medium term from a debt sustainability analysis perspective due to the low stock of debt at the end of projections (2026), even in case of possible adverse shocks to nominal growth and interest rates. This assessment is confirmed by the analysis of the fiscal sustainability gap S1.</p> <p>No sustainability risks appear over the long run thanks to the pension reforms implemented in the past.</p>
<p><b>LT</b></p>	<p>Overall, Lithuania presents no significant risks of fiscal stress over the short run. Nevertheless, a few macro-financial indicators (such as the share of non-performing loans) show possible challenges.</p> <p>Likewise, low risks appear in the medium term from a debt sustainability analysis perspective, given the relatively moderate level of public debt. Medium risks over the medium-term, on the contrary, emerge from the analysis of the sustainability gap indicator S1, due to the unfavourable projected cost of ageing. Such risks would substantially increase if the structural primary balance was reverting to lower levels as in the past. Hence, the country is deemed to be at medium risk in the medium-term.</p> <p>Medium sustainability risks also appear for Lithuania over the long run. These risks are primarily related to the strong projected impact of age-related public spending (notably pensions and to a lesser extent healthcare and long-term care).</p>
<p><b>LU</b></p>	<p>Overall, for Luxembourg no significant short-term risks of fiscal stress appear at the horizon, although some variables (such as the high level of private debt and the increase in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks appear to be low in the medium-term from a debt sustainability analysis perspective due to the low stock of debt at the end of projections (2026), including taking into account the sensitivity to possible macro-fiscal shocks. The medium-term risks captured from the analysis of the sustainability gap indicator S1 also highlight low fiscal risks, due to the level of debt being well below 60% of GDP and to the favourable initial budgetary position.</p> <p>However, over the long run, Luxembourg faces medium risks to fiscal sustainability. These risks are entirely driven by the necessity to meet future increases in ageing costs (notably pension and long-term care expenditures).</p>

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Table (continued)

<b>HU</b>	<p>Overall, for Hungary no significant short-term risks of fiscal stress appear at the horizon, though some variables (share of debt denominated in a foreign currency; share of debt owned by foreign investors; share of non-performing loans in the banking sector) point to possible short-term challenges.</p> <p>Medium risks appear, on the contrary, in the medium term from a debt sustainability analysis perspective due to the still moderately high stock of debt at the end of projections (2026), and the sensitivity to possible shocks to nominal growth, interest rates and the government primary balance. Low medium-term risks are, on the contrary, highlighted by the analysis of the sustainability gap indicator S1, largely due to positive projected developments on ageing. Overall, Hungary appears to face medium fiscal sustainability risks in the medium term.</p> <p>No sustainability risks appear over the long run.</p>
<b>MT</b>	<p>Overall, for Malta no significant short-term risks of fiscal stress appear at the horizon though some variables point to possible short-term challenges.</p> <p>No sustainability risks appear over the medium run from a debt sustainability analysis perspective, in line with a moderate level of public debt (and decreasing over the projection horizon). This assessment is confirmed by the analysis of the sustainability gap indicator S1, although higher risks could arise if the structural primary balance was reverting to lower values, as experienced in the past.</p> <p>Medium sustainability risks appear for Malta over the long run. These risks are entirely related to the strong projected impact of age-related public spending (notably pensions, healthcare and long-term care).</p>
<b>NL</b>	<p>Overall, for the Netherland no significant short-term risks of fiscal stress appear at the horizon, though some indicators point to possible short-term challenges (excessive indebtedness of the private sector).</p> <p>Risks appear to be medium in the medium-term from a debt sustainability analysis perspective due to the still relatively high level of public debt at the end of projections (2026). This assessment is confirmed by the analysis of the sustainability gap indicator S1, which points to medium risks driven by the gap to the 60% of GDP Treaty requirement, and the relatively unfavourable initial budgetary position.</p> <p>Sustainability risks appear medium also over the long run due to the projected increase of ageing-related expenditures (notably, long-term care), and to an unfavourable initial budgetary position.</p>
<b>AT</b>	<p>Overall, for Austria no significant short-term risks of fiscal stress appear at the horizon though some variables (such as the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks appear, on the contrary, medium in the medium term from a debt sustainability analysis perspective, due to the still relatively high stock of debt at the end of projections (2026). Medium risks also emerge from the analysis of the sustainability gap indicator S1, due to the gap to the 60% of GDP Treaty reference value and the unfavourable projected cost of ageing, thus leading to overall medium risk for the country in the medium-term.</p> <p>Medium sustainability risks also appear for Austria over the long-run. These are primarily related to the strong projected impact of age-related public spending (mainly healthcare and long-term care, but pension spending trend is significantly above the EU average as well).</p>

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Table (continued)

<p><b>PL</b></p>	<p>Overall, for Poland no significant short-term risks of fiscal stress appear at the horizon, although some variables (such as the current primary balance, the share of debt held by foreign investors and the share of debt issued in foreign currency) point to possible short-term challenges.</p> <p>Risks appear to be medium in the medium-term from a debt sustainability analysis perspective due to the moderately high stock of debt at the end of projections (2026) and to the sensitivity to possible macroeconomic shocks. The medium-term risks captured from the analysis of the sustainability gap indicator S1 also highlight medium fiscal risks, due, in order of importance, to the unfavourable initial budgetary position and the projected impact of age-related spending.</p> <p>Over the long run, Poland faces medium risks to fiscal sustainability. These risks are largely due to an unfavourable initial budgetary position, but also to the necessity to meet future increases in ageing costs (notably healthcare and long-term care).</p>
<p><b>PT</b></p>	<p>Overall, for Portugal no significant short-term risks of fiscal stress appear at the horizon, though some variables (namely gross and net public debt, gross financing needs, the net international investment position, as well as the level and the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still high stock of debt at the end of projections (2026) and the high sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability close to 30% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high initial debt-to-GDP ratio, thus leading to overall high risks for the country in the medium term.</p> <p>No sustainability risks appear over the long run thanks to the pension reforms implemented in the past and conditional on maintaining the government structural primary balance at a level as high as forecasted by the Commission services for 2017 (close to 2% of GDP) well beyond that year.</p>
<p><b>RO</b></p>	<p>Overall, for Romania no significant risks of fiscal stress arise in the short-term, though some variables (such as the net international investment position, the shares of public debt with foreign currency denomination and public debt with non-resident creditor base in overall public debt, as well as the share of non-performing loans) point to possible short-term challenges.</p> <p>High risks appear, however, in the medium term. From the debt-sustainability analysis perspective risks are high due to the increasing debt ratio to above 60% of GDP at the end of the projections (2026), combined with high risks from sensitivity tests (in particular negative shocks to the primary balance). Jointly simulated shocks to growth, interest rates and the primary balance point to a probability greater than 70% of a debt ratio in 2020 being greater than in 2015. Medium-level risks emerge from the analysis of the sustainability gap indicator S1, due mainly to the unfavourable initial budgetary position and partly to the projected age-related public spending. In sum, risks for the country are high in the medium term.</p> <p>Moreover, medium sustainability risks appear for Romania over the long run. These risks derive primarily from the unfavourable initial budgetary position, compounded by age-related public spending, notably for healthcare and long-term care.</p>

(Continued on the next page)

Table (continued)

<b>SI</b>	<p>Overall, for Slovenia no significant short-term risks of fiscal stress emerge, though some variables (like the share of debt held by non-residents and that of non-performing loans in the banking sector) point to possible short-term challenges.</p> <p>Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still relatively high stock of debt at the end of projections (2026) and the sensitivity to possible shocks to nominal growth and interest rates, potentially leading to debt still increasing at the end of projections. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability above 30% of a debt ratio in 2020 being greater than in 2015, which entails risks given the already relatively high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, due, by order of importance, to the high initial debt-to-GDP ratio, the unfavourable initial budgetary position and the projected steep increase in the cost of ageing, thus leading to overall high risks for the country in the medium term.</p> <p>High sustainability risks appear for Slovenia over the long run. These are primarily related to the strong projected impact of age-related public spending (notably pensions, healthcare and long-term care), compounded by the unfavourable initial budgetary position.</p>
<b>SK</b>	<p>Overall, for the Slovak Republic no significant short-term risks of fiscal stress arise, though some variables (such as the primary deficit) point to possible short-term challenges.</p> <p>No risks appear in the medium term from a debt sustainability analysis perspective due to the relatively low stock of debt at the end of the projection horizon (2026) and the relative resilience to potential shocks to nominal growth, interest rates or primary balance. No medium-term risks emerge from the analysis of the sustainability gap indicator S1 either, thanks to the debt ratio being below the 60% Treaty reference value and a sound stance of the projected age-related public spending and initial budgetary position.</p> <p>Over the long run, however, medium sustainability risks appear for the Slovak Republic. These risks derive primarily from the projected impact of age-related public spending (notably healthcare and pensions), compounded by the unfavourable initial budgetary position.</p>
<b>FI</b>	<p>Overall, for Finland no short-term risks of fiscal stress appear at the horizon, though some variables (notably the primary deficit) point to possible short-term challenges.</p> <p>High risks appear, on the contrary, in the medium term from a debt sustainability analysis perspective due to the relatively high stock of debt at the end of projections (2026), and the sensitivity to possible shocks to nominal growth, interest rates and the government primary balance. Jointly simulated shocks to growth, interest rates and the primary balance point to an 80% probability of a debt ratio in 2020 greater than in 2015. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, largely due to projected developments on ageing, thus leading to overall high risks for the country in the medium term.</p> <p>Finland faces medium sustainability risks over the long run. These are primarily related to the unfavourable initial budgetary position compounded by the projected impact of age-related public spending (notably healthcare and long-term care).</p>

(Continued on the next page)

Table (continued)

<p><b>SE</b></p>	<p>Overall, for Sweden no significant short-term risks of fiscal stress appear at the horizon, though some variables (such as the change in the share of short-term public debt and the change in the share of non-performing loans) point to possible short-term challenges.</p> <p>Risks also appear to be low in the medium-term from a debt sustainability analysis perspective due to the relatively low stock of debt at the end of projections (2026), even when considering possible shocks to nominal growth and interest rates. This assessment is confirmed by the analysis of the sustainability gap indicator S1, which signals low risks in line with a debt ratio below the 60% of GDP Treaty reference value.</p> <p>Medium sustainability risks appear over the long run due to both the relatively unfavourable initial budgetary position and the projected impact of age-related public spending (in particular, long-term care spending).</p>
<p><b>UK</b></p>	<p>Overall, for the United Kingdom, no significant short-term fiscal risks appear at the horizon, although some variables point to possible short-term challenges (such as the primary deficit and the private sector debt). However, the long average maturity of public debt (enabling contained gross financing needs) mitigates short-term risks of fiscal stress.</p> <p>Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still relatively high and increasing stock of debt at the end of projections (2026) and the sensitivity to possible macro-fiscal shocks, potentially leading to a debt that is (well) above 90% of GDP at the end of projections. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability above 40% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, due, in order of importance, to the high initial debt-to-GDP ratio, the projected cost of ageing and the unfavourable initial budgetary position, thus leading to overall high risks for the country in the medium term.</p> <p>Medium sustainability risks appear for the United Kingdom over the long run. These are primarily related to the relatively strong projected impact of age-related public spending (notably pensions, healthcare and to a lesser extent long-term care), compounded by the unfavourable initial budgetary position.</p>

Source: Commission services.

# 1. SUSTAINABILITY OF PUBLIC FINANCES

## 1.1. INTRODUCTION

The sustainability of public finances has been brought to the fore by significantly increasing debt levels in the aftermath of the economic and financial crisis that started in 2008. For the EU-28, this has meant an increase in gross public debt by 30 pps. of GDP between 2007 and 2015, with a reversal in the upward-sloping path of the debt ratio expected in 2015 for the first time since the beginning of the crisis.

The legacy of the crisis in terms of debt overhang has been made particularly severe by contemporaneously high levels of debt in the public and the private sector (corporate, households). When this is the case, deleveraging becomes more difficult as efforts to deleverage in one sector weaken incomes, making it harder for the other sector to save. At the same time, where high debt levels linger, growth may pick up more slowly, which makes it important to set the appropriate pace on the path to deleveraging in the public and the private sector.

The current macroeconomic context of very low inflation, together with moderate GDP growth (1.9% in real terms for 2015), poses additional challenges to the reduction of public debt burdens in the EU.<sup>(9)</sup> In this type of environment, nominal growth is only able to contribute to a limited extent to the reduction of public debt ratios, and the latter can only be achieved through growth-friendly fiscal consolidation (with particular attention to cutting unproductive public spending, eliminating waste and raising efficiency). At the same time, financing costs for public debt remain low, reflecting a historically low interest rate. The interest rate-growth rate differential is expected to remain negative in the EU until 2023, thus supporting deleveraging, while in the long run the expected normalisation of interest rates would raise the interest bill.

Sustainable public finances, and smaller public debt burdens in particular, remain important elements to ensure that EU countries have sufficient fiscal space to cope with adverse macroeconomic developments over the economic

cycle. The conduct of fiscal policy should therefore importantly ensure that buffers are built in good times to be ready to be used to support the economy in bad times, along the spirit of the rules enshrined in the Stability and Growth Pact.

In a longer term perspective, ensuring the sustainability of public finances is important to create fiscal space for governments to cope with projected implicit liabilities related to ageing (pensions, healthcare and long-term care). Though latest projections of age-related public spending show more favourable expected developments relative to the past, the burden on public finances is still expected to be significant.<sup>(10)</sup> This element has to be additionally factored in when assessing fiscal sustainability over the medium to long run.

From a policy perspective, a thorough discussion and assessment of the sustainability of public finances in the EU seems very relevant today. This is exactly what this report aims at. The toolkit for fiscal sustainability analysis developed and regularly used by the Commission services in country surveillance in the context of the European Semester is presented in detail. Results are reported for all EU countries, and country-specific assessments presented in the fiches annexed to the report.

The remaining of this chapter will first provide a discussion on the concept of fiscal sustainability, followed by a detailed explanation of the tools (debt sustainability analysis and fiscal sustainability indicators) from a theoretical perspective (quantitative results are presented in Chapter II and IV respectively).

## 1.2. FISCAL SUSTAINABILITY FROM A CONCEPTUAL POINT OF VIEW

Aim of this section is to briefly discuss the concept of fiscal sustainability, as used in this report, putting it in relation to the concepts of solvency and liquidity. Distinguishing between the latter two concepts is particularly important given that appropriate policy interventions would differ

<sup>(9)</sup> See European Commission (2015a).

<sup>(10)</sup> See European Commission (2015b) for more details, and Chapter III in this report for a summary view on this.

significantly depending on whether a certain entity is assessed to be insolvent or simply illiquid.

Fiscal sustainability is generally meant as "solvency" of the public sector. A public entity is considered as solvent if the present discounted value of its current and future primary expenditure is smaller than (or equal to) the present discounted value of its current and future path of income, net of any initial debt level. Liquidity is rather defined as a situation in which the public entity has liquid assets and available financing that are sufficient to meet or roll-over its maturing liabilities. Solvency does not imply liquidity. There is therefore a need to conceptually distinguish between the two, though the distinction gets sometimes blurred in practice as illiquidity may manifest itself in rising interest rates (till the extreme of a situation where financial market access is lost), which can call solvency into question. <sup>(11)</sup>

Fiscal sustainability in the sense of solvency of the public sector can therefore be broadly defined as a situation where fiscal policy can be maintained unchanged over the post-forecast horizon <sup>(12)</sup> (without changes in public spending, nor taxation, that would affect the government primary balance), without causing public debt to rise continuously as a share of GDP. Thus, fiscal sustainability excludes Ponzi game conditions, i.e. situations where a government keeps on indefinitely accumulating debt faster than the increase in its capacity to service it, which would lead to debt and interest being systematically paid by issuing new debt.

As will be explained in more detail in what follows, the Commission's medium- and long-term sustainability indicators S1 and S2 indeed reflect the aforementioned definition of fiscal sustainability as solvency. Both indicators are based on the government inter-temporal budget constraint (whereby public debt and the discounted value of future government expenditure, including the projected increase in age-related public

spending, need to be covered by the discounted value of future government revenues). The difference between the two indicators lies exclusively in the time horizon of interest (till 2030 for S1 and the infinite horizon for S2) and the requirement to reach a specific debt target (the 60% EU Treaty reference value for gross public debt over GDP to be reached by 2030 according to the "standard" definition of S1 <sup>(13)</sup>, versus no specific debt ratio target for S2).

The concept of fiscal sustainability in use by the Commission services (Directorate General for Economic and Financial Affairs, DG ECFIN) has nonetheless been broadened significantly already with the previous Fiscal Sustainability Report (FSR 2012), with the introduction of the short-term sustainability indicator S0. <sup>(14)</sup> As will be better explained in what follows, S0 is an early-detection indicator, designed to capture short-term risks of fiscal stress stemming from the fiscal and the macro-financial sides of the economy. With S0, these risks have therefore become integral part of the analysis of fiscal sustainability challenges conducted by the Commission.

The S0 indicator has indeed made it possible to complete the Commission's fiscal sustainability assessment framework under two respects: i) the coverage of short-term challenges (left out by definition from the traditional S1 and S2 indicators); and ii) the coverage of fiscal risks stemming from the macro-financial side of the economy, beyond those stemming directly from the fiscal side. The latter is in line with the recognition of the role that financial and competitiveness variables can play in generating potential fiscal risks, as highlighted by the economic and financial crisis, turned into a sovereign debt crisis.

S0 is methodologically very different from S1 and S2. It is not derived from the government inter-

<sup>(11)</sup> See IMF (2002).

<sup>(12)</sup> The European Commission's fiscal sustainability indicators S1 and S2 are based on a no-fiscal policy change scenario. This is defined as a scenario in which fiscal policy (in the form of the government structural primary balance) remains constant, beyond the forecast horizon, at last forecast year (2017, at the time of writing this report, given the 2-year horizon of Commission forecasts).

<sup>(13)</sup> The definition of the S1 indicator can easily be changed to reflect different scenarios in terms of i) debt target (in chapter IV, alternative S1 definitions are based on a debt target given by the pre-crisis and end-of-forecast debt ratios respectively); or ii) the period of assumed fiscal consolidation before setting fiscal policy constant (in the standard definition of S1, fiscal adjustment is assumed to take place over the first 5 post-forecast years, but consolidation could also be assumed to take place more gradually over a longer horizon).

<sup>(14)</sup> See Berti, Salto and Lequien (2012).

temporal budget constraint but is rather a composite indicator made of a set of fiscal and financial-competitiveness variables. S0 is therefore not typically related to the government solvency condition, though many of the variables that enter into the solvency condition (primary balance, debt ratio, interest rate-growth rate differential) are incorporated in S0, as will be explained later. The way these variables are used in S0 is nonetheless different in that most recent values of the variables are looked at to assess fiscal risks over the upcoming year (no medium- or long-term projections of the variables are needed in this case).

Fiscal sustainability, in the broader meaning specified above, is analysed by the Commission services based on a multi-dimensional approach, whereby fiscal sustainability challenges are identified per time dimension (short, medium and long run, based on the three sustainability indicators, S0, S1 and S2, respectively).

This issue of the FSR for the first time fully integrates, in an extensive way, the fiscal sustainability analysis based on the aforementioned indicators with public debt sustainability analysis (DSA). This consists of both traditional (deterministic) public debt projections (under a series of alternative scenarios corresponding to different macro-fiscal assumptions) and stochastic public debt projections that more explicitly feature macroeconomic uncertainty in public debt projections.<sup>(15)</sup>

Public debt is already one of the dimensions considered in the three sustainability indicators. It enters S0 as one of the variables included in the composite indicator. It enters also the medium- and long-term sustainability indicators S1 and S2, as part of the definition of the initial budgetary position in both S1 and S2 and in the required additional adjustment due to the 60% debt target in S1 (as will be better explained later). The aim of S1 and S2 calculations is to provide synthetic indicators of medium- and long-term fiscal projections (of which public debt is only one dimension, though an important one) under an assumption of unchanged fiscal policy (thus representing single numbers that come as simple

metrics, allowing for a simple interpretation of the results<sup>(16)</sup>). However, an additional specific focus on public debt dynamics in the context of the DSA is warranted to be able to analyse the evolution of the debt variable, year after year, in terms of projected path/trajectory that is also key for any fiscal sustainability assessment. In principle, different paths of the public debt ratio can be consistent with the same synthetic assessment provided by the sustainability indicators (as long as the differences cancel out in the government inter-temporal budget constraint), while differences in the projected trajectory of the debt ratio should also be taken into account in the fiscal sustainability assessment (if anything else, through the factoring in of the possible reaction by financial markets). In this sense, getting down to the details of the projected debt path in the context of the DSA complements the synthetic assessment provided by sustainability indicators.

A non-increasing public debt to GDP ratio is what is commonly seen as a practical condition for fiscal sustainability in the context of a DSA.<sup>(17)</sup> This is based on the idea that a country is likely to remain solvent as long as the debt ratio is not growing (though the fulfilment of the solvency condition over the long run does not necessarily imply that the debt ratio has to be non-increasing).<sup>(18)</sup> But the aforementioned practical condition of a non-increasing debt ratio does not in the end provide an answer on whether a certain stock of debt is sustainable or not. In this sense, a debt sustainability assessment has necessarily to be based also on the level at which debt stabilises, beyond the fulfilment of the stabilisation condition in itself.<sup>(19)</sup> This report will indeed present a set of indicators/variables to summarize DSA results that will be used to reach conclusions on debt sustainability covering multiple dimensions. For deterministic debt projections, for instance, both the level of the debt ratio at the end of projections and the debt trajectory will be considered, together with the degree of ambition of the fiscal assumptions underlying debt projections.

<sup>(16)</sup> Blanchard, Chouraqui, Hagemann and Sartor (1990).

<sup>(17)</sup> Chalk and Hemming (2000).

<sup>(18)</sup> What is required is that the debt ratio grows at a rate smaller than the interest rate-growth rate differential over the very long run (so that the so called "transversality condition" is satisfied). See Krejdl (2006).

<sup>(19)</sup> See Roubini, 2001.

<sup>(15)</sup> See European Commission (2014c).

Given the 10-year horizon of the Commission's DSA, debt projections will more precisely be used as a complementary tool to S1 in the context of the analysis and assessment of medium-term sustainability challenges (see Chapter 6 for more details).

### 1.3. DEBT SUSTAINABILITY ANALYSIS: A FOCUS ON PUBLIC DEBT DYNAMICS

This section provides an overview of the Commission services' (DG ECFIN) DSA framework in terms of tools used, definition of scenarios and sensitivity tests, main macro-assumptions underlying debt projections.<sup>(20)</sup> In this framework, traditional deterministic projections and stochastic projections are used in an integrated way to reach conclusions on public debt sustainability.

#### 1.3.1. Traditional deterministic public debt projections

Traditional deterministic projections rely on the definition of scenarios based on macroeconomic forecasts, and assumptions beyond the forecast horizon, on real GDP growth, inflation, real interest rates, government primary balance and stock-flow adjustment. Public debt projections are run on the basis of these macro-fiscal assumptions. Typically, alternative scenarios are designed so as to capture possible future alternative "states of the world". The aim is to have a comprehensive set of debt projection results supporting conclusions in a context of uncertainty about future realizations.

The set of standard scenarios included in the Commission DSA<sup>(21)</sup> are generally based on Commission forecasts<sup>(22)</sup> and different macro-fiscal assumptions beyond the forecast horizon (see Box 1.1 for an overview). Scenarios are conceived to be used in an integrated way to reach assessments on debt sustainability, as will be

<sup>(20)</sup> See European Commission (2014c).

<sup>(21)</sup> When needed to reflect certain country specificities, ad-hoc country-specific scenarios are additionally run and presented in the DSA published in the Commission's Country Reports, in the context of the European Semester.

<sup>(22)</sup> The only exception to this is the Stability and Convergence Programme (SCP) debt projection scenario that is based on Member States forecasts.

evident in Chapter 6 on overall fiscal sustainability assessment and in the country fiches in Chapter 7.

Debt projections are run over a 10-year horizon. This is deemed to be a good compromise between the need to keep public debt projections referred to a time interval that is not too long (as uncertainty naturally rises, the further projections move into the future), nor too short (thus allowing for a meaningful analysis of the impact of projected implicit liabilities related to ageing).

The *baseline scenario* used in the Commission DSA is defined as a no-fiscal policy change scenario. It relies on Commission forecasts for the two Commission forecast years (currently till 2017), after which fiscal policy is assumed to remain constant as of the last forecast year for the remaining of the projection period (which is translated into a government structural primary balance, SPB, constant at last forecast value). For the other underlying macroeconomic variables (real GDP growth, inflation, real interest rate), the baseline scenario relies on the Economic Policy Committee (EPC) agreed long-run convergence assumptions.<sup>(23)</sup> The cyclical component of the government balance is calculated using standard country-specific semi-elasticity parameters,<sup>(24)</sup> and a zero stock-flow adjustment is assumed beyond forecasts.

By default, debt projections under the baseline scenario incorporate implicit liabilities related to ageing (projected public spending on pensions, healthcare and long-term care).<sup>(25)</sup> An alternative scenario is nonetheless run also by excluding these implicit liabilities from the computation.

Baseline debt projections are accompanied by projections under so called "*historical scenarios*". These rely again on Commission forecasts over the

<sup>(23)</sup> For GDP growth projections agreed with the EPC - Output Gap Working Group (OGWG) are used. For inflation and the real long-term interest rate, the long-run convergence assumptions agreed with the EPC - Working Group on Ageing Populations and Sustainability (AWG) are used. The inflation rate (GDP deflator) is therefore assumed to converge linearly to 2% in the year of output gap closure (T+5) and remain constant at that value thereafter. The real long-term interest rate is assumed to converge linearly to 3% by the end of the 10-year projection horizon.

<sup>(24)</sup> Estimated semi-elasticity parameters are those endorsed by the EPC - Output Gap Working Group.

<sup>(25)</sup> These are based on Commission- EPC long-run projections of age-related costs. See European Commission (2015b).

2-year forecast horizon and incorporate ageing costs, but assume a gradual (4-year) reversion to (last 15 year) historical mean after the forecasts for one or more of the underlying macroeconomic variables (SPB, implicit interest rate on government debt, real GDP growth). In the *historical SPB scenario*, beyond the forecasts the SPB gradually (in 4 years) gets back to its historical average (while all other macroeconomic variables remain as in the baseline scenario). In the *combined historical scenario*, the main underlying macroeconomic variables (SPB, interest rate, real GDP growth) revert all gradually back to their historical average beyond the forecasts. This type of scenarios allow simulating what difference going back to the country average historical fiscal behaviour would make on public debt dynamics (under baseline growth and interest rate versus convergence to average historical growth and interest rate, for the SPB historical and the historical combined scenarios respectively).

An alternative scenario aimed at capturing the impact of future fiscal policy reactions reflecting past behaviour is provided by the so called *fiscal reaction function (FRF) scenario*. In this case, after the first two projection years where Commission forecasts apply, the government primary balance (PB) assumed in the projections is derived from an estimated fiscal reaction function, where the PB depends on the previous period debt-to-GDP ratio and a set of other control variables.<sup>(26)</sup> The long-run convergence assumptions for the other macroeconomic variables (real GDP growth, inflation, real interest rate) are kept in this scenario as in the baseline, while in the FRF scenario the projected PB over the post-forecast period is also related to these other macroeconomic variables through the estimated FRF. Whenever possible (depending on data availability), the fiscal reaction function used in the projections was estimated by country, so as to appropriately reflect the country specificities of fiscal policy reaction. This was not always possible though, and when this was the case, a common (panel) fiscal reaction function was estimated for the group of countries.<sup>(27)</sup>

<sup>(26)</sup> See Chapter II and Berti, Colesnic, Despouts, Pamies and Sail (2016, forthcoming) for more details.

<sup>(27)</sup> Country-specific FRFs are estimated for 13 EU countries (AT, BE, DE, DK, ES, FI, FR, IE, IT, NL, PT, SE, UK). A common (panel) FRF is estimated for other 12 EU

The main assumption behind the FRF scenario is that fiscal policy over the projection period would react to the debt ratio in the previous period and to other macroeconomic conditions (i.e. output gap, real interest rate, inflation) like it did based on historical data. Clearly, this could also be too restrictive as an assumption, and needs to be kept in mind when reading results. The scenario is nonetheless instructive as of what impact this would have on debt evolution.

Full compliance with excessive deficit procedure (EDP) recommendations for countries under EDP and respect of the convergence to the medium-term objective (MTO) under the preventive arm of the Stability and Growth Pact (SGP) are the main features of the so called *SGP scenario*. This scenario applies Commission forecasts for the first projection year (currently 2016), after which fiscal policy change is assumed to continue over the projection period, thus marking a significant difference relative to the baseline no-fiscal policy change scenario. In the SGP scenario, for countries under EDP, the structural fiscal adjustment recommended by the Council is maintained until the excessive deficit is corrected, and thereafter a structural consolidation effort, determined according to the preventive arm of the Pact,<sup>(28)</sup> clarified by the Commission Communication on flexibility in the SGP,<sup>(29)</sup> is maintained until the MTO is reached (see Annex A3). For countries that are not under EDP, the structural fiscal adjustment to reach the MTO, as from the flexibility Communication, is applied immediately after the first projection year, where Commission forecasts apply. This scenario of fiscal policy change according to fiscal rules also accounts for a feedback effect on growth (a 1 pp. of GDP

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countries (BG, CZ, EE, HR, LV, LT, HU, MT, PL, RO, SI, SK). See Chapter II and Berti et al. (2016) for more details.  
<sup>(28)</sup> Reg. 1466 as clarified by the Commission Communication on flexibility in the SGP.

<sup>(29)</sup> The structural fiscal adjustment to reach the MTO is determined according to the matrix in the Commission Communication. Here the fiscal adjustment required under the preventive arm of the SGP is specified in a way to take better account of the cyclical situation of Member States. The required fiscal effort is also modulated according to the country's debt ratio (below or above 60%), and in case based on the presence of sustainability risks. Moreover, the Communication defines investment and structural reform clauses that can be activated by Member States to temporarily deviate from their MTO or adjustment path to it. See European Commission (2015c).

consolidation effort reduces baseline GDP growth by 0.75 pp. in the same year).<sup>(30)</sup> The comparison of results under the SGP scenario with the baseline scenario allows capturing the effect of fiscal consolidation in line with fiscal rules (during and beyond the forecast horizon), relative to a baseline that prudentially assumes fiscal policy constant at last forecast year.

Finally, the last alternative scenario covered by the Commission services (DG ECFIN) DSA is a *Stability and Convergence Programme (SCP) scenario*. This is again a no-fiscal policy change scenario but relies on Member States' (SCP) forecasts, rather than Commission forecasts. Macroeconomic assumptions are taken in this case from the programmes and fiscal policy (in the form of the government SPB) is assumed to remain unchanged at last programme year for the remaining of the projection horizon. The purpose of this scenario is indeed to allow a comparison between results based on Commission's and Member States' forecasts.

As customary for traditional deterministic debt projections, sensitivity tests are run around baseline projections to gauge the impact on debt dynamics of possible changes in future macroeconomic conditions (downward and upward risks). Risks can be related to the tightening/relaxing of government's financing conditions on the markets, shocks to growth and inflation, fiscal fatigue, and shocks to the exchange rate (see Box 1.1). Sensitivity tests aim at covering the broad nature of shocks that can affect the future evolution of public debt.

*Sensitivity tests on government financing conditions* on the markets are designed in the Commission services DSA as permanent shocks to short- and long-term interest rates on newly issued and rolled over debt applied from the first projection year (currently 2016) till the end of projections (currently 2026). "Standard" negative and positive interest rate shock scenarios are accompanied by so called "enhanced" sensitivity tests, simulating the impact of a temporarily more extreme worsening of financing conditions on the markets.

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<sup>(30)</sup> The 0.75 value of the multiplier is based on Carnot and De Castro (2015).

These shocks to short- and long-term interest rates on newly issued and rolled over debt feed into changes of the implicit interest rate paid on public debt, with the size of the change in the implicit interest rate depending on the structure of public debt in terms of short- and long-term, maturing and non-maturing debt. In this sense, pronounced differences in average public debt maturity across EU countries are one of the factors behind the differential impact of an interest rate shock on public debt dynamics. As the increase in interest rates only affects debt that is newly issued or rolled over, countries with shorter average debt maturities are more exposed to interest rate shocks than those with longer maturities.

*Sensitivity tests on nominal GDP growth* are run to capture the impact of possible negative and positive shocks to real GDP growth and/or inflation. Permanent shocks to nominal growth are applied from the first projection year onwards. The standard sensitivity shock scenario on real GDP growth is additionally complemented by an enhanced sensitivity test, where the initial positive/negative shock to real growth is assumed to be in line with country-specific historical variability.<sup>(31)</sup> The latter enhanced scenario is mostly relevant for countries where historical variability has been greater compared to the shock applied in the standard scenario.

The risk of fiscal fatigue is captured by the *sensitivity test on the government primary balance*, where a permanent negative shock to the primary balance equal to 50% of the forecasted cumulative change over the two forecast years is assumed.<sup>(32)</sup>

Finally, shocks to the exchange rate can have an impact on debt dynamics in particular for non-EA countries that have a significantly larger share of public debt denominated in foreign currency. To capture this type of risk, a *sensitivity test on the exchange rate* is run specifically for these countries.

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<sup>(31)</sup> The shock in this case is given by the standard deviation of real GDP growth, calculated over the last three years of historical data.

<sup>(32)</sup> The usual feedback effect on growth applies in this case (-1 pp. fiscal consolidation leading to +0.75 pps. in GDP growth in the same year).

### Box 1.1: Debt projection scenarios

The **debt projection scenarios** included in the Commission DSA are the following:

1. **Baseline no-fiscal policy change scenario** (European Commission forecasts for the 2 forecast years; assumption of unchanged fiscal policy after forecasts; EPC-agreed long-run convergence assumptions of underlying macroeconomic variables – long-term interest rate converging to 3% in real terms; inflation rate converging to 2%; OGWG- agreed GDP growth path).
2. **No-fiscal policy change scenario without age-related costs** (same as scenario (1) without ageing costs).
3. **Historical scenarios** (European Commission forecasts for the 2 forecast years; assumption of gradual 4-year convergence of SPB, implicit interest rate, real GDP growth – one at a time and then all together – to historical average(s) after forecasts).
4. **Fiscal reaction function (FRF) scenario** (European Commission forecasts for the 2 forecast years; primary balance determined from estimated FRF after forecasts).
5. **Stability and Growth Pact (SGP) scenario** (European Commission forecasts for first projection year; thereafter assumption of full compliance with EDP recommendations and convergence to the MTO, according to the matrix of required fiscal adjustment from Commission Communication on flexibility in fiscal rules). <sup>(1)</sup>
6. **Stability and Convergence Programme (SCP) scenario** (SCP assumptions for main macro-fiscal variables; assumption of unchanged fiscal policy after programme horizon).

**Sensitivity test scenarios** run around the baseline no-fiscal policy change scenario are the following:

1. **"Standard" sensitivity tests on short- and long-term interest rates** (-1p.p./+1p.p. on short- and long-term interest rates on new and rolled over debt over whole projection period, 2016-26).
2. **"Enhanced" sensitivity tests on short- and long-term interest rates** (-1p.p./+2p.p. on short- and long-term interest rates on new and rolled over debt for first 3 projection years, followed by -1p.p./+1p.p. over remaining of projection period until 2026).
3. **"Standard" sensitivity tests on real GDP growth** (-0.5/+0.5 p.p. on real GDP growth over whole projection period, 2016-26).
4. **"Enhanced" sensitivity tests on real GDP growth** (-1 standard deviation/+1 standard deviation on real GDP growth for first 2 projection years, followed by -0.5/+0.5 p.p. over remaining of projection period till 2026).
5. **Sensitivity tests on inflation** (-0.5/+0.5 p.p. on inflation rate over whole projection period, 2016-26).

<sup>(1)</sup> European Commission (2015c), COM(2015) 12 final, 13/01/2015, and the commonly agreed position on flexibility, as confirmed by the ECOFIN Council of 8 December 2015 (Council document number 14345/15).

(Continued on the next page)

Box (continued)

6. **Sensitivity test on primary balance** (negative shock to primary balance equal to 50% of forecasted cumulative change over the 2 forecast year; primary balance kept constant at lower last forecast year level over remainder of projection period until 2026).
7. **Sensitivity test on nominal exchange rate** (shock equal to maximum historical change in the exchange rate, over last 10 years, applied for first 2 projection years).

Beyond the aforementioned sensitivity scenarios, when country-specific risks require a tailored approach, fully customized sensitivity tests on individual macro-fiscal assumptions or a combined macro-fiscal shock scenario are presented in the context of the DSA published in the Commission Country Reports for the European Semester.

Debt projection results under all the scenarios and sensitivity tests described in this section are presented in detail in Chapter 2, as well as in the country fiches annexed to the report (Chapter 7). Finally, Chapter 6 will present the horizontal framework used to reach a synthetic DSA assessment and an overall assessment of medium-term fiscal sustainability risks, based on both DSA results and S1 calculations. Basically, along the lines of what anticipated in the previous section, debt projections in each of the aforementioned DSA scenarios will be summarized and assessed on the basis of three metrics: i) the projected debt-to-GDP ratio reached at the end of the projections; ii) the year in which the debt ratio peaks over the projection horizon (which provides indications on debt trajectory, whether increasing or decreasing and till when); iii) the degree of ambition of the fiscal assumption underlying the projections (how ambitious the government structural primary balance appears to be relative to historical record for the EU28). The sensitivity test scenarios around baseline projections described above will also be summarized and assessed in terms of the first two metrics, the debt ratio at the end of projections and the debt peak year, which can easily allow gauging the impact of the shocks on the evolution of public debt (see Chapter 6).

### 1.3.2. Stochastic public debt projections

Stochastic public debt projections are an integral part of the Commission's DSA, as a tool to feature the impact of uncertainty in macroeconomic conditions on public debt dynamics in a

comprehensive way.<sup>(33)</sup> This methodology allows gauging the possible impact on public debt dynamics of downside and upside risks to the government primary balance<sup>(34)</sup> and to nominal growth, as well as the effects of positive/negative developments on financial markets, translating into lower/higher borrowing costs for governments.<sup>(35)</sup>

Stochastic debt projections produce a “cone” (a distribution) of debt paths, corresponding to a wide set of possible underlying macroeconomic conditions. The latter are obtained by applying random shocks to the government primary balance, short- and long-term interest rates on government bonds, growth rate and exchange rate assumed in the central scenario. The size and correlation of the shocks are based on variables’ historical behaviour.<sup>(36)</sup> The methodology allows accounting for a very large number of simulated macroeconomic conditions, beyond what is conceivable in the context of sensitivity analysis for deterministic projections (2000 simulations lie, for instance, behind the results presented in this report).

The baseline no-fiscal policy change scenario from deterministic debt projections discussed in the previous section is taken as the central scenario for stochastic projections, which are run over a 5-year horizon (the standard projection horizon to obtain

<sup>(33)</sup> See Berti (2013).

<sup>(34)</sup> The Commission stochastic debt projection model has been recently extended to additionally cover shocks to the government primary balance. Results presented in this report are therefore not fully comparable with those published in the FSR 2012.

<sup>(35)</sup> Stochastic debt projections for the EA have regularly been used also in the assessment of the Draft Budgetary Plans (DBPs) of the EA (see European Commission, 2015c – DBPs Communication) to the aim of assessing risks to public finance sustainability in the event of adverse economic, financial or budgetary developments (as required by Art. 7 of Regulation (EU) No. 473/2013).

<sup>(36)</sup> Shocks are additionally assumed to follow a joint normal distribution. See Annex A5 to this report and Berti (2013) for more details.

meaningful results from the methodology, based on the relevant literature). The implicit interest rate and the growth rate in the central scenario therefore correspond to Commission forecasts over the forecast horizon and to EPC-agreed macroeconomic assumptions beyond the forecast horizon. The structural primary balance corresponds to forecasts, and is set constant at last forecast value thereafter, based on the standard assumption made in deterministic projections under the no-fiscal policy change scenario. Stochastic debt projections therefore provide a significantly reinforced sensitivity analysis around the baseline scenario.

The debt ratio distribution obtained through stochastic projections allows attaching probabilities to debt paths (a distinctive feature relative to deterministic projections). It is possible, for instance, to attach a probability to the debt ratio of a certain country being higher than a specified value in a given projection year (for instance, being higher than the initial debt ratio at the end of projections), or to the debt ratio being on a stable or declining path over the projection horizon.

Stochastic debt projections are fully integrated in the overall DSA assessment that will be described in Chapter 6. Results will be summarised and assessed based on two metrics: i) the probability of a debt ratio at the end of projections (currently 2020) greater than the initial debt ratio (2015); and ii) the difference between the 90<sup>th</sup> and the 10<sup>th</sup> debt distribution percentiles at the end of projections (2020), which measures the width of the stochastic projection cone, i.e. the estimated degree of uncertainty surrounding baseline projections.

#### 1.4. THE MULTI-DIMENSIONAL APPROACH TO FISCAL SUSTAINABILITY

This section of the report presents in detail the multi-dimensional approach to the analysis of fiscal sustainability challenges over the short, medium and long run, based on fiscal sustainability indicators, used by the Commission services. The approach relies on the use of the three sustainability indicators, S0, S1 and S2, already introduced from a conceptual point of view in Section 1.2. The three indicators will be presented in detail one by one in what follows. The way these indicators are integrated with the DSA

to reach an overall fiscal sustainability assessment per time dimension will be explained in Chapter 6.

##### 1.4.1. The S0 indicator

###### An indicator to detect short-term risks of fiscal stress

The S0 indicator allows for an identification of fiscal sustainability challenges in the shorter term. The introduction of the indicator (with the FSR 2012) has allowed strengthening the Commission fiscal sustainability assessment framework on the short-term dimension, which appears particularly relevant in the wake of the recent economic and financial crisis.

As anticipated in Section 1.2, the methodology used to derive S0 is different from that used for the fiscal gap indicators S1 and S2, which will be presented in the following sections. S0 is a composite indicator aimed at evaluating the extent to which there might be a risk of fiscal stress in the short term, using a wide range of fiscal and macro-financial variables that have been proven to perform well in detecting situation of fiscal stress in the past.<sup>(37)</sup>

More in detail, S0 can be defined as an "early-detection indicator" designed to highlight shorter-term risks of fiscal stress (within a 1-year horizon) stemming from the fiscal, as well as the macro-financial and competitiveness sides of the economy. A whole set of fiscal and financial-competitiveness variables (28 variables altogether, 14 in each sub-group – see Table 1.1)<sup>(38)</sup> is used to construct the composite indicator. In particular, most of the variables included in the scoreboard for the surveillance of macroeconomic imbalances (used in the context of the Macroeconomic

<sup>(37)</sup> See Berti et al. (2012).

<sup>(38)</sup> Almost all financial-competitiveness variables are taken in 1-year lagged values (as indicated by L1 in front of the names of the variables in Table 1.1). This implies that these variables are practically used in a way to anticipate fiscal stress risks 2 years ahead (rather than 1 year ahead as for the other variables). Indeed, the application of the methodology (the signals' approach) has shown that these variables would have performed better in anticipating past fiscal stress events with a 2-year, rather than a 1-year, lag. This further allows us to use latest historical values also for these financial-competitiveness variables, for which data availability is generally lagging behind compared to fiscal variables.

Imbalances Procedure)<sup>(39)</sup> are among the financial-competitiveness variables incorporated in S0. This duly reflects the evidence, also based on the most recent experience in the EU, on the role that financial and competitiveness variables can play in generating potential fiscal risks.

The methodology lying behind the S0 indicator (the "signals approach")<sup>(40)</sup> allows for an endogenous determination of thresholds of fiscal risk for the composite indicator itself, for each individual variable incorporated in the composite indicator, as well as the two thematic sub-indexes incorporating only fiscal and financial-competitiveness variables respectively (thresholds are reported in Table 1.1)<sup>(41)</sup>. Values of the overall S0 indicator, the two sub-indexes, and the individual variables beyond the respective thresholds are read as signals of upcoming (shorter-term) fiscal risk.<sup>(42)</sup> In particular, for the overall S0 indicator, a value *above* the threshold signals potential short-term risk of fiscal stress, as the indicator value is higher, the higher the number of variables signalling fiscal risk and the better the historical performance of the signalling variables at highlighting risks.

Overall shorter-term sustainability challenges can be assessed by focussing on the value taken by S0 alone, while looking at the two thematic sub-indexes further allows identifying risks emanating from specific areas (fiscal, financial-competitiveness) that may or may not translate into fiscal risks signalled by the overall S0 indicator. For countries for which fiscal risks emerge with regard to one of the two sub-groups of variables, while the S0 signals no risk, short-term challenges (which do arise with regard to either the fiscal or the financial-competitiveness side of the economy) are not as acute to generate risks of fiscal stress at aggregate level.

A more precise identification of the specific sources of short-term fiscal stress risk at country

<sup>(39)</sup> See European Commission (2015d).

<sup>(40)</sup> See Kaminsky, Lizondo and Reinhart (1998) and Kaminsky and Reinhart (1999). An application of the signals' approach for assessing fiscal stress, along the lines of what is done here, can be found in Baldacci, Petrova, Belhocine, Dobrescu, and Mazraani (2011).

<sup>(41)</sup> See Annex A1 for more technical details.

<sup>(42)</sup> At individual variable level, fiscal risks are highlighted by values of the variable *above or below* the variable-specific threshold depending on the variable in question.

level is made possible by the analysis of the individual variables, and the values they take relative to their own thresholds.

#### The calculation of the thresholds of fiscal stress risk

The calculation of the thresholds of short-term risk of fiscal stress lies at the heart of the (non-parametric) signals approach used for S0. Thresholds are separately derived for the composite indicator, the two fiscal and financial-competitiveness sub-indexes and each of the variables incorporated in the composite indicator.

The logic behind the methodology for calculating the thresholds rests on the observation that economies behave in a systematically different way in periods preceding fiscal stress. According to this, time series of the variables used in the analysis (the 28 fiscal and financial-competitiveness variables listed in Table 1.1)<sup>(43)</sup> and the series of fiscal-stress episodes recorded in the past<sup>(44)</sup> are used together to determine an optimal fiscal risk threshold for each of the variables in question, based on its past behaviour ahead of fiscal stress episodes.

Such optimal threshold is determined by maximising the "signalling power" of the model, i.e. its ability to correctly predict past fiscal stress. By first distinguishing between the two types of errors that can be made in such a prediction (i.e. predicting fiscal stress, for a variable value beyond the threshold, ahead of no fiscal stress episode and predicting no fiscal stress, for a variable value on the safe side of the threshold, ahead of a fiscal stress episode)<sup>(45)</sup>, the optimal threshold is then determined in a way to minimise the share of missed (in the sense of not signalled) stress episodes plus the share of non-fiscal-stress

<sup>(43)</sup> A panel of 33 countries was used to calculate the optimal thresholds (all EU countries, except Cyprus, Luxembourg and Malta, plus Australia, Canada, Iceland, Israel, Japan, New Zealand, Norway, Switzerland, United States). Data are from AMECO, EUROSTAT, WEO and BIS. Whenever possible, time series covering the period 1970-2012 are used but for a number of variables data are only available from 1995.

<sup>(44)</sup> The analysis adopts the definition of fiscal stress proposed in Baldacci et al. (2011).

<sup>(45)</sup> More technically, these are respectively called type-I and type-II errors.

Table 1.1: Thresholds and signalling power of S0 indicator, fiscal and financial-competitiveness sub-indexes and individual variables used in the S0 indicator

Variables	safety	threshold	signaling power	type I error	type II error
<b>Balance, % GDP</b>	>	-10.17	0.07	0.04	0.89
<b>Primary balance, % GDP</b>	>	0.00	0.17	0.40	0.43
<b>Cyclically adjusted balance, % GDP</b>	>	-3.12	0.25	0.45	0.30
<b>Stabilizing primary balance, % GDP</b>	<	2.55	0.02	0.12	0.86
<b>Gross debt, % GDP</b>	<	103.28	0.03	0.06	0.91
<b>Change in gross debt, % GDP</b>	<	6.50	0.11	0.08	0.81
<b>Short-term debt, government, % GDP</b>	<	16.00	0.10	0.11	0.79
<b>Net debt, % GDP</b>	<	58.11	0.13	0.19	0.68
<b>Gross financing needs, % GDP</b>	<	16.83	0.16	0.21	0.63
<b>Interest rate-growth rate differential</b>	<	5.92	0.08	0.07	0.85
<b>Change in expenditure of gen. government, % GDP</b>	<	2.25	0.14	0.13	0.74
<b>Change in final consumption expend. of gen. government, % GDP</b>	<	0.64	0.17	0.19	0.64
<b>Old-age dependency ratio 20 years ahead</b>	<	33.93	0.10	0.11	0.79
<b>Avg yearly change in projected age-related public expend. as % of GDP over next 5 years</b>	<	0.26	0.09	0.14	0.77
<b>Fiscal index</b>	<	0.35	0.23	0.21	0.56
<b>L1.net international investment position, % GDP</b>	>	-50.10	0.31	0.13	0.56
<b>L1.net savings of households, % GDP</b>	>	0.96	0.34	0.26	0.40
<b>L1.private sector debt, % GDP</b>	<	209.20	0.25	0.04	0.71
<b>L1.private sector credit flow, % GDP</b>	<	10.90	0.44	0.42	0.14
<b>L1.leverage, financial corporations</b>	<	2.22	0.03	0.97	0.00
<b>L1.short-term debt, non-financial corporations, % GDP</b>	<	27.40	0.25	0.21	0.54
<b>L1.short-term debt, households, % GDP</b>	<	3.50	0.27	0.34	0.38
<b>L1.construction, % value added</b>	<	7.25	0.27	0.36	0.38
<b>L1.current account, 3-year backward MA, % GDP</b>	>	-2.45	0.38	0.37	0.25
<b>L1.change (3 years) of real eff. exchange rate, based on exports deflator</b>	<	9.76	0.23	0.19	0.59
<b>L1.change (3 years) in nominal unit labour costs</b>	<	12.70	0.27	0.48	0.25
<b>Yield curve</b>	>	0.59	0.48	0.39	0.14
<b>Real GDP growth</b>	>	-0.89	0.10	0.07	0.83
<b>GDP per capita in PPP, % of US level</b>	>	73.32	0.28	0.44	0.27
<b>Financial-competitiveness index</b>	<	0.45	0.48	0.34	0.18
<b>Overall index</b>	<	0.43	0.55	0.21	0.25

(1) Variables' names preceded by L1 are taken in lagged values.

(2) The signalling power is defined as  $[1 - (\text{type-I error} + \text{type-II error})]$ .

Source: Commission services.

episodes wrongly signalled as upcoming fiscal stress.<sup>(46)</sup>

The thresholds for S0 and the two fiscal and financial-competitiveness sub-indexes are calculated following exactly the same procedure described above for the individual variables in the composite indicator.

Such endogenously determined thresholds are then used in the assessment of short-term risks of fiscal stress as explained above. Results from such an assessment are in any case to be interpreted with caution. Though the framework described above

tends to be rather comprehensive, there are additional dimensions, relevant for the analysis of short-term sustainability challenges, which are necessarily left aside (for instance, factors that are more qualitative in nature or variables for which data availability is limited). The broader background of the country-specific context is therefore to be kept in mind when reading results.

#### 1.4.2. The S1 and S2 indicators

##### S1 and S2 as fiscal gap indicators

Medium- and long-term fiscal sustainability challenges are captured respectively by the fiscal

<sup>(46)</sup> This is called total misclassification error. See Annex A1 and Berti et al. (2012) for more technical details.

gap indicators S1 and S2.<sup>(47)</sup> The two sustainability indicators are derived from the government inter-temporal budget constraint, which is nothing else than the condition of solvency for the public sector (as explained in chapter 2). The inter-temporal budget constraint requires that current public debt and the discounted value of future public expenditure (net of the 2030 debt ratio target in the case of S1), including the projected increase in public spending due to ageing populations, is covered by the discounted value of future public revenues. The government inter-temporal budget constraint can be defined over different time horizons, and indeed S1 and S2 are respectively derived from a finite and infinite version of the budget constraint. The two indicators measure the size of the fiscal adjustment required to ensure that the constraint is met.

In particular, the *medium-term sustainability indicator S1* shows the additional adjustment required, in terms of a *cumulated* gradual improvement in the government SPB over 5 years (starting from the year after the forecasts, currently 2018), to reach a 60% public debt-to-GDP ratio (the EU Treaty reference value) by 2030, including financing for any future additional expenditure arising from an ageing population (until the target date).<sup>(48)</sup> <sup>(49)</sup>

The timescale of the indicator has been chosen to be long enough to allow the impact of ageing to be analysed in a meaningful way, while still remaining within the sights of current taxpayers and policy makers.

The S1 indicator used in the overall assessment of medium-term sustainability challenges is defined

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<sup>(47)</sup> The methodology used to integrate DSA results and S1 calculations to reach an overall medium-term risk assessment by country will be presented in Chapter VI.

<sup>(48)</sup> After 2022 the SPB is kept constant at its 2022 value (which incorporates the additional consolidation efforts made till that year).

<sup>(49)</sup> The S1 indicator can easily be defined relative to alternative target debt ratios to be reached by 2030. Indeed, in Chapter IV, where quantitative results are presented, two alternative versions of the indicator are reported, under the constraint of the debt ratio reaching the pre-crisis (2007) value and end-of-forecast (2017) value respectively. The S1 indicator could also easily be defined based on alternative assumptions on the length of the consolidation period. A period of fiscal adjustment longer than 5 years, as from standard definition, could be chosen till the extreme case of consolidation assumed to take place over the whole period till the debt target year, 2030.

with reference to the baseline no-fiscal policy change scenario (as defined in Section 3.1 for public debt projections).<sup>(50)</sup> <sup>(51)</sup> But the indicator can be calculated also with reference to alternative scenarios. For instance, Chapter 6 on overall fiscal sustainability assessment also reports S1 calculations under the historical SPB scenario (where the SPB is assumed to gradually revert back to historical average after forecasts, based on the definition of the scenario reported in Section 3.1 for debt projections), as well as under the AWG risk scenario, assuming less favourable ageing cost projections.<sup>(52)</sup> Though not used in the overall assessment of medium-term sustainability risks, these S1 calculations under alternative scenarios are meant to support the interpretation of S1 results.

The *long-term sustainability indicator S2* is defined over the infinite horizon. The indicator shows the upfront adjustment to the current SPB (kept then constant at the adjusted value forever) required to stabilise the debt-to-GDP ratio over the infinite horizon, including financing for any additional expenditure arising from an ageing population. The S2 indicator does not therefore incorporate any specific debt ratio requirement. In fact, the adjustment implied by the indicator might also lead to debt stabilising at relatively high levels, thus the indicator has to be taken with caution for high-debt countries in relation to SGP requirements.

Like S1, also S2 is defined over the baseline no-fiscal policy change scenario for use in the assessment of long-term sustainability challenges (and calculations under the alternative SPB historical scenario and AWG risk scenario are performed and reported in Chapter 6, to support the reading and interpretation of S2 results).

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<sup>(50)</sup> The SPB (excluding implicit liabilities from ageing) is therefore kept constant to last forecast year value beyond the forecast horizon for the whole projection period. The long-run convergence assumptions for GDP growth, interest rate and inflation also apply as in baseline debt projections.

<sup>(51)</sup> The S1 indicator incorporates a feedback effect of fiscal consolidation on growth, as done for consolidation scenarios for debt projections (a 1 pp. consolidation effort reduces growth by 0.75 pps., exactly as for debt projections).

<sup>(52)</sup> See Chapter III for more details.

Beyond 2060 (the horizon of the available demographic projections), S2 calculations are based on the assumption that government revenues and primary expenditure, including age-related expenditure, remain constant as a share of GDP, while interest payments evolve in line with debt developments.<sup>(53)</sup>

The S2 indicator (a flow measure) will also be presented in Chapter 4 in the alternative form of a stock measure, as the so called *inter-temporal net worth indicator (INW)*, which comprises the current net worth (i.e. assets minus liabilities) of the general government together with the sum of discounted future primary balances.

For both S1 and S2 indicators, an alternative formulation is possible (and will be reported in Chapters IV ad VI) in terms of "required structural primary balance" (RSPB), which is obtained by simply adding the required fiscal adjustment from S1 and S2 calculations respectively to the last forecast year SPB (at which fiscal policy is assumed to remain constant in the baseline scenario). This alternative formulation is useful in that it can make more evident the magnitude of the overall fiscal stance implied by the indicators.

### The S1 and S2 sub-components

The S1 and S2 indicators are particularly interesting for policy purposes as they can be decomposed in individual sub-components referred to the country's initial budgetary position, the additional required adjustment due to projected public spending on age-related items (pensions, healthcare, long-term care), and, for S1, the required additional adjustment due to the distance from the 60% debt target (see Table 1.2). The disaggregation allows going down to the determinants of the required additional adjustment pointed to by the indicators.

#### *The initial budgetary position*

The first component of S1 and S2 is given by the gap between the SPB (at last forecast year value, kept constant over the projection period) and the

<sup>(53)</sup> If the EU population keeps ageing after 2060, this assumption implies underestimating S2, though the size of such a projection error would be reduced by the discounting to which all future flows are subject.

debt-stabilising primary balance (which depends on the last forecast year debt ratio).<sup>(54)</sup> This component of the indicators is referred to as the required adjustment due to the initial budgetary position (or simply IBP).

Table 1.2: S1 and S2 sub-components

	Required adjustment given initial budgetary position (IBP)		Required adjustment to reach debt ratio target of 60% in 2030 (DR)		Required adjustment due to cost of ageing (CoA)
S1 =	Gap to debt-stabilising primary balance	+	Additional adjustment required to reach 60% debt ratio in 2030	+	Additional adjustment required to finance the increase in public spending due to ageing up to 2030
S2 =	Gap to debt-stabilising primary balance	+	0	+	Additional adjustment required to finance the increase in public spending due to ageing over infinite horizon

Source: Commission services.

For the S1 indicator, the assumed gradual improvement in the SPB (an adjustment stretched over 5 post-forecast years) implies a higher required adjustment compared to the one that would be required immediately if adjustment took place fully in the year after the forecasts. This part of the required additional adjustment for S1 is labelled as the "cost of delay" and is included in the IBP component.

The initial budgetary position in S1 and S2 is defined based on the government primary balance expressed in structural terms. The primary balance has therefore been adjusted for the effect of the business cycle and for temporary and one-off measures. The expression in structural terms requires estimating the output gap, i.e. the gap between actual and potential GDP, as well as the effects of the economic cycle on government revenues and spending. But current potential output, and its future trajectory, contain a substantial element of uncertainty, and cyclical adjustments always entail a certain level of imprecision due to the difficulty of estimating the output gap. These sources of uncertainty are compounded by the fact that tax elasticities tend to vary over the economic cycle and are implicitly affected by asset price changes, which are difficult to model or predict. These caveats should therefore

<sup>(54)</sup> The long-term debt-stabilizing primary balance refers to the primary balance that, if reached, would stabilize the debt in the long run at its current level. It therefore depends on the long-term prospects of GDP growth and interest rates. It can differ from the short-term debt-stabilizing primary balance that can be calculated with current GDP growth and interest rates.

be kept in mind when reading S1 and S2 results, and commenting on their IBP component.

As already underlined for debt projections, also for the sustainability indicators the assumption is made of a zero stock-flow adjustment beyond forecasts, meaning no accumulation, nor disposal of financial assets. This implies that the nominal value of government-owned financial assets remains constant, so that there is a decrease in the share of the value of those assets as a percentage of GDP. Under the assumption that nominal returns on assets are constant over time, property income<sup>(55)</sup> from those assets also decreases as a share of GDP (this is clearly the case for interest-bearing assets like bonds). Projecting this forward in a detailed way requires forecasting the return on these assets, their future value and the purchases and sales of the assets (see Annex A8 for methodological details on the method used here).

Property income projections are incorporated in the government inter-temporal budget constraint used to derive S1 and S2. Returns on assets owned by the government are recorded as property income, and included in government revenues. For this reason, the change in the government primary balance implied by the property income projections is included in the IBP component of the sustainability indicators.

#### ***The debt target requirement***

The additional sub-component labelled as debt target requirement (DR) is relevant for the S1 indicator only, as no target debt ratio is specified for S2 (see Table 1.2).

For S1, the size of the required additional adjustment also depends directly on the 2030 debt target requirement (the 60% of GDP Treaty reference value). For countries with gross public debt above 60% of GDP at the end of the forecasts (2017), the required adjustment to reach the debt target by 2030 contributes to increasing the value of the indicator, thus raising the fiscal gap. For countries with public debt below the 60% target,

on the contrary, the DR component is negative and contributes to reducing the S1 value.

#### ***The cost of ageing component***

Both S1 and S2 include a cost of ageing component (CoA), capturing the required additional adjustment that is due to the projected change in age-related public spending (till 2030 for S1, and over the infinite horizon for S2), as from the 2015 Ageing Report (AWG reference scenario).<sup>(56)</sup> The magnitude of the CoA component of the sustainability indicators depends, for each country, on projected demographic developments<sup>(57)</sup> and the country's social protection arrangements.

Other things equal, for both S1 and S2, the greater the projected cost of ageing, the more demanding it becomes to fulfil the government inter-temporal budget constraint, as the SPB required to the purpose needs to be sufficiently large to account for these additional future costs. The size of the required adjustment pointed to by the sustainability indicators could also be interpreted as the savings that should be achieved with structural reforms to the social protection system.<sup>(58)</sup>

#### **1.4.3. How to interpret the S1 and S2 indicators**

S1 and S2 quantify the fiscal gap that should be closed to ensure the sustainability of public finances, meant as solvency of the public sector, as explained in section 1.2. The larger the value of the indicators, the greater the required adjustment to the SPB needed to ensure sustainability.

In the interpretation of results, it is important to consider that S1 and S2 computations can give rise to negative values. This is to be interpreted as meaning that the inter-temporal budget constraint (as defined respectively for the two indicators) is met under current and forecasted policies, *with fiscal policy remaining constant at last forecast year beyond the forecasts till the end of projections* (as it is the case in the baseline scenario). Even some deterioration in the SPB would, in this case,

<sup>(55)</sup> Property income received by the government is mainly composed of: interest received from deposits, bonds and loans; dividends received from shares and withdrawals from the income of quasi-corporations; rents on land and subsoil assets.

<sup>(56)</sup> See European Commission (2015b).

<sup>(57)</sup> These are based on EUROSTAT EUROPOP (2013).

<sup>(58)</sup> S1 and S2 would give this as the discounted sum of the spending savings needed from structural reforms to the pension and/or healthcare system.

not hamper the achievement of the budgetary constraint.

The indicators do not provide any guide as to how the fiscal adjustment should take place. Though the sustainability indicators are sometimes referred to as *tax* gap indicators, the required adjustment they point to could occur through various channels, like an increase in government revenues (usually through higher direct or indirect taxation), a reduction in non-age related public expenditure, or structural reforms aimed at reducing government implicit liabilities from ageing. The choice of the most appropriate measure, or combination of measures, should also duly take into account the potential impact on the economy. For example, a large increase in the tax burden to fill the sustainability gap may itself lead to deterioration in the economy's growth prospects, with adverse consequences for medium- and long-term fiscal sustainability.

As made clear in the previous section, the same overall sustainability gap may be the result of different underlying factors or combination of factors, between the current and forecasted budgetary position, the distance from the debt target for S1 and the projected increase in age-related expenditure. An optimal policy response to fiscal sustainability challenges requires an understanding of the underlying factors that generate them. In this sense, the decomposition of the sustainability indicators provides a very useful input into the definition of appropriate policy solutions. The comparison between the values taken by S1 and S2 further allows interesting conclusions with regard to the urgency required in addressing demographic-related sustainability issues.

Finally, when interpreting results from sustainability indicators, it is important to keep in mind that the analysis rests on assumptions that are necessarily made in the projections (as highlighted all along the chapter). There is therefore a good degree of uncertainty surrounding the results, uncertainty that of course increases the more the analysis is extended over longer time horizons. Caution is therefore needed in interpreting results. Moreover, additional information (also of qualitative nature) not captured by the indicators, needs to be additionally taken into account (among others, risks related to the structure of public debt

financing and to government contingent liabilities; government assets and the wedge they introduce between gross and net public debt figures, and so on). Chapter 5 is indeed devoted to a selection of other relevant factors that ought to be considered as complements to DSA and sustainability analysis results.



## 2. QUANTITATIVE RESULTS ON DEBT SUSTAINABILITY ANALYSIS

### 2.1. DETERMINISTIC DEBT PROJECTION RESULTS

#### 2.1.1. Baseline and historical scenarios

This section presents results on the evolution of gross public debt over GDP in a first set of scenarios: the baseline no-fiscal policy change scenario (which includes ageing costs); the no-fiscal policy change scenario without ageing costs and the historical scenarios (see section 1.3.1 for detailed definition of these different scenarios).

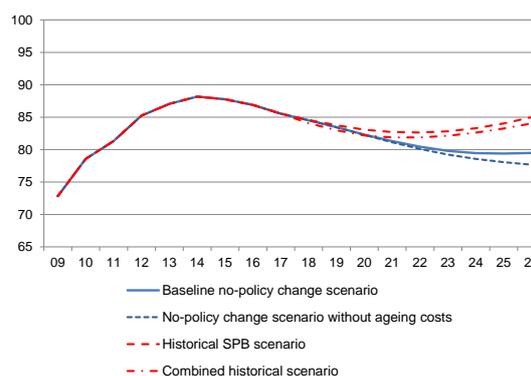
#### EU and EA aggregated results

The projection evolution of the debt ratio, respectively for the EU and the EA, under the baseline scenario, is reported in Tables 2.1 and 2.2 (and also displayed in Graphs 2.1 and 2.2), together with the breakdown of projected changes in the debt ratio, which allows gauging the contribution of the main drivers (primary balance *before ageing costs*, age-related expenditure, snow-ball effect<sup>(59)</sup> and stock-flow adjustments.<sup>(60)</sup> On the basis of budgetary positions from the Commission Autumn 2015 forecasts and under the assumption of unchanged fiscal policy beyond the forecast horizon (the baseline no-fiscal policy change scenario), the debt ratio for the EU would gradually decline from a peak of more than 88% of GDP in 2014 to 79.5% in 2024, and then would stabilise around this level (see Graph 2.1 and Table 2.1). For the EA, the same projection scenario shows a sharper decline of public debt ratio from 94.5% of GDP in 2014 to less than 82% of GDP in 2026 (see Graph 2.2 and Table 2.2). Despite this downward trend, the debt ratio would remain in 2026 significantly higher than its 2009 pre-crisis level in both the EU and the EA.

<sup>(59)</sup> The so-called "snow-ball effect" is the net impact of the counter-acting effects of interest rate, inflation and GDP growth on the evolution of the debt ratio.

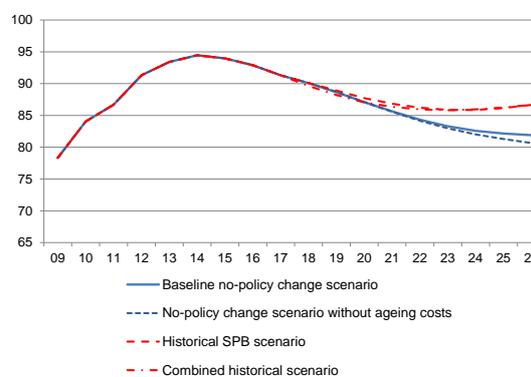
<sup>(60)</sup> Similar country-specific breakdowns are reported in the country fiches in the Annex.

Graph 2.1: Gross public debt projections (% of GDP), European Union - Baseline no-fiscal policy change and historical scenarios



Source: Commission services.

Graph 2.2: Gross public debt projections (% of GDP), Euro area - Baseline no-fiscal policy change and historical scenarios



Source: Commission services.

The structural primary balance *before ageing costs* (assumed to remain constant at 0.6% of GDP in the EU and 1% of GDP in the EA over the projection period) is the main driver of the downward-sloping path of the debt ratio (see also Graphs 2.3 and 2.4). The snow-ball effect is also projected to contribute to the reduction of the debt ratio, although its negative effect would progressively fade out (in line with the interest rate convergence assumption – in particular, the real long-term market interest rate is assumed to reach 3% by the end of the 10-year projection horizon). On the contrary, implicit liabilities related to ageing tend to slightly increase public debt over GDP towards the end of the projection period.

Table 2.1: Gross public debt projections (% of GDP) and underlying macro-fiscal assumptions, European Union - baseline no-fiscal policy change scenario

	2015	2016	2017	2018	2019	2020	2023	2026
<b>Gross debt ratio</b>	<b>87.8</b>	<b>86.9</b>	<b>85.5</b>	<b>84.5</b>	<b>83.5</b>	<b>82.3</b>	<b>79.8</b>	<b>79.5</b>
<i>of which Outstanding (non maturing) debt</i>	69.0	68.2	69.0	68.0	68.0	68.0	62.8	65.4
<i>Rolled-over short-term debt</i>	10.0	9.6	9.0	8.6	8.0	7.0	6.8	6.8
<i>Rolled-over long-term debt</i>	7.7	7.6	6.3	6.9	6.3	9.8	6.7	6.7
<i>New short-term debt</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
<i>New long-term debt</i>	0.3	0.1	0.1	0.0	0.0	0.2	0.5	0.5
<b>Changes in the debt ratio (-1+2+3)</b>	<b>-0.4</b>	<b>-0.9</b>	<b>-1.3</b>	<b>-1.0</b>	<b>-1.1</b>	<b>-1.1</b>	<b>-0.6</b>	<b>0.1</b>
<b>of which (1) Overall primary balance (1.1+1.2-1.3)</b>	<b>-0.1</b>	<b>0.2</b>	<b>0.6</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.3</b>
<b>(1.1) Structural primary balance (1.1.1-1.1.2+1.1.3)</b>	<b>0.5</b>	<b>0.6</b>	<b>0.6</b>	<b>0.7</b>	<b>0.7</b>	<b>0.7</b>	<b>0.5</b>	<b>0.3</b>
(1.1.1) Structural primary balance (before CoA)	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
(1.1.2) Cost of ageing (incl. revenues pensions tax)				-0.1	-0.1	0.0	0.1	0.4
(1.1.3) Property incomes				0.0	0.0	0.0	0.0	0.0
<b>(1.2) Cyclical component</b>	<b>-0.7</b>	<b>-0.4</b>	<b>-0.1</b>	<b>-0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>(1.3) One-off and other temporary measures</b>	<b>-0.1</b>	<b>0.0</b>						
<b>(2) Snowball effect (interest rate/growth differential) (2.1+2.2+2.3)</b>	<b>-0.2</b>	<b>-0.6</b>	<b>-0.9</b>	<b>-0.5</b>	<b>-0.5</b>	<b>-0.6</b>	<b>-0.2</b>	<b>0.3</b>
(2.1) Interest expenditure	2.3	2.2	2.1	2.1	2.1	2.1	2.4	2.8
(2.2) Growth effect (real)	-1.6	-1.7	-1.7	-1.1	-1.1	-1.1	-1.1	-1.0
(2.3) Inflation effect	-0.9	-1.1	-1.3	-1.4	-1.5	-1.6	-1.6	-1.5
<b>(3) Stock flow adjustments</b>	<b>-0.3</b>	<b>-0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>PM : Structural balance</b>	<b>-1.8</b>	<b>-1.6</b>	<b>-1.5</b>	<b>-1.5</b>	<b>-1.5</b>	<b>-1.6</b>	<b>-2.0</b>	<b>-2.7</b>
<b>Key macroeconomic assumptions</b>								
Actual GDP growth (real)	1.9	2.0	2.1	1.3	1.3	1.3	1.4	1.3
Potential GDP growth (real)	1.1	1.3	1.4	1.3	1.3	1.3	1.3	1.3
Inflation (GDP deflator)	1.1	1.3	1.6	1.7	1.9	2.0	2.0	2.0
Implicit interest rate (nominal)	2.8	2.6	2.6	2.5	2.6	2.6	3.1	3.7

(1) Given that the drivers of EU change of public debt are calculated as GDP-weighted averages of country-specific debt projections, small differences may exist between the total change of public debt and the sum of its drivers.

Source: Commission services.

Table 2.2: Gross public debt projections (% of GDP) and underlying macro-fiscal assumptions, Euro area - baseline no-fiscal policy change scenario

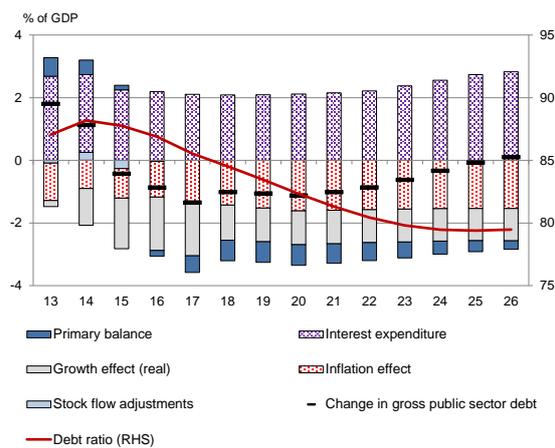
	2015	2016	2017	2018	2019	2020	2023	2026
<b>Gross debt ratio</b>	<b>94.0</b>	<b>92.9</b>	<b>91.3</b>	<b>90.1</b>	<b>88.7</b>	<b>87.1</b>	<b>83.3</b>	<b>81.9</b>
<i>of which Outstanding (non maturing) debt</i>	73.2	72.3	73.2	72.3	72.3	72.4	64.5	67.3
<i>Rolled-over short-term debt</i>	10.5	10.1	9.5	8.9	8.1	6.4	6.1	6.1
<i>Rolled-over long-term debt</i>	8.9	8.8	7.3	7.5	6.6	12.2	8.1	8.1
<i>New short-term debt</i>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<i>New long-term debt</i>	0.3	0.1	0.1	0.0	0.0	0.1	0.3	0.3
<b>Changes in the debt ratio (-1+2+3)</b>	<b>-0.5</b>	<b>-1.1</b>	<b>-1.6</b>	<b>-1.2</b>	<b>-1.4</b>	<b>-1.6</b>	<b>-1.0</b>	<b>-0.2</b>
<b>of which (1) Overall primary balance (1.1+1.2-1.3)</b>	<b>0.4</b>	<b>0.5</b>	<b>0.8</b>	<b>1.0</b>	<b>1.0</b>	<b>1.1</b>	<b>1.0</b>	<b>0.7</b>
<b>(1.1) Structural primary balance (1.1.1-1.1.2+1.1.3)</b>	<b>1.4</b>	<b>1.2</b>	<b>1.0</b>	<b>1.1</b>	<b>1.1</b>	<b>1.1</b>	<b>1.0</b>	<b>0.7</b>
(1.1.1) Structural primary balance (before CoA)	1.4	1.2	1.0	1.0	1.0	1.0	1.0	1.0
(1.1.2) Cost of ageing (incl. revenues pensions tax)				-0.1	-0.1	-0.1	0.1	0.3
(1.1.3) Property incomes				0.0	0.0	0.0	0.0	0.0
<b>(1.2) Cyclical component</b>	<b>-1.0</b>	<b>-0.6</b>	<b>-0.2</b>	<b>-0.1</b>	<b>-0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>(1.3) One-off and other temporary measures</b>	<b>-0.1</b>	<b>0.0</b>						
<b>(2) Snowball effect (interest rate/growth differential) (2.1+2.2+2.3)</b>	<b>0.0</b>	<b>-0.4</b>	<b>-0.8</b>	<b>-0.4</b>	<b>-0.5</b>	<b>-0.6</b>	<b>-0.2</b>	<b>0.4</b>
(2.1) Interest expenditure	2.4	2.3	2.2	2.1	2.1	2.2	2.4	2.9
(2.2) Growth effect (real)	-1.5	-1.6	-1.7	-1.1	-1.1	-1.1	-1.0	-1.0
(2.3) Inflation effect	-1.0	-1.1	-1.3	-1.5	-1.6	-1.7	-1.6	-1.6
<b>(3) Stock flow adjustments</b>	<b>-0.1</b>	<b>-0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>PM : Structural balance</b>	<b>-1.1</b>	<b>-1.2</b>	<b>-1.2</b>	<b>-1.2</b>	<b>-1.2</b>	<b>-1.3</b>	<b>-1.6</b>	<b>-2.3</b>
<b>Key macroeconomic assumptions</b>								
Actual GDP growth (real)	1.6	1.8	1.9	1.2	1.2	1.3	1.2	1.2
Potential GDP growth (real)	0.8	1.0	1.1	1.1	1.1	1.1	1.2	1.2
Inflation (GDP deflator)	1.1	1.2	1.5	1.6	1.8	2.0	2.0	2.0
Implicit interest rate (nominal)	2.7	2.6	2.5	2.4	2.5	2.5	3.0	3.7

(1) Given that the drivers of EU change of public debt are calculated as GDP-weighted averages of country-specific debt projections, small differences may exist between the total change of public debt and the sum of its drivers.

Source: Commission services.

This growing impact of ageing costs can be seen in Graphs 2.1 and 2.2 when comparing the no-fiscal policy change scenario with and without ageing costs.

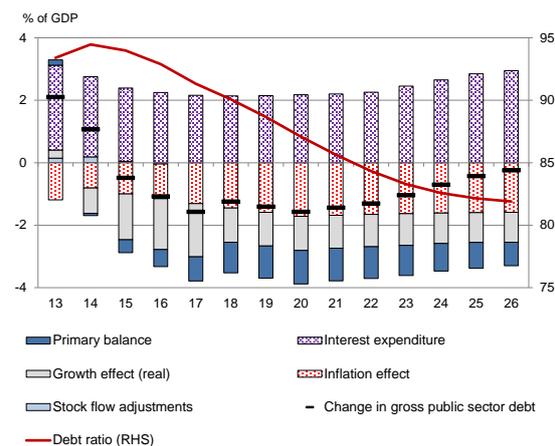
Graph 2.3: Determinants of changes in gross public debt (% of GDP), European Union – Baseline no-fiscal policy change scenario



(1) The different components are shown as contributions to the change in gross public debt ratio. For example, a positive primary balance will contribute to a reduction of the debt ratio.

Source: Commission services.

Graph 2.4: Determinants of changes in gross public debt (% of GDP), Euro area – Baseline no-fiscal policy change scenario



(1) The different components are shown as contributions to the change in gross public debt ratio. For example, a positive primary balance will contribute to a reduction of the debt ratio.

Source: Commission services.

If the SPB (*before ageing costs*) was gradually (in 4 years) reverting to its historical average beyond the forecast horizon (an average structural primary deficit of 0.2% of GDP over the period 2001-15 for the EU, and an average structural primary surplus of 0.3% of GDP over the same period for the EA; see Table 2.4), the evolution of public debt over GDP would differ significantly from the baseline (see historical SPB scenarios in Graphs 2.1 and 2.2). In this case, the projected decrease of the debt ratio would halt in 2022 in the EU (respectively 2024 in the EA), year after which public debt to GDP would start rising again. Overall, with a fiscal stance close to historical behaviour, the EU debt ratio would revert back to its 2017 value (at around 85% of GDP) in 2026, while it would only moderately decrease at the EA level. This tendency would be slightly mitigated if the real interest rate and the real GDP growth were in addition reverting to their historical averages<sup>(61)</sup> given a more favourable interest rate – growth rate differential (compared to the baseline). However, public debt ratio would still show a significant gap with the end-projection level reached under the baseline scenario both in the EU and the EA (difference close to +5 pps. of GDP; see Table 2.3).

Given the significant differences in debt projection results between the baseline no-fiscal policy change scenario and the historical SPB scenario, it is of particular importance to assess the likelihood of a country sustaining, over the medium term, the level of structural primary balance achieved at the last forecasted year. This assessment can be made by analysing the percentile rank of the last forecast-year SPB against the distribution of SPBs over all EU countries and over a long time-period (1980-2015).<sup>(62)</sup> For the EA for instance, the 1%

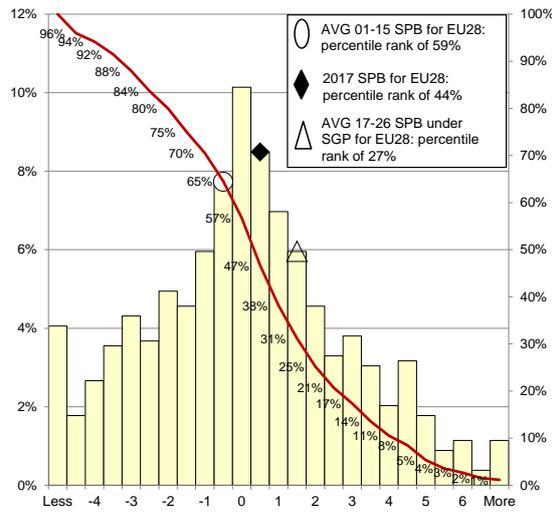
<sup>(61)</sup> The real GDP growth is assumed to converge to the last 15-year historical average of potential GDP growth.

<sup>(62)</sup> The percentile rank is an indication as to where a country-specific fiscal effort for the last forecast year (kept constant until the end of the projection period in the baseline scenario) lies in the overall distribution of fiscal efforts (SPBs). This is a particularly useful piece of information in that it provides a broad idea of how strong the no-fiscal policy change assumption is likely to be in a certain country-specific context. However, an important caveat of this measure needs to be kept in mind: while here the individual country's fiscal effort is analysed against the background of the overall distribution of fiscal efforts across all EU countries, history may also prove that a certain country is more / less able to sustain stronger fiscal efforts than others.

of GDP structural primary surplus forecasted for 2017 is located slightly towards the right tail of the SPB distribution, leaving only around a third of all 3-year average SPBs taking greater values (a percentile rank of 38%; see Graph 2.6). Thus, the last forecasted value for the EA SPB can be considered to some extent relatively high by historical standards, although still not "abnormally" high. For the EU, the percentile rank associated to the last forecasted value of the SPB (0.6% of GDP) is higher (at 44%; see Graph 2.5), meaning that fiscal assumptions in the baseline scenario can be considered plausible based on European historical track-record.<sup>(63)</sup>

Member States<sup>(65)</sup> and the EU/EA aggregates. Beyond the historical SPB and the combined historical scenarios discussed so far, the table also displays debt projection results under two additional historical scenarios, respectively based on post-forecast convergence of the interest rate and real GDP growth rate to historical averages.

Graph 2.5: 3-year average level of structural primary balance - EU percentile rank against the probability distribution over EU countries for the period 1980 - 2015

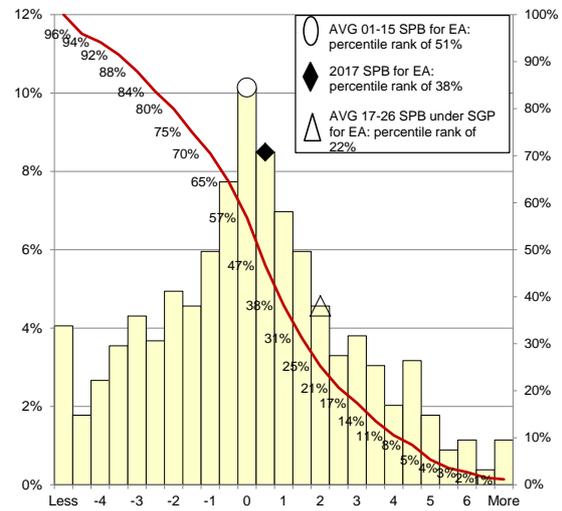


Source: Commission services.

Cross-country main results<sup>(64)</sup>

In Table 2.3, debt projection results under the baseline no-fiscal policy change scenario and the historical scenarios are reported individually for all

Graph 2.6: 3-year average level of structural primary balance - EA percentile rank against the probability distribution over EU countries for the period 1980-2015



Source: Commission services.

In the baseline scenario, 15 countries (BE, DK, DE, IE, ES, IT, LV, LU, HU, MT, NL, AT, PT, SK and SE) would see a decline of their public debt ratio, ranging from a minimum of less than 1 pp. of GDP in Slovakia and Sweden to a maximum of close to 20 pps. of GDP in Italy. On the other hand, debt ratio would be on an upward path in 11 countries (BG, CZ, EE, FR, HR, LT, PL, RO, SI, FI and UK), with particularly important increases projected in Romania and Croatia (respectively +18 and +12 pps. of GDP between 2017 and 2026). When analysing debt trajectories as from the last outturn year (2015), roughly the same group of countries (but SI) would still be on an

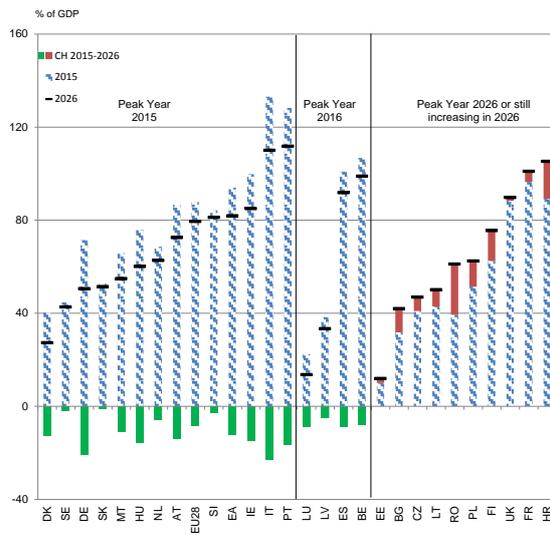
<sup>(63)</sup> See section 5.4 of the report for further analysis of the projected (structural) primary balance versus historical standards.

<sup>(64)</sup> Detailed results and analysis by country are provided in the country fiches of the Annex.

<sup>(65)</sup> Results are nevertheless now shown for Greece and Cyprus, two countries that are currently subject to specific surveillance, being under Economic Adjustment Programme.

upward path at the end of projections (2026), sometimes starting from a high level (e. g. France, Croatia and the United Kingdom; see Graph 2.8).

Graph 2.7: Gross public debt projections (% of GDP) under the baseline no-fiscal policy change scenario, by country



Source: Commission services.

If SPB was converging to its historical average after 2017, public debt to GDP ratio would be higher in 2026 than in the baseline scenario in most countries (18). The highest gap with the baseline scenario is observed in PT, IE, UK, LT and CZ, in line with the important differences of SPB level between the baseline and the historical SPB scenarios (see Table 2.4). In the combined historical scenario, a higher debt ratio, compared to the baseline, is projected in 15 countries in 2026, with particularly important differences observed in PT, IE, HU, IT and UK. In the case of Portugal and Italy, the much lower level of GDP growth in this historical scenario (see also Table 2.4) contributes substantially to the higher end-projection value of debt ratio.

Given the size of the differences in debt projections' results reported in Table 2.3, and as it was done for the EU/EA aggregates, the plausibility of fiscal assumptions in the baseline versus the historical SPB scenario is assessed by percentile rank analysis (see last two columns of Table 2.4). In the baseline no-fiscal policy change scenario, the two extreme cases are provided by Italy and Romania, as for the former, only 20% of the distribution displays a structural primary surplus greater than the level of 2.5% of GDP assumed in the baseline scenario. In the case of Italy however, the baseline level of SPB is relatively close to its historical 15-year average (close to 2% of GDP, associated to a percentile rank of 26%), pointing that this country may be able to sustain stronger fiscal effort over a protracted period than other EU countries.

In the case of Romania, on the other hand, more than 80% of the distribution is above the value of -2.3% of GDP of structural primary deficit assumed in the baseline scenario. Germany and Portugal are two other countries for which a relatively low level of percentile rank is found (at 26%). In the case of Germany, the historical last 15-year average SPB of 1% of GDP points to a more plausible level (although still ambitious), based on EU historical experience (with a percentile rank of 37%).<sup>(66)</sup>

For other countries (e. g. Finland, Denmark and Belgium), the baseline no-fiscal policy change scenario can, on the other hand, appear more plausible than a reversal to past fiscal behaviour. For example, in the case of Denmark, reverting to an SPB of 2.6% of GDP (corresponding to its historical average) may seem ambitious (percentile rank of 20%), compared to keeping it constant at its last forecasted value of 0.2% of GDP (percentile rank of 52%).

<sup>(66)</sup> Clearly, the more the percentile rank of the last forecast year SPB of a given country is located towards any of the tails of the distribution, the more relevant the SPB historical scenario can become for a country as a stress test for the baseline no-fiscal policy change scenario.

Table 2.3: Gross public debt projections (% of GDP) under baseline no-fiscal policy change and historical scenarios, by country

	Debt in 2017	(A) Debt in 2026 - Baseline no-policy change scenario	(B) Debt in 2026 - Historical last 15 years average (01-15) on				(B - A)			
			SPB	IIR	Potential GDP growth	Combined	SPB	IIR	Potential GDP growth	Combined
BE	106.1	98.9	89.0	100.1	97.8	89.1	-9.9	1.2	-1.1	-9.9
BG	33.6	42.0	27.1	40.2	37.1	22.1	-14.9	-1.8	-4.9	-19.9
CZ	40.5	46.9	61.6	47.4	43.7	58.4	14.7	0.4	-3.3	11.4
DK	38.3	27.4	10.0	28.0	28.3	11.0	-17.4	0.6	0.9	-16.3
DE	65.6	50.6	56.9	51.3	49.4	56.4	6.3	0.7	-1.2	5.8
EE	9.2	12.0	15.3	10.4	10.7	12.1	3.3	-1.6	-1.3	0.2
IE	93.7	85.0	102.7	86.4	80.6	99.2	17.7	1.5	-4.4	14.2
EL	:	:	:	:	:	:	:	:	:	:
ES	100.4	91.8	96.8	92.8	85.7	91.5	4.9	0.9	-6.1	-0.3
FR	97.4	101.0	108.7	101.9	100.2	108.8	7.7	0.9	-0.8	7.8
HR	92.9	105.3	119.8	90.7	100.0	99.1	14.5	-14.6	-5.4	-6.2
IT	130.0	110.1	114.3	112.0	115.7	122.0	4.2	1.9	5.6	12.0
CY	:	:	:	:	:	:	:	:	:	:
LV	37.6	33.4	38.5	32.6	31.6	35.6	5.1	-0.8	-1.8	2.2
LT	42.5	50.1	65.0	49.7	40.1	53.1	14.9	-0.5	-10.0	3.0
LU	23.5	13.6	9.8	13.5	13.6	9.7	-3.8	-0.1	0.0	-3.9
HU	72.6	60.1	73.5	59.3	60.4	72.9	13.4	-0.8	0.3	12.8
MT	61.0	54.9	64.6	55.4	54.6	64.9	9.7	0.5	-0.3	10.0
NL	66.9	62.7	56.0	63.4	60.3	54.2	-6.8	0.7	-2.4	-8.5
AT	84.3	72.5	73.6	73.6	72.6	74.8	1.1	1.1	0.1	2.3
PL	53.5	62.5	65.9	65.6	56.3	62.3	3.4	3.1	-6.2	-0.2
PT	121.3	111.8	131.6	112.2	116.1	136.8	19.8	0.4	4.2	24.9
RO	42.8	61.1	57.5	50.1	59.0	45.4	-3.6	-11.0	-2.2	-15.8
SI	78.3	81.2	88.4	84.0	77.9	87.8	7.1	2.7	-3.3	6.6
SK	52.2	51.5	63.1	52.0	46.7	58.4	11.6	0.5	-4.8	6.9
FI	65.7	75.5	53.9	75.9	72.9	51.9	-21.7	0.4	-2.6	-23.6
SE	43.3	42.7	26.4	42.8	41.3	25.3	-16.3	0.1	-1.4	-17.4
UK	86.9	89.8	104.9	90.8	85.6	101.7	15.1	1.1	-4.1	12.0
EU	85.5	79.5	85.0	80.2	77.8	84.0	5.5	0.7	-1.6	4.6
EA	91.3	81.9	86.6	82.8	81.1	86.7	4.7	0.9	-0.8	4.8

Source: Commission services.

## 2.1.2. The Stability and Growth Pact (SGP) scenario

This section presents results for the SGP scenario, in which a significantly different perspective is taken relative to the baseline and historical scenarios. Indeed, in the SGP scenario, fiscal policy is projected, during and beyond the forecast horizon, according to full compliance with respectively the EDP (Excessive Deficit Procedure) recommendations (for countries under the corrective arm of the SGP) and the Medium Term Objective (MTO) convergence path, as defined in the European Commission 2015

Communication<sup>(67)</sup> <sup>(68)</sup> (see Annex A.3 for more details). Moreover, this scenario is run by taking

<sup>(67)</sup> See at the following link: [http://ec.europa.eu/economy\\_finance/economic\\_governance/sgp/pdf/2015-01-13\\_communication\\_sgp\\_flexibility\\_guidelines\\_en.pdf](http://ec.europa.eu/economy_finance/economic_governance/sgp/pdf/2015-01-13_communication_sgp_flexibility_guidelines_en.pdf). See also the commonly agreed position on flexibility, as confirmed by the ECOFIN Council of 8 December 2015 (Council document number 14345/15, available at <http://www.consilium.europa.eu/register/en/content/int/?ty p=ADV>).

<sup>(68)</sup> The SGP scenario does not take into account the possible further granting of flexibility (on top of the one granted in the European Semester 2015) to temporarily deviate from the MTO or adjustment path towards it, under the structural reform and/or investment clause. The scenario only mirrors compliance with the adjustment path towards the MTO and does not incorporate the debt rule (in this sense, one should keep in mind that in general, though not always, under

Table 2.4: Summary of underlying macro-fiscal assumptions used in the baseline and historical scenarios, by country

	Baseline no-policy change scenario						Historical last 15 years average (01-15)			Percentile rank of 2017 SPB	Percentile rank of AVG 01-15 SPB
	2017			Average 2017-26			SPB	IIR	Potential GDP growth		
	SPB	IIR	Real GDP growth	SPB	IIR	Real GDP growth					
BE	0.5	2.6	1.7	0.5	3.0	1.5	2.0	2.5	1.6	46%	25%
BG	-1.3	3.3	2.0	-1.3	3.7	1.6	0.7	0.8	3.3	73%	43%
CZ	-0.3	2.9	2.7	-0.3	3.3	1.8	-2.3	2.2	2.6	61%	82%
DK	0.2	3.1	1.8	0.2	3.4	1.5	2.6	2.9	1.1	52%	20%
DE	1.9	2.1	1.9	1.9	2.6	1.2	1.0	2.5	1.2	26%	37%
EE	-0.1	1.1	2.6	-0.1	2.9	1.8	-0.6	-1.2	3.4	58%	65%
IE	1.3	3.3	3.5	1.3	3.7	2.8	-1.3	2.9	3.3	33%	72%
EL	:	:	:	:	:	:	:	:	:	:	:
ES	0.2	2.8	2.4	0.2	3.1	1.4	-0.6	2.2	1.9	53%	65%
FR	-0.5	2.2	1.7	-0.5	2.7	1.4	-1.7	2.2	1.4	65%	76%
HR	-0.1	4.2	1.7	-0.1	4.4	0.9	-2.2	-1.2	1.4	58%	81%
IT	2.5	3.1	1.4	2.5	3.4	1.1	1.9	2.6	0.3	20%	26%
CY	:	:	:	:	:	:	:	:	:	:	:
LV	-0.6	2.9	3.3	-0.6	2.6	3.0	-1.4	0.4	3.6	66%	74%
LT	0.6	3.9	3.4	0.6	4.4	1.2	-1.3	2.6	3.8	45%	73%
LU	1.3	1.9	3.0	1.3	2.2	3.1	1.8	0.7	3.2	34%	27%
HU	0.9	4.4	2.5	0.9	4.5	2.1	-1.0	2.3	1.9	40%	71%
MT	0.8	3.9	3.1	0.8	4.0	2.6	-0.6	2.7	2.5	41%	65%
NL	-0.4	1.7	2.3	-0.4	2.3	1.2	0.6	2.1	1.4	63%	45%
AT	1.0	2.6	1.4	1.0	2.9	1.5	0.9	2.5	1.5	37%	40%
PL	-1.3	3.1	3.5	-1.3	3.3	2.4	-1.8	3.3	3.7	73%	78%
PT	1.9	3.6	1.8	1.9	3.8	1.2	-1.1	2.4	0.6	26%	71%
RO	-2.3	3.9	3.6	-2.3	4.0	3.0	-1.8	-2.8	3.4	82%	78%
SI	-0.3	3.4	2.5	-0.3	3.4	1.6	-1.3	3.0	2.0	60%	73%
SK	-0.4	3.0	3.3	-0.4	3.3	2.7	-2.1	2.8	3.9	63%	81%
FI	-0.4	1.8	1.1	-0.4	2.5	1.0	2.6	2.0	1.5	63%	19%
SE	-0.3	1.5	2.7	-0.3	2.5	1.9	1.9	1.8	2.2	62%	26%
UK	-0.1	2.7	2.2	-0.1	3.0	1.4	-2.3	2.3	1.8	57%	82%
EU	0.6	2.6	2.1	0.6	2.9	1.4	-0.2	2.3	1.5	44%	59%
EA	1.0	2.5	1.9	1.0	2.9	1.3	0.3	2.3	1.3	38%	51%

(1) Percentile ranks are calculated on the distribution of 3-year average SPB level over all EU countries over the period 1980-2015.

(2) In the historical (GDP growth / combined) scenario, actual real GDP growth is assumed to converge to the historical average of average real potential growth.

Source: Commission services.

into account a feedback effect of fiscal consolidation on GDP growth (a 1 pp. of GDP consolidation effort impacting negatively on baseline GDP growth by 0.75 pps. in the same year.<sup>(69)</sup>

As can be seen from Table 2.5 and Graphs 2.8 and 2.9, adhering to the existing fiscal rules would bring about a significantly higher decrease in gross

public debt over GDP relative to the case of unchanged fiscal policy beyond forecasts (as in the baseline scenario). Indeed, in this case, the debt ratio would reach less than 67% of GDP in 2026 in the EU (respectively less than 69% of GDP in the EA), a level 13 pps. of GDP lower than what is projected under the baseline scenario.

This reduced debt ratio level would be achieved only through a substantial and protracted fiscal consolidation, with a structural primary surplus of 1.8% of GDP on average in the EU (respectively 2.3% of GDP in the EA) during the period 2017-26 (against 0.6% and 1.0% of GDP for the EU and the EA in the baseline scenario). Such a fiscal consolidation scenario, although not

*normal economic circumstances*, the convergence to the MTO under the preventive arm tends to imply the respect of the debt rule).

<sup>(69)</sup> Note that this multiplier effect is based on recent estimations (Carnot and De Castro, 2015).

Table 2.5: Gross public debt projections and underlying structural fiscal efforts (% of GDP) under baseline no-fiscal policy change and SGP scenarios, by country

	End forecast			Baseline (no-policy change) Debt			Consolidation effort: SGP scenario					
	Structural balance	Structural primary balance	Debt	2018	2020	2026	Debt 2026	AVG 17-26 SPB	AVG 17-26 SPB percentile rank	Structural balance 2015	MTO	MTO reached in
BE	-2.2	0.5	106.1	105.3	102.6	98.9	76.5	2.9	18%	-2.5	0.8	2021
BG	-2.4	-1.3	33.6	35.0	36.6	42.0	33.2	0.1	55%	-2.6	-1.0	2019
CZ	-1.4	-0.3	40.5	40.5	41.1	46.9	36.8	0.2	52%	-2.0	-1.0	2017
DK	-1.0	0.2	38.3	38.1	36.2	27.4	32.6	0.7	43%	-2.3	-0.5	2018
DE	0.6	1.9	65.6	63.0	58.2	50.6	44.2	2.1	24%	0.9	-0.5	2016
EE	-0.2	-0.1	9.2	9.0	9.2	12.0	4.7	0.3	49%	0.3	0.0	2016
IE	-1.6	1.3	93.7	90.6	85.8	85.0	63.4	2.5	20%	-3.0	0.0	2020
EL	:	:	:	:	:	:	:	:	:	:	:	:
ES	-2.6	0.2	100.4	100.6	99.6	91.8	74.9	2.6	19%	-2.5	0.0	2019
FR	-2.6	-0.5	97.4	97.8	97.4	101.0	76.9	1.8	27%	-2.7	-0.4	2018
HR	-3.9	-0.1	92.9	94.5	96.7	105.3	83.9	2.2	23%	-3.5	-1.5	2019
IT	-1.4	2.5	130.0	128.2	123.5	110.1	100.6	3.8	11%	-1.0	0.0	2019
CY	:	:	:	:	:	:	:	:	:	:	:	:
LV	-1.8	-0.6	37.6	36.7	35.1	33.4	31.1	-0.2	59%	-2.1	-1.0	2018
LT	-0.9	0.6	42.5	41.3	41.1	50.1	40.1	0.7	42%	-1.2	-1.0	2017
LU	0.9	1.3	23.5	21.9	18.7	13.6	8.4	1.2	34%	0.7	0.5	2016
HU	-2.3	0.9	72.6	71.4	69.3	60.1	63.1	1.2	35%	-2.3	-1.7	2018
MT	-1.5	0.8	61.0	59.2	57.4	54.9	40.7	1.8	27%	-2.1	0.0	2020
NL	-1.5	-0.4	66.9	66.4	65.3	62.7	55.0	0.9	40%	-1.1	-0.5	2018
AT	-1.1	1.0	84.3	82.9	79.5	72.5	65.3	1.7	29%	-0.6	-0.5	2017
PL	-2.9	-1.3	53.5	53.9	55.0	62.5	45.1	0.4	48%	-3.0	-1.0	2020
PT	-2.4	1.9	121.3	120.8	119.2	111.8	97.0	3.5	13%	-1.8	-0.5	2019
RO	-3.8	-2.3	42.8	44.4	47.9	61.1	35.1	0.3	51%	-0.8	-1.0	2020
SI	-2.9	-0.3	78.3	78.5	79.4	81.2	57.4	2.1	24%	-2.7	0.0	2020
SK	-2.0	-0.4	52.2	52.0	51.2	51.5	39.1	0.8	41%	-2.1	-0.5	2019
FI	-1.5	-0.4	65.7	66.1	66.5	75.5	55.5	0.9	39%	-1.7	-0.5	2018
SE	-0.9	-0.3	43.3	42.9	42.3	42.7	38.5	0.0	56%	-1.0	-1.0	2016
UK	-2.4	-0.1	86.9	86.4	86.1	89.8	76.0	0.8	41%	-4.5	-1.3	2020
EU	-1.5	0.6	85.5	84.5	82.3	79.5	66.6	1.8	27%	-1.8	:	:
EA	-1.2	1.0	91.3	90.1	87.1	81.9	68.6	2.3	22%	-1.1	:	:

(1) For the UK, which does not present an MTO, a value of -1.25% of GDP is assumed (corresponding to the minimum MTO). For Croatia, which has not yet nominated its MTO and for which a minimum MTO is not yet available, a conventional value of -1.5% of GDP is assumed.

(2) Percentile ranks calculated on distribution of 3-year average SPB over all EU countries over 1980-2015.

Source: Commission services.

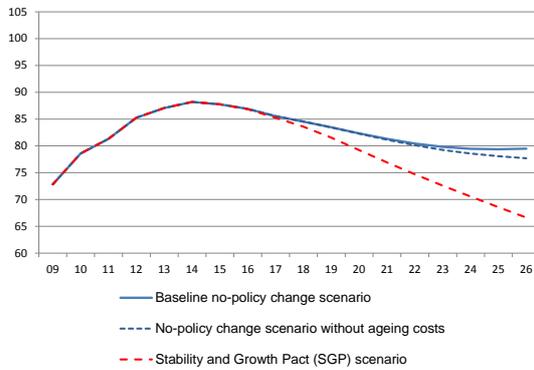
unprecedented, appears relatively ambitious compared to European historical standards as shown by the percentile rank values (27% and 22% respectively for the EU and the EA, see Table 2.5). This is particularly the case of IT, PT, BE, ES and IE, with average SPB percentile ranks ranging from 11% to 20% under this scenario.

In the vast majority of countries, full compliance with the SGP provisions would lead to a lower debt ratio in 2026 compared to the baseline scenario (see Table 2.5). The only exceptions are Denmark and Hungary in line with strongly

decreasing ageing costs over the projection period.<sup>(70)</sup>

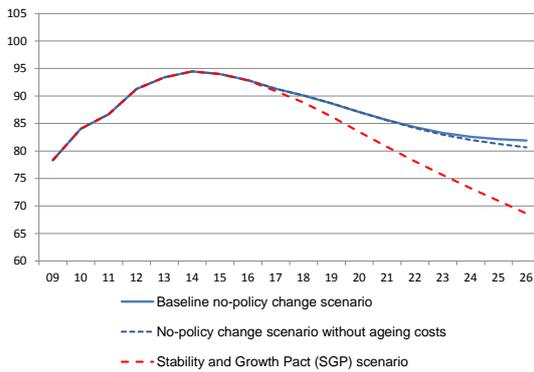
<sup>(70)</sup> In the baseline no-fiscal policy change scenario, the structural balance is projected by assuming constant SPB at the last forecasted value, integrating expected ageing costs and the interest rate bill. In this scenario, expected increases (or decreases) of ageing costs are not supposed to be compensated through expenditure re-allocation. In the SGP scenario, the computation of the structural balance is derived from the full application of SGP rules. In particular, under the preventive arm of the SGP, the structural balance is assumed to converge to its MTO value, as set by Member States to ensure sustainability, taking into account future ageing-related liabilities and debt level (see European Commission, 2013).

Graph 2.8: Gross public debt projections (% of GDP), baseline no-fiscal policy change and SGP scenarios, European Union



Source: Commission services.

Graph 2.9: Gross public debt projections (% of GDP), baseline no-fiscal policy change and SGP scenarios, Euro area



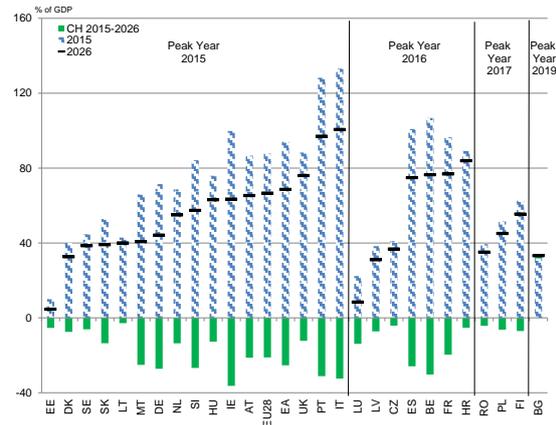
Source: Commission services.

Moreover, under the SGP scenario, public debt to GDP ratio would be lower or broadly stable at its 2015 value for almost all countries (see Graph 2.10).<sup>(71)</sup> The most substantial decreases would be registered in IE, IT, PT and BE (with a decline ranging from -36 pps. of GDP to -30 pps. of GDP between 2015 and 2026). Smaller reductions are projected for LT, CZ and RO (ranging from -2.8 pps. of GDP to -4.2 pps. of GDP), in line with more moderate levels of public debt in 2015. More generally, a strong (negative) correlation between the initial level of public debt and the size of

<sup>(71)</sup> An exception is Bulgaria, which would reach a slighter higher level of debt ratio in 2026 compared to 2015 (but lower than at the last forecast year).

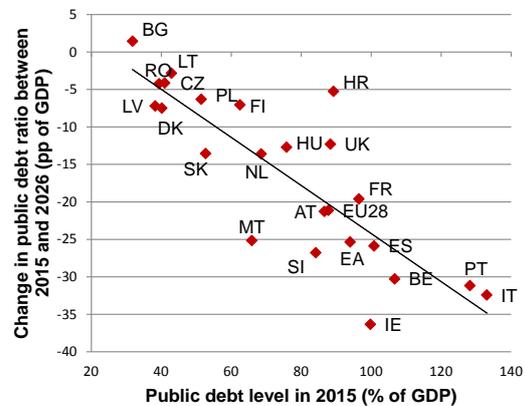
required fiscal consolidation under the SGP scenario is observed (see Graph 2.11).<sup>(72)</sup>

Graph 2.10: Gross public debt projections (% of GDP) under the SGP scenario, by country



Source: Commission services.

Graph 2.11: Gross public debt projections under the SGP scenario, by country - level in 2015 and projected change (pps. of GDP)



Source: Commission services.

<sup>(72)</sup> Although, the correlation is not perfect as other factors are taken into account when defining the required fiscal adjustment (such as cyclical conditions in the definition of the MTO path or future ageing costs in the definition of the MTO level).

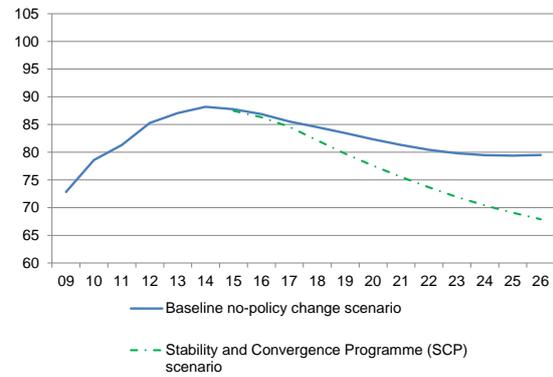
2.1.3. The Stability and Convergence Programme (SCP) and Draft Budgetary Plan (DBP) scenarios

As part of economic governance rules in the Stability and Growth Pact, Member States are required to lay out their fiscal plans for the next *three years* in the so-called Stability and Convergence Programmes (SCPs). These programmes are updated once a year and submitted to the Commission and the Council (ECOFIN) in spring. Moreover, Member States sharing the euro as their currency are additionally required by European economic governance rules to submit their draft budgetary plans (DBPs) for the *following year* to the Commission by October 15.

In this section, debt projection results, based on Member States 2015 round of Stability and Convergence Programmes are presented. Debt projection results, based on the October 2015 DBPs, are also presented. In the SCP and the DBP scenarios, the baseline no-fiscal policy change assumptions prevail beyond the programme / plan horizon.

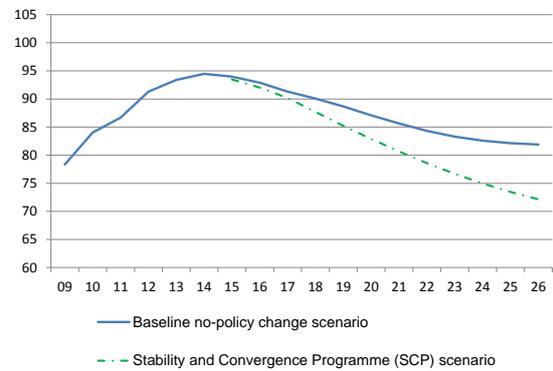
According to the SCPs submitted in April 2015 by Member States, and applying after the programme horizon the no-fiscal policy change assumption, the public debt to GDP ratio would substantially decline by 2026 in both the EU and the EA (by -20 / - 21 pps. of GDP between 2015 and 2026; see Graphs 2.12 and 2.13). In 2026, the debt ratio would reach less than 68% of GDP in the EU and around 72% of GDP in the EA, a level significantly lower than under the baseline scenario (by -12 / -10 pps. of GDP respectively). On the other hand, the projected public debt to GDP value appears closer (yet higher) than the one projected in the SGP scenario (see section 2.1.2) at the EU / EA aggregate level in 2026. Thus, overall, the consolidation plans embedded in the SCPs appear relatively ambitious, yet leading to a higher aggregate debt ratio level than when assuming compliance to SGP rules.

Graph 2.12: Gross public debt ratio (% of GDP), European Union - baseline no-fiscal policy change and SCP scenario



(1) The SCP scenario is based, beyond the programme horizon, on Commission Spring 2015 assumptions.  
 Source: Commission services.

Graph 2.13: Gross public debt ratio (% of GDP), Euro area - baseline no-fiscal policy change and SCP scenario



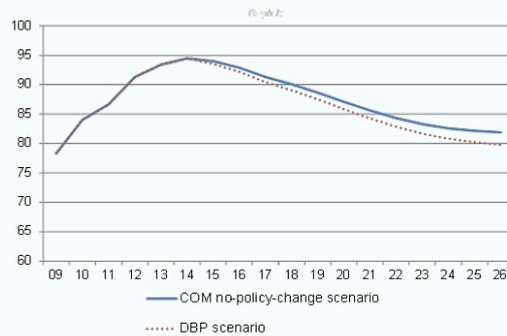
(1) The SCP scenario is based, beyond the programme horizon, on Commission Spring 2015 assumptions.  
 Source: Commission services.

Draft Budgetary Plans show for most countries relatively similar levels of public debt for the year 2016 compared to the Commission forecasts (with some discrepancies however depending on the country considered). Nevertheless, by applying the no-fiscal policy change assumption beyond the plans' horizon (as from 2017), the EA public debt level would reach a slightly lower level by 2026 (by -2 pps. of GDP) compared to the baseline scenario (see Box 2.1 for more details).

### Box 2.1: Debt projections under the 2015 Draft Budgetary Plans (DBPs)

By October 15, euro area Member states<sup>1</sup> submitted their draft budgetary plans (DBPs) for the year 2016. According to these data, and under the no-fiscal policy change assumption as from 2017, the level of public debt ratio at the EA aggregate level would be slightly lower by 2026 than under the baseline scenario (less than 80% against less than 82% of GDP respectively, see Graph B1 and Table B1 below). This difference is mainly driven by a higher structural primary balance assumed in the DBPs (1.2% in 2016 maintained constant over the projection period, *before ageing costs*, versus 1.0% in 2017 in the baseline scenario).

Graph B1: Public debt ratio in the EA (% of GDP)



Source: Commission services

A cross-country comparison shows that by 2026, the debt ratio, under the DBP scenario, would be particularly lower than the baseline in ES, BE, SK, AT and NL (with differences ranging from -14 pp. of GDP to -8 pp. of GDP), in line with more optimistic forecasts for the SPB than the Commission ones. On the other hand, FI, MT, LT and DE would register a higher debt ratio by 2026 (by around +5-6 pp. of GDP), in line with more pessimistic fiscal forecasts than the Commission's (see Table B1 below).

Table B1: Public debt projections (% of GDP) baseline versus DBP scenarios, by EA country

	Baseline scenario - Structural primary balance		DBP scenario - Structural primary balance		Baseline scenario - Debt		DBP scenario - Debt	
	2016	2017	2016	2017	2016	2026	2016	2026
BE	0.7	0.5	1.2	1.2	107.1	98.9	107.0	90.0
DE	2.1	1.9	1.6	1.6	68.5	50.6	68.7	55.2
EE	0.3	-0.1	0.1	0.1	9.6	12.0	9.6	12.6
IE	0.9	1.3	1.1	1.1	95.4	85.0	92.8	83.4
EL	:	:	:	:	:	:	:	:
ES	0.3	0.2	1.2	1.2	101.3	91.8	98.2	77.4
FR	-0.3	-0.5	-0.4	-0.4	97.1	101.0	96.5	98.4
IT	2.6	2.5	2.9	2.9	132.2	110.1	131.4	107.6
CY	:	:	:	:	:	:	:	:
LV	-0.6	-0.6	-0.5	-0.5	41.1	33.4	39.9	36.6
LT	0.1	0.6	-0.2	-0.2	40.8	50.1	40.8	54.9
LU	1.3	1.3	1.1	1.1	23.9	13.6	23.9	14.9
MT	0.8	0.8	0.7	0.7	63.2	54.9	65.2	60.3
NL	-0.2	-0.4	-0.1	-0.1	67.9	62.7	66.2	54.7
AT	1.2	1.0	1.6	1.6	85.7	72.5	85.1	64.1
PT	2.2	1.9	:	:	124.7	111.8	:	:
SI	0.4	-0.3	0.7	0.7	80.9	81.2	80.8	77.0
SK	-0.5	-0.4	0.4	0.4	52.6	51.5	52.1	42.6
FI	-0.4	-0.4	-0.8	-0.8	64.5	75.5	64.3	81.5
EA	1.2	1.0	1.2	1.2	92.9	81.9	92.2	79.8

(1) In the DBP scenario, the no-fiscal policy change assumption is applied as from 2017 (versus 2018 in the baseline scenario).

Source: Commission services

<sup>1</sup> Exceptions are EL and CY, being under economic adjustment programmes, as well as PT (which did not provide a DBP this year).

Table 2.6: Gross public debt ratio (% of GDP) - Fiscal reaction function scenario versus baseline no-fiscal policy change and historical SPB scenarios, by country

	Debt 2017	Baseline no-policy change scenario		SPB historical scenario		Fiscal reaction function scenario			
		PB (average 2018-26)	Debt 2026	PB (average 2018-26)	Debt 2026	PB (average 2018-26)	Debt 2026	Debt (difference with Baseline no-policy change scenario)	Debt (difference with SPB historical scenario)
BE	106.1	0.4	98.9	1.6	89.0	0.6	96.8	-2.1	7.8
BG	33.6	-0.8	42.0	0.9	27.1	-1.7	50.2	8.2	23.1
CZ	40.5	-0.8	46.9	-2.5	61.6	-1.3	51.1	4.2	-10.5
DK	38.3	1.2	27.4	3.2	10.0	0.3	35.1	7.8	25.1
DE	65.6	1.4	50.6	0.7	56.9	1.7	48.3	-2.3	-8.6
EE	9.2	-0.4	12.0	-0.7	15.3	-3.2	38.5	26.5	23.2
IE	93.7	0.1	85.0	-2.0	102.7	-2.6	108.4	23.4	5.7
EL	:	:	:	:	:	:	:	:	:
ES	100.4	0.9	91.8	0.3	96.8	-1.8	113.8	21.9	17.0
FR	97.4	-0.8	101.0	-1.8	108.7	-1.7	108.8	7.8	0.1
HR	92.9	0.1	105.3	-1.6	119.8	2.7	83.0	-22.3	-36.8
IT	130.0	2.7	110.1	2.2	114.3	2.7	109.6	-0.5	-4.7
CY	:	:	:	:	:	:	:	:	:
LV	37.6	-0.3	33.4	-1.0	38.5	-1.7	44.6	11.2	6.1
LT	42.5	-0.3	50.1	-1.9	65.0	-0.9	57.4	7.3	-7.6
LU	23.5	0.6	13.6	1.0	9.8	:	:	:	:
HU	72.6	1.6	60.1	0.0	73.5	0.9	65.5	5.4	-8.0
MT	61.0	0.3	54.9	-0.8	64.6	0.0	57.3	2.4	-7.3
NL	66.9	0.1	62.7	0.9	56.0	-1.3	74.5	11.8	18.6
AT	84.3	0.9	72.5	0.7	73.6	-0.3	82.6	10.1	9.0
PL	53.5	-1.5	62.5	-1.9	65.9	-0.6	54.8	-7.7	-11.1
PT	121.3	1.9	111.8	-0.6	131.6	1.3	116.1	4.3	-15.5
RO	42.8	-2.5	61.1	-2.1	57.5	-1.2	50.6	-10.6	-6.9
SI	78.3	-0.4	81.2	-1.3	88.4	1.3	66.9	-14.3	-21.4
SK	52.2	-0.5	51.5	-1.9	63.1	-0.7	52.7	1.2	-10.4
FI	65.7	-1.3	75.5	1.2	53.9	1.2	53.4	-22.1	-0.4
SE	43.3	-0.5	42.7	1.4	26.4	1.0	29.8	-12.9	3.4
UK	86.9	-0.6	89.8	-2.5	104.9	-1.1	93.9	4.1	-11.0
EU	85.5	0.4	79.5	-0.2	85.0	0.0	82.7	3.2	-2.3
EA	91.3	0.9	81.9	0.3	86.6	0.3	86.3	4.4	-0.3

(1) For debt projections under the FRF scenario, equations presented in Annex A.4 are used.

Source: Commission services.

#### 2.1.4. Debt projections based on estimated fiscal reaction functions

Given unprecedented high levels of public debt both at EU and OECD levels since WWII, a growing literature has emerged about governments' responsiveness to raising public debt. For instance, Bohn (1998) seminal paper, revisited more recently by Gosh *et al* (2011), proposed to estimate fiscal reaction functions (henceforth FRFs) as a prerequisite for assessing fiscal sustainability. In this section, a fiscal reaction function scenario is presented, as an alternative scenario to the standard baseline no-fiscal policy change scenario. Under this FRF scenario, fiscal policy is supposed to

react, over the projection period, to the debt ratio in the previous period and to macroeconomic conditions (i.e. output gap, real interest rate, inflation). The behavioural equations used in this scenario and additional information can be found in the Annex A.4 of the report (see also Berti *et al*, 2016). Taking into account primary balance reaction to changes in public debt (and macroeconomic variables) would lead to a higher public debt ratio at the EU / EA aggregate level in 2026 compared to the baseline no-fiscal policy change scenario (by around + 3 / 4 pps. of GDP, see Graphs 2.14 and 2.15 and Table 2.6). Indeed, projected primary balance under this scenario, based on historical fiscal behaviour, would be

lower (at 0.0% / 0.3% of GDP on average over the period 2018-26) than under the no-fiscal policy change scenario. However, public debt to GDP level in 2026 would be (slightly) lower than under the historical (15-year average) SPB scenario in the EU / EA (by -2.3 / -0.3 pps. of GDP), suggesting overall increased fiscal responsiveness over the last few years (see below).

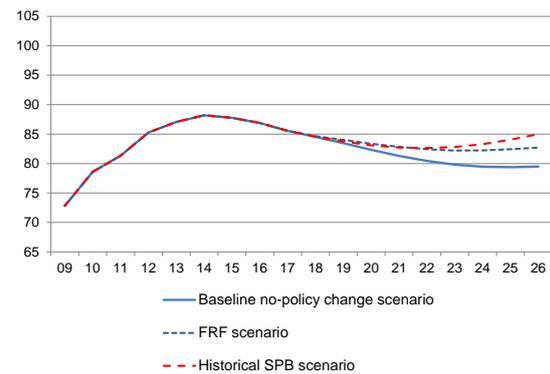
Looking at country-specific results (see Table 2.6), debt ratio would be *lower* in 2026 under the fiscal reaction function scenario than both under the baseline and the historical SPB scenarios in 7 countries (HR, FI, SI, RO, PL, DE and IT). A relatively high or increased FRF debt coefficient since the 2009 financial crisis can explain in some cases this result (e. g. FI, DE and IT). In other cases, fiscal assumptions, under both the baseline and the historical SPB scenario, seem, to some extent, over-pessimistic based on European fiscal standards (e. g. HR, SI, RO and PL).<sup>(73)</sup> Public debt ratio would lie by 2026 in between (above) the baseline and (below) the historical SPB scenarios in 8 countries (SK, MT, UK, CZ, PT, HU, LT and FR). This result seems to be driven by relatively pessimistic fiscal assumptions in the historical SPB scenario (e. g. SK, CZ, HU and LT) and, in some cases, by a relatively high or an increase in fiscal responsiveness since the 2009 financial crisis (e. g. PT, UK and FR). Integrating a FRF would drive public debt to GDP ratio to a *higher* value at the end of the projection period than under both the baseline and the historical SPB scenarios in DK, BG, AT, LV, NL, ES, IE and EE, pointing in these cases to (slightly) over-optimistic fiscal assumptions in the baseline and / or the historical SPB scenarios (e. g. DK and IE), to a weak FRF debt coefficient or to some *fiscal fatigue* (e. g. AT and NL).

Fiscal reaction functions can also be used to derive *public debt sustainability thresholds* i.e. levels of public debt beyond which governments don't meet anymore the inter-temporal budgetary condition (European Commission, 2011). When integrating in addition financial markets' reaction to raising public debt, these functions can be used to derive *public debt limits* i.e. levels of public debt beyond which governments are likely to lose financial markets' access (Fournier and Fall, 2015; Gosh *et*

<sup>(73)</sup> The degree of optimism / pessimism of fiscal assumptions is appreciated by the percentile ranks' values seen before.

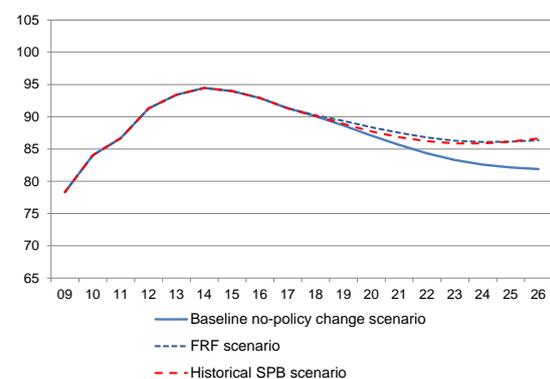
*al*, 2011). Finally, going a step further, some recent papers have used these estimates to measure fiscal space (difference between public debt limit and actual public debt; see Ostry *et al*, 2015).

Graph 2.14: Gross public debt projections (% of GDP), Fiscal reaction function scenario compared to the baseline and SPB historical scenarios, European Union



Source: Commission services

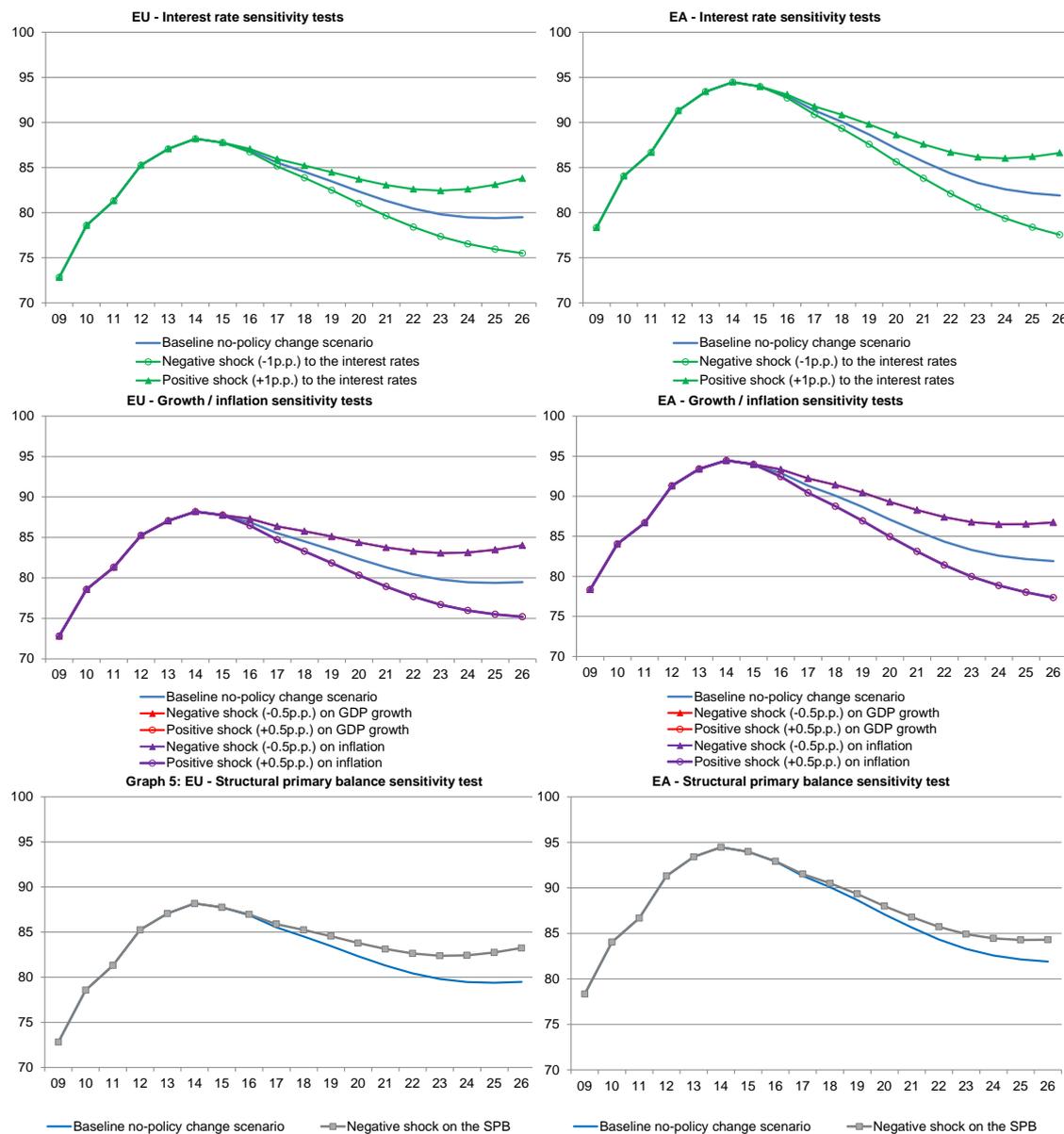
Graph 2.15: Gross public debt projections (% of GDP), Fiscal reaction function scenario compared to the baseline and SPB historical scenarios, Euro area



Source: Commission services

However, it is worth noting that these approaches have important caveats (e. g. sensitivity of the results to the assumptions; backward-looking approach not integrating future liabilities; metric not taking into account other factors like the structure of public debt). Keeping in mind these limitations, some tentative estimations of *public debt sustainability thresholds*, based on our estimations of fiscal reaction functions, are presented in the Annex A.4 of the report.

Graph 2.16: Sensitivity tests around the baseline on interest rates, GDP growth, inflation rate and SPB, EU and EA (% of GDP)



Source: Commission services.

## 2.2. SENSITIVITY ANALYSIS ON DETERMINISTIC PROJECTIONS

Results of standard sensitivity tests around the baseline no-fiscal policy change scenario (as defined in chapter 1 of the report) are reported in Graphs 2.16 and Tables 2.7 to 2.9). A standard permanent shock on interest rates (-1 / +1 pp.) on newly / rolled-over debt has a sizeable impact on

public debt dynamics, leading to a difference between the most favourable and the least favourable scenarios of around 8 / 9 pps. of GDP in 2026 in the EU / EA (see Table 2.7). The impact of a standard permanent shock on nominal GDP growth (whether on the real GDP growth as reported in Table 2.8 or on the inflation rate) has an even higher impact, with a gap between the two extreme standard scenarios of more than 9 pps. of GDP in the EA. Finally, a mild fiscal fatigue

Table 2.7: Sensitivity tests on interest rates (+1/-1 pp. on short- and long-term interest rates on newly issued / rolled-over debt) around baseline no-fiscal policy change scenario

	End forecast (2017)			2026								
				Baseline no-policy change scenario		Standardized (permanent) positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt			Standardized (permanent) negative shock (-1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt			
	SPB	Implicit interest rate on debt	Debt	Implicit interest rate on debt	Debt	Implicit interest rate on debt	Debt	Debt (difference with Baseline no-policy change scenario)	Implicit interest rate on debt	Debt	Debt (difference with Baseline no-policy change scenario)	
BE	0.5	2.6	106.1	3.7	98.9	4.4	103.8	4.9	3.0	94.4	-4.5	
BG	-1.3	3.3	33.6	4.3	42.0	5.1	44.2	2.2	3.5	40.0	-2.0	
CZ	-0.3	2.9	40.5	4.2	46.9	5.0	49.7	2.7	3.3	44.4	-2.5	
DK	0.2	3.1	38.3	3.8	27.4	4.4	28.9	1.5	3.2	25.9	-1.4	
DE	1.9	2.1	65.6	3.5	50.6	4.2	53.6	3.0	2.8	47.8	-2.8	
EE	-0.1	1.1	9.2	4.5	12.0	5.4	12.6	0.6	3.6	11.4	-0.6	
IE	1.3	3.3	93.7	4.1	85.0	4.7	89.1	4.1	3.4	81.2	-3.7	
EL	:	:	:	:	:	:	:	:	:	:	:	
ES	0.2	2.8	100.4	3.9	91.8	4.7	97.6	5.7	3.1	86.6	-5.3	
FR	-0.5	2.2	97.4	3.7	101.0	4.5	106.6	5.6	2.9	95.9	-5.2	
HR	-0.1	4.2	92.9	4.7	105.3	5.6	112.5	7.2	3.8	98.6	-6.7	
IT	2.5	3.1	130.0	4.0	110.1	4.8	117.0	7.0	3.3	103.6	-6.4	
CY	:	:	:	:	:	:	:	:	:	:	:	
LV	-0.6	2.9	37.6	4.0	33.4	4.9	35.4	2.0	3.0	31.5	-1.9	
LT	0.6	3.9	42.5	4.8	50.1	5.8	53.3	3.2	3.9	47.2	-2.9	
LU	1.3	1.9	23.5	2.6	13.6	3.2	14.2	0.6	2.0	13.1	-0.5	
HU	0.9	4.4	72.6	4.7	60.1	5.7	64.8	4.7	3.8	55.7	-4.4	
MT	0.8	3.9	61.0	4.2	54.9	4.8	57.0	2.1	3.6	53.0	-2.0	
NL	-0.4	1.7	66.9	3.4	62.7	4.3	66.4	3.7	2.6	59.3	-3.4	
AT	1.0	2.6	84.3	3.6	72.5	4.3	75.9	3.4	2.9	69.4	-3.1	
PL	-1.3	3.1	53.5	4.1	62.5	5.0	66.0	3.5	3.3	59.2	-3.3	
PT	1.9	3.6	121.3	4.3	111.8	5.1	117.8	5.9	3.6	106.3	-5.5	
RO	-2.3	3.9	42.8	4.5	61.1	5.5	64.8	3.7	3.6	57.7	-3.4	
SI	-0.3	3.4	78.3	4.0	81.2	4.8	85.3	4.1	3.2	77.4	-3.8	
SK	-0.4	3.0	52.2	4.0	51.5	4.8	53.9	2.4	3.3	49.2	-2.3	
FI	-0.4	1.8	65.7	3.7	75.5	4.5	79.8	4.3	2.8	71.6	-4.0	
SE	-0.3	1.5	43.3	3.8	42.7	4.7	45.7	3.0	2.9	40.0	-2.8	
UK	-0.1	2.7	86.9	3.3	89.8	3.9	93.2	3.5	2.8	86.5	-3.2	
EU	0.6	2.6	85.5	3.7	79.5	4.4	83.8	4.3	3.0	75.5	-4.0	
EA	1.0	2.5	91.3	3.7	81.9	4.5	86.6	4.7	3.0	77.5	-4.4	

Source: Commission services.

scenario (with SPB reduced by 50% of the SPB forecasted cumulated change) would lead to a debt ratio higher by around 4 pps. of GDP in the EU and by around 2 pps. of GDP in the EA in 2026 (see Table 2.9). In this case, the negative effect on public debt of a loosening of the fiscal stance compared to the baseline scenario would be to some extent counter-acted by some positive feedback effects on growth.

In line with high public debt levels, the impact of shocks on the interest rates would be particularly large in HR, IT, PT, ES and FR (see Table 2.7). For instance, 1 pp. permanently *higher* (respectively lower) market interest rates would lead to around 7 pps. *higher* (respectively lower) 2026 debt ratios in Croatia and Italy, compared to the baseline scenario.

In some countries, the effect of market interest rate shocks on public debt is amplified by the relatively low maturity of debt (e. g. in Croatia or Hungary), implying rapid transmission on the *implicit* interest rate (see Graph 2.17). Other countries, like the UK for example, where the average maturity of public debt is particularly high, seem less exposed to market interest rates' shocks (despite high public debt). For example, in the UK, a 1 pp. permanently *higher* market interest rates would lead to a moderate increase of public debt ratio by 2026 compared to the baseline (+3.5 pps. of GDP), despite a high level of public debt.<sup>(74)</sup>

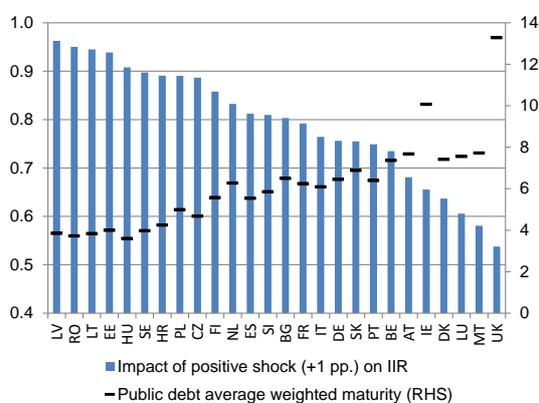
<sup>(74)</sup> The (negative) correlation between the average maturity of public debt and the effect of shocks on implicit interest rate, even though high, is not perfect, as it also depends on the underlying dynamic of public debt (and in particular, on the extent to which new public debt needs to be issued or maturing debt needs to be rolled-over).

Table 2.8: Sensitivity tests on the GDP growth rate (+0.5 / -0.5 pps.) around baseline no-fiscal policy change scenario

	End forecast (2017)			Baseline no-policy change scenario		Standardized (permanent) positive shock (+0.5p.p.) on GDP growth			Standardized (permanent) negative shock (-0.5p.p.) on GDP growth		
	SPB	Actual GDP growth	Debt	Actual GDP growth (average 2016-26)	Debt 2026	Actual GDP growth (average 2016-26)	Debt 2026	Debt (difference with Baseline no-policy change scenario)	Actual GDP growth (average 2016-26)	Debt 2026	Debt (difference with Baseline no-policy change scenario)
BE	0.5	1.7	106.1	1.5	98.9	2.0	93.6	-5.3	1.0	104.6	5.6
BG	-1.3	2.0	33.6	1.6	42.0	2.1	40.0	-2.0	1.1	44.1	2.1
CZ	-0.3	2.7	40.5	1.8	46.9	2.3	44.8	-2.2	1.3	49.2	2.3
DK	0.2	1.8	38.3	1.5	27.4	2.1	25.5	-1.8	1.1	29.3	1.9
DE	1.9	1.9	65.6	1.2	50.6	1.7	47.5	-3.1	0.7	53.9	3.3
EE	-0.1	2.6	9.2	1.8	12.0	2.4	11.5	-0.5	1.4	12.5	0.5
IE	1.3	3.5	93.7	2.8	85.0	3.4	80.7	-4.3	2.4	89.5	4.6
EL	:	:	:	:	:	:	:	:	:	:	:
ES	0.2	2.4	100.4	1.4	91.8	2.0	86.8	-5.1	1.0	97.2	5.4
FR	-0.5	1.7	97.4	1.4	101.0	1.9	96.0	-5.1	0.9	106.4	5.4
HR	-0.1	1.7	92.9	0.9	105.3	1.5	99.8	-5.6	0.5	111.2	5.9
IT	2.5	1.4	130.0	1.1	110.1	1.6	103.5	-6.5	0.6	117.0	6.9
CY	:	:	:	:	:	:	:	:	:	:	:
LV	-0.6	3.3	37.6	3.0	33.4	3.5	31.8	-1.6	2.5	35.1	1.7
LT	0.6	3.4	42.5	1.2	50.1	1.9	47.7	-2.4	0.9	52.7	2.6
LU	1.3	3.0	23.5	3.1	13.6	3.6	12.8	-0.8	2.6	14.5	0.9
HU	0.9	2.5	72.6	2.1	60.1	2.6	56.5	-3.6	1.6	63.9	3.8
MT	0.8	3.1	61.0	2.6	54.9	3.2	52.0	-2.9	2.2	58.0	3.1
NL	-0.4	2.3	66.9	1.2	62.7	1.8	59.4	-3.4	0.8	66.3	3.6
AT	1.0	1.4	84.3	1.5	72.5	2.0	68.5	-4.1	1.0	76.9	4.3
PL	-1.3	3.5	53.5	2.4	62.5	3.0	59.8	-2.8	2.0	65.4	2.9
PT	1.9	1.8	121.3	1.2	111.8	1.8	105.5	-6.4	0.8	118.6	6.8
RO	-2.3	3.6	42.8	3.0	61.1	3.6	58.8	-2.4	2.6	63.7	2.5
SI	-0.3	2.5	78.3	1.6	81.2	2.2	77.2	-4.0	1.2	85.5	4.3
SK	-0.4	3.3	52.2	2.7	51.5	3.2	49.0	-2.5	2.2	54.1	2.6
FI	-0.4	1.1	65.7	1.0	75.5	1.5	72.0	-3.5	0.5	79.3	3.8
SE	-0.3	2.7	43.3	1.9	42.7	2.5	40.6	-2.1	1.5	44.9	2.2
UK	-0.1	2.2	86.9	1.4	89.8	2.0	85.3	-4.4	1.0	94.5	4.7
EU	0.6	2.1	85.5	1.4	79.5	2.0	75.2	-4.3	1.0	84.0	4.5
EA	1.0	1.9	91.3	1.3	81.9	1.8	77.3	-4.6	0.8	86.7	4.8

(1) Sensitivity tests on the inflation rate (+0.5 / -0.5 pps.) yield very similar results.  
Source: Commission services.

Graph 2.17: Impact of a market interest rates positive shock on the implicit interest rate and public debt average weighted maturity, by country



Source: Eurostat, Bloomberg, Commission services.

The impact of shocks to nominal GDP growth on end-of-projection debt ratios would be particularly large in IT, PT, HR, BE, ES and FR, again in line with high public debt levels (see Table 2.8). For instance, a 0.5 pps. permanently lower (respectively higher) GDP growth rate would lead to around 7 pps. higher (respectively lower) 2026 debt ratios in Italy and Portugal, compared to the baseline scenario.

Table 2.9: Sensitivity test on the SPB around baseline no-fiscal policy change scenario (negative shock equivalent to an SPB reduced by 50% of the forecasted SPB cumulated change)

	End forecast (2017)		2026				
			Baseline no-policy change scenario		Standardized negative (permanent) shock on SPB (reduced by 50% of the forecasted cumulated SPB change)		
	SPB	Debt	SPB	Debt	SPB	Debt	Debt (difference with Baseline no-policy change scenario)
BE	0.5	106.1	0.5	98.9	0.5	99.7	0.8
BG	-1.3	33.6	-1.3	42.0	-1.5	43.2	1.2
CZ	-0.3	40.5	-0.3	46.9	-0.5	49.5	2.6
DK	0.2	38.3	0.2	27.4	-0.3	32.5	5.1
DE	1.9	65.6	1.9	50.6	1.6	53.2	2.6
EE	-0.1	9.2	-0.1	12.0	-0.4	14.7	2.7
IE	1.3	93.7	1.3	85.0	0.8	89.9	4.9
EL	:	:	:	:	:	:	:
ES	0.2	100.4	0.2	91.8	-0.1	94.0	2.1
FR	-0.5	97.4	-0.5	101.0	-0.6	102.1	1.1
HR	-0.1	92.9	-0.1	105.3	-0.3	106.4	1.1
IT	2.5	130.0	2.5	110.1	2.1	113.7	3.6
CY	:	:	:	:	:	:	:
LV	-0.6	37.6	-0.6	33.4	-0.7	34.4	1.0
LT	0.6	42.5	0.6	50.1	0.5	50.7	0.6
LU	1.3	23.5	1.3	13.6	1.2	14.6	0.9
HU	0.9	72.6	0.9	60.1	0.7	61.2	1.1
MT	0.8	61.0	0.8	54.9	0.7	56.2	1.3
NL	-0.4	66.9	-0.4	62.7	-0.7	65.8	3.1
AT	1.0	84.3	1.0	72.5	0.7	75.9	3.4
PL	-1.3	53.5	-1.3	62.5	-1.3	63.1	0.6
PT	1.9	121.3	1.9	111.8	1.3	117.4	5.5
RO	-2.3	42.8	-2.3	61.1	-3.9	76.1	15.0
SI	-0.3	78.3	-0.3	81.2	-0.5	84.1	2.8
SK	-0.4	52.2	-0.4	51.5	-0.4	51.5	0.0
FI	-0.4	65.7	-0.4	75.5	-0.5	76.7	1.1
SE	-0.3	43.3	-0.3	42.7	-0.4	43.1	0.4
UK	-0.1	86.9	-0.1	89.8	-1.1	99.4	9.6
EU	0.6	85.5	0.6	79.5	0.2	83.2	3.8
EA	1.0	91.3	1.0	81.9	0.7	84.3	2.4

(1) In this scenario, a feedback effect on growth is included.  
Source: Commission services.

Finally, a standard SPB negative shock (calibrated as a reduction by 50% of the SPB forecasted cumulated change) would lead to particularly large increases of the public debt to GDP ratio in RO, UK and to a lesser extent PT (ranging from +15 pps. of GDP compared to the baseline scenario to +6 pps. of GDP relative to the baseline, see Table 2.9). Indeed, in these 3 countries, a high variation of SPB is projected by the Commission over the period 2015-17 (e. g. fiscal deconsolidation of around 3 pps. of GDP in the case of RO, fiscal consolidation of around 2 pps. of GDP in the case of UK).

### 2.3. STOCHASTIC DEBT PROJECTION RESULTS

As explained in Chapter 1, Section 3.2, stochastic projections complement the more traditional

deterministic public debt projections by featuring the uncertainty of macroeconomic conditions (government primary balance, interest rates, growth and exchange rate) <sup>(75)</sup> in the analysis of debt dynamics in a comprehensive way. <sup>(76)</sup>

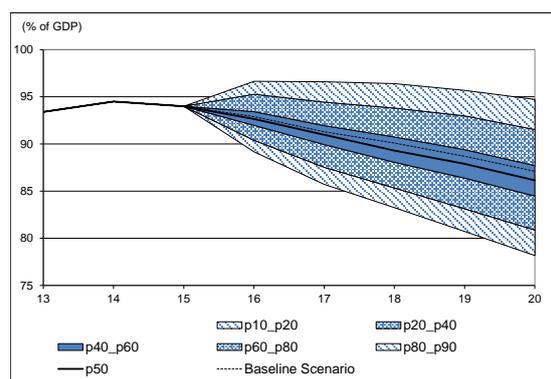
Stochastic projections produce a distribution of debt paths, corresponding to a wide set of possible underlying macroeconomic conditions, obtained by applying shocks to the macroeconomic variables under a central scenario (here the deterministic baseline no-fiscal policy change scenario). Results are generally presented in the form of fan charts, representing the cone of the debt-to-GDP ratio distribution over the 5-year

<sup>(75)</sup> Shocks to the exchange rate are simulated only for non-EA countries, for which the share of public debt denominated in foreign currency can be significant.

<sup>(76)</sup> See Berti (2013) and Annex A5 for more details.

projection horizon (see the fan chart for the EA in Graph 2.18; charts for individual EU countries are reported in the country fiches annexed to the report).

Graph 2.18: Gross public debt (% GDP) from stochastic debt projections (2016-20), EA



Source: Commission services.

In the fan chart, the projected debt path under the central scenario (around which shocks apply) and the median of the debt ratio distribution are reported respectively as a dashed and a solid black line at the centre of the cone. The cone covers 80% of all possible debt paths obtained by simulating 2000 shocks to primary balance, nominal growth, interest rates and exchange rate (the lower and upper lines delimiting the cone represent respectively the 10<sup>th</sup> and the 90<sup>th</sup> distribution percentiles), thus excluding from the shaded area simulated debt paths (20% of the whole) that result from more extreme shocks, or “tail events”. The differently shaded areas within the cone represent different portions of the distribution of possible debt paths. The dark blue area (delimited by the 40<sup>th</sup> and the 60<sup>th</sup> percentiles) includes the 20% of all possible debt paths that are closer to the central scenario.

Graph 2.18 shows that, for the EA, the debt ratio in 2020 is projected to lie roughly between 78% and 95% with an 80% probability (as the two values respectively correspond to the 10<sup>th</sup> and the 90<sup>th</sup> distribution percentiles). In terms of debt dynamics, in the presence of temporary shocks to primary balance, interest rates and nominal growth, the EA’s debt ratio is projected to continue rising in 2016 with a probability of less than 40%, and start decreasing afterwards with a 90% probability. The debt ratio in 2020 is expected to

be lower than in 2015 with a probability of around 88% (only 12% of all simulated combinations of macroeconomic shocks would produce a greater debt ratio in 2020 compared to 2015).

An overview of stochastic projection results country by country is reported in Table 2.10, in the form of debt distribution percentiles in the last projection year, and differences between percentiles (providing a measure of the uncertainty surrounding baseline projections). The estimated probability of a debt ratio at the end of projections greater than the initial debt ratio is additionally reported.

Table 2.10 highlights cross-country differences in the variance of the distribution of the debt ratio in 2020, reflecting the country-specific volatility of macroeconomic conditions.

While 80% of the debt ratio distribution takes values between around 37% and 50% for Sweden and between 89% and 103% for France (with a difference below 15 pps. between the 10<sup>th</sup> and the 90<sup>th</sup> distribution percentiles for both countries), the same share of the distribution lies in the much wider interval of 74-128% for Croatia, 67-116% for Ireland and 15-62% for Latvia (a difference of more than 45 pps. between the 10<sup>th</sup> and the 90<sup>th</sup> percentiles) with medians at around 96%, 89% and 35% respectively for the three countries (see Table 2.10).<sup>(77)</sup> This clearly points to higher uncertainty surrounding baseline projections for the latter countries. Beyond HR, IE and LV, very high uncertainty is reported for BG, RO, MT, AT, SK, SI, BE and CZ, all countries with a difference at or greater than 30 pps. between the 10<sup>th</sup> and the 90<sup>th</sup> distribution percentiles.

<sup>(77)</sup> These results on debt distribution percentile differences are not comparable with results presented in the FSR 2012, as the Commission’s stochastic projection model has been extended in the meantime to additionally simulate shocks to the primary balance (PB) (not considered in the FSR 2012). As a result of the increased simulated macroeconomic uncertainty, the width of the projected cone generally tends to be significantly larger. The only three countries for which the stochastic projection model does not yet include the simulation of shocks to the PB are PT, EE and HR, due to the lack of sufficiently long quarterly data series on the government primary balance in our data source. Results for these three countries are therefore not fully comparable with those reported for the other countries.

Table 2.10: Stochastic debt projection results, by country

Country	Debt ratio in 2015	Proj. median debt ratio in 2020	10th percentile of debt ratio distribution in 2020	90th percentile of debt ratio distribution in 2020	Proj. diff. btw. percentiles 90th and 10th of debt ratio distribution in 2020 (pp)	Proj. diff. btw. percentiles 60th and 40th of debt ratio distribution in 2020 (pp)	Probability of debt ratio in 2020 greater than in 2015 (%)
BE	106.7	102.4	87.5	117.7	30.2	5.9	35
BG	31.8	33.4	16.1	53.0	36.9	7.8	55
CZ	41	41.7	26.7	56.7	30.0	6.0	53
DK	40.2	33.1	25.0	41.8	16.8	3.3	14
DE	71.4	58.5	49.8	67.2	17.4	3.4	3
EE	10	10.9	9.3	12.9	3.6	0.7	74
IE	99.8	88.7	67.5	116.0	48.4	9.9	28
EL	:	:	:	:	:	:	:
ES	100.8	97.9	86.9	109.7	22.8	4.6	38
FR	96.5	96.0	89.2	103.2	14.1	2.7	47
HR	89.2	96.4	74.4	127.8	53.4	11.0	64
IT	133	122.2	111.8	133.5	21.7	4.4	11
CY	:	:	:	:	:	:	:
LV	38.3	35.1	15.5	62.5	47.0	8.8	42
LT	42.9	41.6	30.2	56.0	25.7	4.9	45
LU	22.3	20.8	13.3	28.7	15.4	3.0	40
HU	75.8	67.3	52.3	82.9	30.6	6.4	25
MT	65.9	58.6	41.9	76.0	34.0	7.0	29
NL	68.6	64.2	54.6	74.1	19.6	3.7	28
AT	86.6	79.7	63.2	96.5	33.4	6.6	30
PL	51.4	54.4	44.3	64.7	20.4	4.1	64
PT	128.2	121.8	107.2	136.7	29.5	5.7	28
RO	39.4	48.2	31.8	68.3	36.5	7.6	74
SI	84.2	79.6	65.1	95.3	30.2	6.0	35
SK	52.7	51.4	36.4	67.6	31.2	6.2	46
FI	62.5	68.8	59.1	79.0	19.9	3.8	80
SE	44.7	43.3	36.8	50.1	13.3	2.6	39
UK	88.3	86.4	76.2	97.4	21.2	4.0	41
EA-19	94	86.1	78.2	94.7	16.6	3.2	12

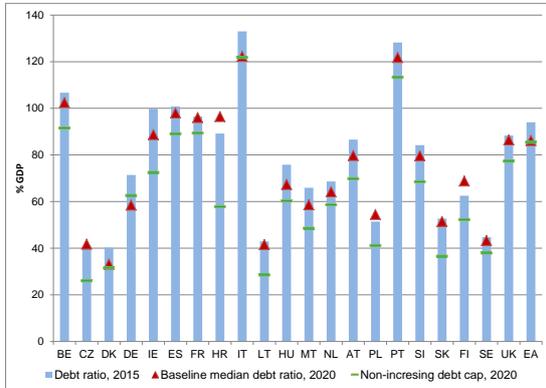
Source: Commission services.

In terms of probability of a debt ratio at the end of projections (2020) greater than the initial (2015) debt ratio, Table 2.10 shows the probability to be very high for FI and HR (80% and 64% probability respectively), two countries that already have debt ratios in 2015 above the 60% Treaty reference value (significantly above it in the case of HR). Relatively high probabilities of a 2020 debt ratio greater than the initial level are reported also for some high-debt countries (i.e. countries with 2015 debt ratio above 90%). Belgium, for instance, (with a 2015 debt ratio at around 107%) has a 35% probability of a higher debt ratio in 2020. Spain has an almost 40% probability of a greater debt ratio, being at a debt ratio above 100% in 2015, and France, with a debt of almost 97% of GDP in 2015, has a probability of almost 50%.

Finally, an alternative (and telling) way to present results from stochastic projections is to look at the median debt ratio a country would need to target for the final projection year (2020) to be able to contain to a relatively small level (10%) the probability of a debt ratio in 2020 greater than its initial (2015) debt ratio.<sup>(78)</sup> We label this indicator here as the "non-increasing debt cap" and report in Graph 2.19 results for all EU countries with 2015 debt ratio above 40%.

<sup>(78)</sup> The calculations of this indicator that we present here are based on the simplifying assumption that the country-specific variance of the debt distribution (the width of the projection cone) remains constant at what estimated by running the stochastic simulations around baseline no-fiscal policy change projections (i.e. the variance of the distribution is not affected by the eventual attempt to target the "non-increasing debt cap" by 2020).

Graph 2.19: Non-increasing debt cap versus baseline median debt ratio, 2020



Source: Commission services.

As indicated in Graph 2.19, for the EA the non-increasing debt cap is around 85% of GDP. This means that to have a EA debt ratio in 2020 that is smaller than in 2015 (around 94% of GDP) with a 90% probability, despite possible shocks to the primary balance, nominal growth and interest rates on government debt, the EA's projected median debt ratio for 2020 should be around 85%.

The graph shows that for practically all countries (but Germany) the non-increasing debt cap lies below the median debt ratio under the baseline no-fiscal policy change scenario. This means that, under the joint effects of possible macroeconomic shocks reflecting the size and correlation of past shocks, the debt ratio that would be reached in 2020 under no-fiscal policy change projections is, for practically all EU countries reported in Graph 2.19, not sufficient to ensure a high probability (90%) of a debt ratio in 2020 smaller than the country's initial debt ratio.

# 3. THE ECONOMIC AND BUDGETARY IMPLICATIONS OF AGEING

## 3.1. INTRODUCTION

The demographic trends projected over the long term reveal that Europe is ‘turning increasingly grey’ in the coming decades. The Commission, as well as the Council, have already recognised the need to tackle resolutely the impact of ageing populations on the European social models.

Having reliable and comparable information on the challenges of the future demographic changes in Europe entails considering the age-structure of the population today, and how it could look like in coming decades. This sheds light on the economic, budgetary and societal challenges that policy makers will have to face in the future. The long-term projections provide an indication of the timing and scale of challenges that would result from an ageing population. They show where, when, and to what extent, ageing pressures will accelerate as the baby-boom generation retires and the average life-span continues to increase. Hence, the projections are helpful in highlighting the immediate and future policy challenges posed for EU countries by demographic trends.

This chapter looks at the major demographic factors influencing population projections underlying this report and considers the way in which they are expected to affect (non-fiscal) macroeconomic variables of 28 EU Member States, and ultimately their budgetary impact through age-related expenditures.

## 3.2. POPULATION AGEING

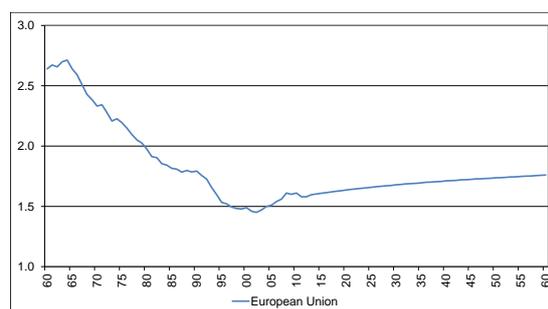
Due to the dynamics in fertility, life expectancy and migration, the age structure of the EU population will change strongly in the coming decades. The overall size of the population is projected to be slightly larger by 2060 but much older than it is now.<sup>(79)</sup> It is best visible in the fall in fertility rates and increases in life expectancy.

The EUROPOP2013 projection assumes a process of convergence in the fertility rates across Member

States to that of the forerunners over the very long-term. The total fertility rate (TFR) is projected to rise from 1.59 in 2013 to 1.68 by 2030 and further to 1.76 by 2060 for the EU as a whole. In the euro area, a similar increase is projected, from 1.56 in 2013 to 1.72 in 2060 (see Graph 3.1).

The fertility rate is projected to increase over the projection period in nearly all Member States, with the exception of Ireland, France and Sweden (the forerunners, with values above 1.9) where it is expected to decrease, whereas in the UK it is projected to remain stable. Consequently, fertility rates in all countries are expected to remain below the natural replacement rate of 2.1 in the period to 2060 (see Table 3.1).

Graph 3.1: Fertility rate



Source: 2015 Ageing Report, Commission services.

The EUROPOP2013 projection shows large increases in life expectancy at birth being sustained during the projection period, albeit with a considerable degree of diversity across Member States reflecting the convergence assumption.

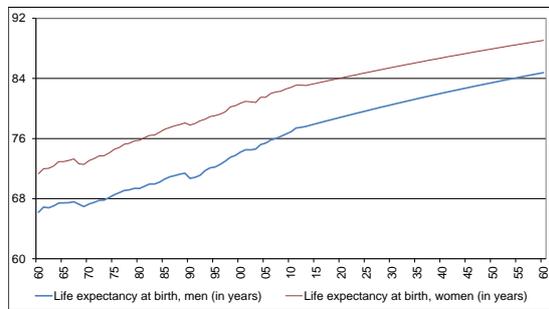
In the EU, life expectancy at birth for males is expected to increase by 7.1 years over the projection period, from 77.6 in 2013 to 84. in 2060. For females, life expectancy at birth is projected to increase by 6.0 years for females, from 83.1 in 2013 to 89.1 in 2060, implying a convergence of life expectancy between males and females (see Graph 3.2).

The largest increases in life expectancies at birth, for both males and females, are projected to take place in the Member States with the lowest life expectancies in 2013. Life expectancies for males in 2013 are the lowest in Bulgaria, Estonia, Latvia,

<sup>(79)</sup> Eurostat's population projection (EUROPOP2013) was published on 28 March 2014.

Lithuania, Hungary and Romania, ranging between 69 and 72 years. Life expectancies increase more than 10 years up to 2060 for these countries, indicating that some catching-up takes place over the projection period. For females, the largest gains in life expectancies at birth of 8 years or more are projected in Bulgaria, Latvia, Lithuania, Hungary, Romania and Slovakia. In all of these countries, female life expectancies in 2013 are below 80 years (see Table 3.1).

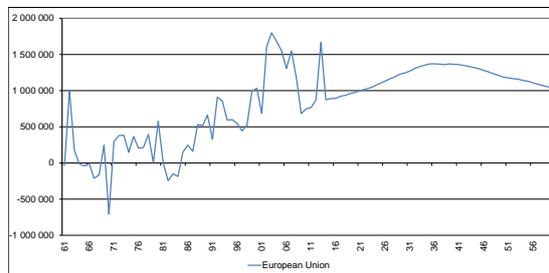
Graph 3.2: Life expectancy at birth



Source: 2015 Ageing Report, Commission services.

Net inflows for the EU as a whole are projected to increase from about 874,000 people in 2014 to 1,364,000 by 2040 and thereafter declining to 1,037,000 people by 2060 (an annual inflow of 0.2% of the EU population). (see Graph 3.3).

Graph 3.3: Net migration flows



Source: 2015 Ageing Report, Commission services.

Table 3.1: Demographic assumptions for the EUROPOP2013 population projection

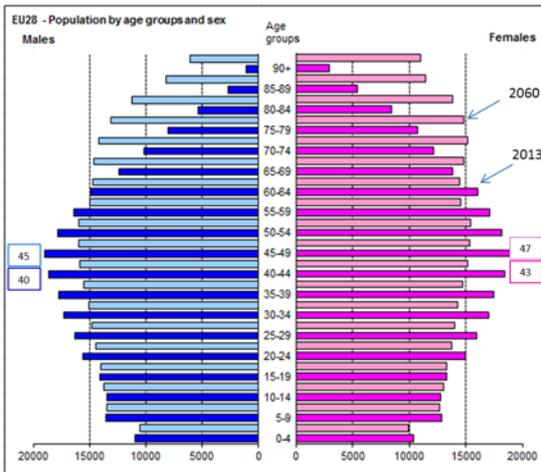
	Fertility rate		Life expectancy at birth			
			Males		Females	
	2013	2060	2013	2060	2013	2060
BE	1.81	1.87	77.8	84.6	82.9	88.9
BG	1.51	1.77	71.1	81.6	78.0	86.4
CZ	1.52	1.80	75.1	83.3	81.2	87.9
DK	1.74	1.86	78.2	84.8	82.1	88.7
DE	1.40	1.63	78.5	85.2	83.2	89.1
EE	1.57	1.82	71.6	81.9	81.3	88.3
IE	2.01	1.98	78.7	85.2	83.0	89.2
EL	1.34	1.58	78.0	84.9	83.3	89.0
ES	1.32	1.55	79.5	85.5	85.2	90.0
FR	2.02	1.98	78.6	85.2	85.0	90.0
HR	1.53	1.67	74.0	82.7	80.7	87.6
IT	1.43	1.61	79.8	85.5	84.7	89.7
CY	1.40	1.62	79.1	85.2	83.3	88.9
LV	1.50	1.78	69.1	80.9	78.9	87.0
LT	1.61	1.79	68.7	80.9	79.6	87.4
LU	1.59	1.78	79.1	85.4	83.5	89.5
HU	1.38	1.74	71.9	82.0	78.8	87.0
MT	1.44	1.78	78.7	85.1	82.8	89.1
NL	1.72	1.80	79.3	85.2	82.9	88.9
AT	1.45	1.62	78.4	84.9	83.5	89.1
PL	1.32	1.62	72.8	82.6	80.9	88.1
PT	1.27	1.52	77.4	84.5	83.5	89.2
RO	1.65	1.83	71.2	81.8	78.2	86.7
SI	1.59	1.75	77.2	84.3	83.1	88.9
SK	1.28	1.53	72.7	82.3	79.9	87.4
FI	1.80	1.86	77.7	84.6	83.5	89.2
SE	1.93	1.92	80.1	85.6	83.6	89.2
UK	1.93	1.93	79.1	85.3	82.8	89.0
NO	1.85	1.88	79.6	85.4	83.5	89.1
EU	1.60	1.76	77.6	84.8	83.1	89.1
EA	1.56	1.72	78.7	85.2	84.0	89.5

Source: Eurostat.

The EU population is projected to increase (from 507 million in 2013) up to 2050 by almost 5%, when it will peak (at 526 million) and will thereafter decline slowly (to 523 million in 2060). This increase would however not be the case without the projected inward migration flows to the EU (see Graph 3.4).

There are wide differences in population trends until 2060 across Member States. While the EU population as a whole would be larger in 2060 compared to 2013, decreases of the total population are projected for about half of the EU Member States (BG, DE, EE, EL, ES, HR, LV, LT, HU, PL, PT, RO, SI and SK). For the other Member States (BE, CZ, DK, IE, FR, IT, CY, LU, MT, NL, AT, FI, SE and UK) an increase is projected.

Graph 3.4: Age pyramid for the EU, 2013 and 2060



Source: 2015 Ageing Report, Commission services.

As a result of these different trends among age-groups, the demographic old-age dependency ratio (people aged 65 or above relative to those aged 15-64) is projected to increase from 27.8% to 50.1% in the EU as a whole over the projection period. This implies that the EU would move from having four working-age people for every person aged over 65 years to about two working-age persons.

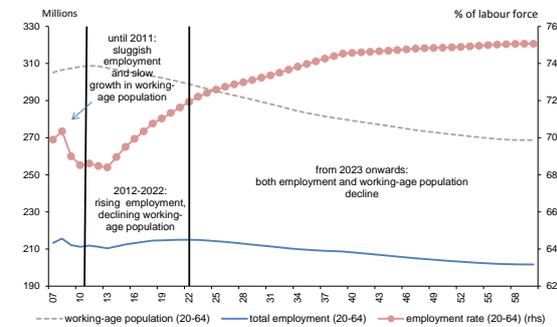
### 3.3. LABOUR FORCE PROJECTIONS

Based on a cohort simulation model, labour force projections show a rise in overall participation rates, particularly visible for ages 50+, reflecting the combined effect of the rising attachment of younger generations of women to the labour market, together with the expected impact of pension reforms. By large, the biggest increases in participation rates are projected for older workers (around 21 pps. for women and 10 pps. for men) in the EU for the age group 55-64, influenced by enacted pension reforms.<sup>(80)</sup> Consequently, the gender gap is projected to narrow substantially in the period up to 2060. The total participation rate (for the age group 20-64) in the EU is projected to increase by 3.5 pps. (from 76.5% in 2013 to 80.1% in 2060). In the same period, women's participation rate is projected to increase by about 6 pps. compared with 1 pp. for men.

<sup>(80)</sup> See 2015 Ageing Report.

The projections show that employment (aged 20-64) will peak at 215 million in 2022, and after that fall to 202 million in 2060. This implies a decline of about 9 million workers over the period 2013 to 2060. The negative prospects stemming from the rapid ageing of the population, will only be partly offset by the increase in (female and older workers) participation rates migration inflows and the assumed decline in structural unemployment, leading to a reduction in the number of people employed during the period 2023 to 2060 (13 million).

Graph 3.5: Population of working-age and employment



Source: 2015 Ageing Report, Commission services.

Demographic developments have a major impact on labour market developments. Three distinct periods can be observed for the EU as a whole (see Graph 3.5):

- *2007-2011 – demographic developments still supportive of growth:* the working-age population is growing, but employment is sluggish as the financial and economic crisis weighs on labour prospects during this period.
- *2012-2022– rising employment rates offset the decline in the working-age population:* the working-age population starts to decline as the baby-boom generation enters retirement. However, the assumed reduction in unemployment rates, the projected increase in the employment rates of women and older workers cushion the impact of demographic change, and the overall number of persons employed would start to increase during this period.
- *From 2023 – the population ageing effect dominates:* the projected increase in

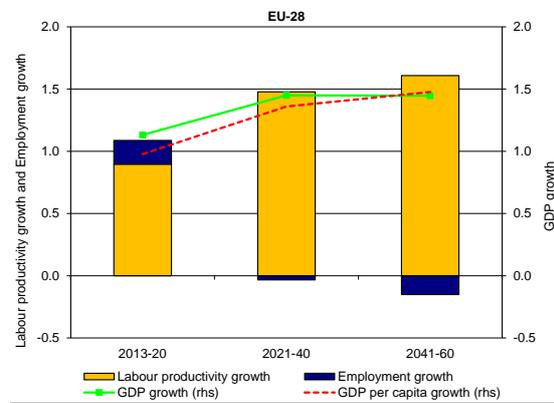
employment rates is slower, as trend increases in female employment and the impact of pension reforms will be less pronounced. Hence, both the working-age population and the number of persons employed start falling over the remainder of the period.

### 3.4. LABOUR PRODUCTIVITY AND POTENTIAL GDP GROWTH

In the EU as a whole, the annual average potential GDP growth rate in the baseline scenario is projected to remain quite stable over the long-term, albeit much lower than in previous decades. The assumption of convergence to a TFP growth rate of 1% entails for most countries that it would rise over the coming decades from the current historically low levels, and this will more than compensate for the declining labour growth from 2023 onwards. As a result, after an average potential growth of 1.1% up to 2020, a slight increase to 1.4-1.5% is projected for the remainder of the projection horizon. Over the whole period 2013-2060, average potential GDP growth rates in the EU is projected to be 1.4%. Developments in the euro area are very close to that of the EU as a whole and the potential growth rate in the euro area (averaging 1.3%) is projected to be slightly lower than for the EU throughout the projection period.

The sources of GDP growth will alter dramatically over the projection horizon. Labour will make a positive contribution to growth in both the EU and the euro area up to the 2020s, but turn negative thereafter. For the EU and for the euro area, a slight increase in the size of the total population over the entire projection period and an assumed increase of employment rates make a positive contribution to average potential GDP growth. However, this is more than offset by a decline in the share of the working-age population, which is a negative influence on growth (by an annual average of -0.2 percentage points). As a result, labour input contributes negatively to output growth on average over the projection period (by 0.1 pps. in the EU and in the euro area). Hence, labour productivity growth, driven by TFP growth, is projected to be the sole source of potential output growth in both the EU and the euro area over the entire projection period (see Graph 3.6).

Graph 3.6: Components of potential GDP growth, EU

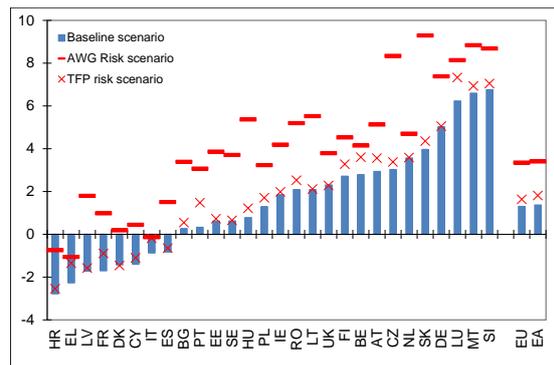


Source: 2015 Ageing Report, Commission services.

### 3.5. BUDGETARY PROJECTIONS

The long-term budgetary projections show that population ageing poses a challenge for the public finances in the EU. The fiscal impact of ageing is projected to be high in most Member States, with effects becoming apparent already during the next decade.

Graph 3.7: Projected change in age-related expenditure - baseline and risk scenarios, 2013-2060



Source: 2015 Ageing Report, Commission services.

The projected change in public age-related expenditure (pensions, health care, long-term care and education) is almost 1.5 pps. of GDP in the period to 2060 (EU: +1.3 pps., EA: +1.4 pps.) between 2013 and 2060 in the baseline scenario (see Graph 3.7 and Table 3.2).<sup>(81)</sup> Looking at the

<sup>(81)</sup> As in previous long-term projection exercises, the baseline scenario focuses on the budgetary impact mostly due to demographic developments.

Table 3.2: Projected change in age-related expenditure components, baseline and risk scenarios, 2013-2060

	(1) Pension expenditure			(2) Healthcare expenditure				(3) Long-term care				(4) Education expenditure		(5) Unemployment benefits		(6)=(1)+(2)+(3)+(4)+(5) Total				
	Reference scenario	TFP scenario	Risk scenario	Reference scenario	TFP scenario	Risk scenario	AWG Risk scenario	Reference scenario	TFP scenario	Risk scenario	AWG Risk scenario	2013	2013-60	2013	2013-60	Reference scenario	TFP scenario	Risk scenario	AWG Risk scenario	
	2013	2013-60	2013-60	2013	2013-60	2013-60	2013-60	2013	2013-60	2013-60	2013-60	2013	2013-60	2013	2013-60	2013	2013-60	2013-60	2013-60	
BE	11.8	1.3	2.1	6.0	0.1	0.1	0.5	2.1	1.5	1.5	2.5	5.8	0.1	1.8	-0.2	27.5	2.8	3.6	4.1	BE
BG	9.9	-0.4	-0.1	4.0	0.4	0.3	1.1	0.4	0.2	0.2	2.5	3.0	0.4	0.5	-0.2	17.8	0.3	0.5	3.4	BG
CZ	9.0	0.7	1.1	5.7	1.0	0.9	1.7	0.7	0.7	0.7	5.2	3.4	0.7	0.2	0.0	19.1	3.0	3.4	8.3	CZ
DK	10.3	-3.1	-3.1	8.1	0.9	0.8	1.9	2.4	2.0	2.0	2.6	7.6	-0.7	1.4	-0.5	29.8	-1.4	-1.5	0.2	DK
DE	10.0	2.7	2.8	7.6	0.6	0.5	1.3	1.4	1.5	1.5	3.1	4.1	0.3	0.8	0.0	23.9	5.0	5.0	7.4	DE
EE	7.6	-1.3	-1.2	4.4	0.6	0.6	1.3	0.6	0.7	0.7	3.2	4.4	0.8	0.2	0.0	17.1	0.6	0.7	3.9	EE
IE	7.4	1.1	1.2	6.0	1.2	1.2	1.9	0.7	0.7	0.7	2.3	6.0	0.0	2.1	-1.1	22.1	1.9	2.0	4.2	IE
EL	16.2	-1.9	-1.0	6.6	1.3	1.2	2.1	0.5	0.4	0.4	0.8	4.1	-1.1	1.2	-0.9	28.5	-2.3	-1.4	-1.1	EL
ES	11.8	-0.8	-0.7	5.9	1.1	1.0	1.9	1.0	1.4	1.4	2.9	4.6	-0.8	2.2	-1.7	25.4	-0.8	-0.7	1.5	ES
FR	14.9	-2.8	-1.9	7.7	0.9	0.8	1.6	2.0	0.8	0.8	2.7	5.0	-0.2	1.5	-0.4	31.1	-1.7	-0.9	1.0	FR
HR	10.8	-3.9	-3.7	5.7	1.7	1.7	2.7	0.4	0.1	0.1	1.1	3.7	-0.4	0.5	-0.3	21.2	-2.8	-2.6	-0.7	HR
IT	15.7	-1.9	-1.2	6.1	0.7	0.6	1.2	1.8	0.9	0.9	1.1	3.7	-0.2	0.9	-0.3	28.2	-0.9	-0.2	-0.1	IT
CY	9.5	-0.1	0.2	3.0	0.3	0.3	0.6	0.3	0.2	0.2	1.8	7.3	-1.2	0.8	-0.6	20.9	-1.4	-1.1	0.4	CY
LV	7.7	-3.1	-2.9	3.8	0.6	0.6	1.5	0.6	0.1	0.1	2.7	3.8	0.8	0.3	-0.2	16.2	-1.7	-1.6	1.8	LV
LT	7.2	0.3	0.3	4.2	0.1	0.1	0.9	1.4	0.9	0.9	3.5	3.9	0.9	0.2	-0.1	16.9	2.1	2.1	5.5	LT
LU	9.4	4.1	5.2	4.6	0.5	0.5	0.8	1.5	1.7	1.7	3.3	3.3	0.2	0.7	-0.2	19.5	6.2	7.3	8.1	LU
HU	11.5	-0.1	0.3	4.7	0.8	0.8	1.5	0.8	0.4	0.4	4.2	3.6	-0.2	0.3	-0.1	20.8	0.8	1.2	5.4	HU
MT	9.6	3.2	3.6	5.7	2.1	2.1	3.0	1.1	1.2	1.2	2.6	5.9	0.1	0.3	0.0	22.6	6.6	6.9	8.8	MT
NL	6.9	0.9	1.0	7.2	1.0	0.9	1.6	4.1	3.0	3.0	3.5	5.2	-0.5	2.0	-0.8	25.4	3.6	3.6	4.7	NL
AT	13.9	0.5	1.1	6.9	1.3	1.3	2.0	1.4	1.3	1.3	2.8	4.9	0.0	0.8	-0.2	27.9	2.9	3.6	5.1	AT
PL	11.3	-0.7	-0.2	4.2	1.2	1.2	2.2	0.8	0.9	0.9	1.9	4.4	-0.1	0.2	-0.1	20.9	1.3	1.7	3.2	PL
PT	13.8	-0.7	0.5	6.0	2.5	2.5	3.5	0.5	0.4	0.4	2.1	5.2	-1.0	1.5	-0.9	27.0	0.3	1.5	3.1	PT
RO	8.2	-0.1	0.3	3.8	1.0	0.9	1.7	0.7	0.9	0.9	3.2	2.6	0.4	0.1	0.0	15.5	2.1	2.5	5.2	RO
SI	11.8	3.5	3.8	5.7	1.2	1.2	1.9	1.4	1.5	1.5	2.7	5.3	0.8	0.6	-0.2	24.7	6.8	7.0	8.7	SI
SK	8.1	2.1	2.5	5.7	2.0	2.0	3.3	0.2	0.4	0.4	4.4	3.4	-0.4	0.2	-0.1	17.7	4.0	4.3	9.3	SK
FI	12.9	0.1	0.6	7.8	0.7	0.7	1.3	2.4	2.1	2.1	3.3	6.1	0.3	1.9	-0.4	31.2	2.7	3.3	4.5	FI
SE	8.9	-1.4	-1.4	6.9	0.4	0.4	1.2	3.6	1.5	1.5	3.8	5.7	0.2	0.4	-0.1	25.5	0.6	0.6	3.7	SE
UK	7.7	0.7	0.7	7.8	1.3	1.2	2.0	1.2	0.4	0.4	1.1	5.1	0.0	0.3	-0.1	22.1	2.3	2.3	3.8	UK
EU	11.3	-0.3	0.1	6.9	0.9	0.8	1.6	1.6	1.1	1.1	2.4	4.7	0.0	1.1	-0.4	25.6	1.3	1.6	3.3	EU
EA	12.3	-0.1	0.4	7.0	0.8	0.7	1.5	1.7	1.3	1.3	2.6	4.5	-0.1	1.3	-0.4	26.8	1.4	1.8	3.4	EA

(1) For budgetary surveillance purposes, current legislation in the area of long-term care in Germany is relevant (see also section II.3.4.2 and Table II.3.2 in the 2015 Ageing Report). The projected change in long-term care expenditure in this case is +0.1 pps. of GDP for Germany, and it also has an impact on the EU and EA aggregates for long-term care expenditure and on total age-related expenditure. In the sustainability analysis in this report, the figure that incorporates the institutional setting for long-term care in Germany is used.

(2) The impact of the 2015 pension reform in Belgium is included in this Table. It was subject to a peer review on 4 November 2015 by the AWG, and the EPC endorsed the new pension projections on 20 November 2015.

Source: 2015 Ageing Report, Commission services.

components of age-related expenditure, the increase between 2013 and 2060 is mostly driven by health care and long-term care spending, which combined is projected to rise by about 2 pps. of GDP (Health care: +0.9 pps., Long-term care: +1.1 pps.). After a projected increase up to 2040 (EU: +0.4 pps., EA: +0.8 pps.), public pension expenditure is projected to return close to its 2013 level (EU: -0.3 pps., EA -0.1 pps. over the period 2013-2060). However, the projected decline in pension spending is mostly visible in the latter part of the projection horizon. Education expenditure is projected to remain unchanged up to 2060. Unemployment benefit expenditure is projected to fall in the period to 2060 (by 0.4 pps. of GDP in the EU).

There is however considerable variety across EU Member States and also in the profile over time in the long-term spending trends (see Graph 3.7 and Table 3.2). According to the projections:

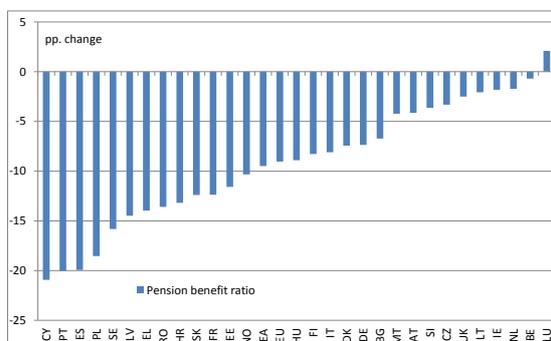
- A fall in total age-related expenditure relative to GDP is projected in eight Member States (HR, EL, LV, FR, DK, CY, IT and ES). In all of these countries, a decline in the pension-to-GDP ratio is projected in the long-term (exceeding 3 pps. of GDP in HR, DK and LV).
- For another set of countries (BG, PT, EE, SE, HU, PL, IE, RO, LT and UK), age-related expenditure ratio is expected to rise moderately (by up to 2.5 pps. of GDP).
- The age-related expenditure ratio increase is projected to be the largest in the remaining ten Member States (FI, AT, CZ, NL, SK, DE, BE, LU, MT and SI), rising by between 2.5 pps. and 6.8 pps. of GDP and with pension expenditure increasing in all of these countries (exceeding 3 pps. of GDP in LU, MT and SI).

The large differences between Member States reflect primarily the diversity in public pension

arrangements, their degree of maturity and the effects of pension reforms enacted so far. In fact, a reduction of public pension spending as a share of GDP over the long-term is projected in the majority (15) of Member States (HR, DK, LV, FR, IT, EL, SE, EE, ES, PT, PL, BG, RO, CY and HU), mostly as a result of implemented pension reforms. These reform measures, including changes to the retirement age and the pension benefit, have primarily been adopted to address fiscal sustainability concerns of pension systems.

The pension projections rely on unchanged pension legislation, and risks exist. If pensions are being perceived as being 'too low' or the retirement age 'too high', this could eventually result in changes in pension policies, leading to upward pressure on pension spending, and the projections could thus underestimate future government expenditure.

Graph 3.8: Public pension benefit ratio, change 2013-2060, pps. change



Source: 2015 Ageing Report, Commission services.

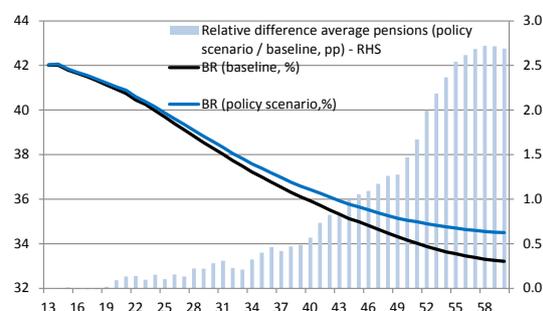
For example, the public pension benefit ratio (i.e. average pensions in relation to average wages) is projected to fall in all Member States (except Luxembourg) in the period to 2060, on average by 9 pps. in the EU and in some countries (CY, PT and ES) by up to 20 pps. (see Graph 3.8). Consequently, the benefit ratio at the end of the forecasting period is generally low. Even including private pensions, the benefit ratio in 2060 settle above 50 percent in only few countries (DK, EL, IT, LU, NL) while it falls below 30 percent in some other cases (BG, EE, HR, LV, PL, RO). Another upward risk is related to the projected decrease of the coverage ratio (i.e. the number of pensioners as percent of population aged 65 or more) in some countries, where a large increase of

the legal retirement age is legislated. On the other hand, if countries enact additional expenditure-reducing pension reforms (currently being discussed in some countries), the projected expenditures could be overestimated.

### Policy scenario – linking the retirement age to changes in life expectancy

Increasing retirement ages in line with gains in life expectancy not only allows for a substantial reduction in pension expenditures, but also allows for accruing higher pension entitlements due to a longer working life in most cases. Indeed, in this scenario, average EU pension level would be around 2.7% higher in comparison to the baseline scenario (see Graph 3.9). Consequently, the projected decrease of the benefit ratio over the projection period would be somehow reduced, since it would stabilise around 34½% (against around 33% in the baseline).

Graph 3.9: Benefit ratio and average pensions in the policy scenario compared with the baseline, EU



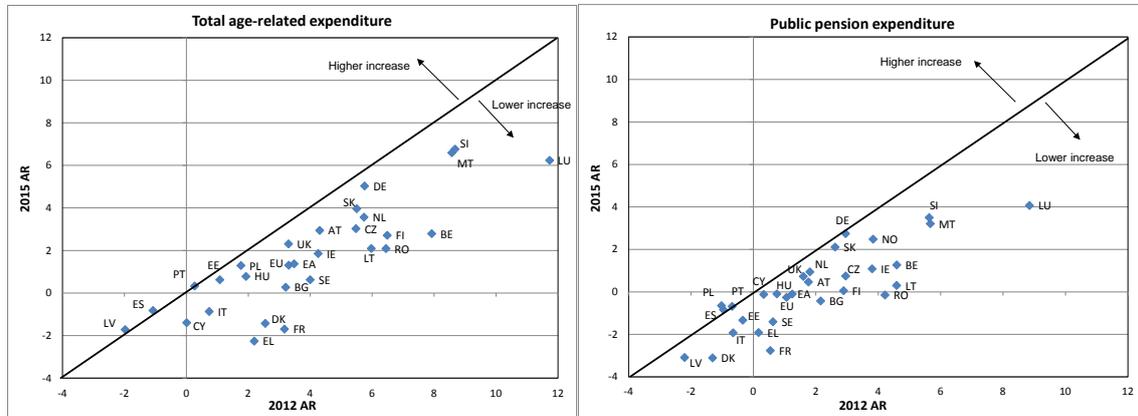
Source: 2015 Ageing Report, Commission services.

### Risk scenarios

As noted above, there is considerable uncertainty as to future developments of age-related public expenditure. In order to provide a comprehensive assessment of the impact on government expenditure of changing the assumptions, the budgetary projections were also run with alternative scenarios, e.g. the risk scenarios. Two risk scenarios were therefore carried out, defined as follows:

- **TFP risk scenario:** In light of the trend decline in TFP growth performance over the last decades in the EU, due visibility and

Graph 3.10: Total age-related expenditure, 2015 and 2012 long-term baseline projections compared, 2013-2060



Source: 2015 Ageing Report, Commission services.

prominence should also be given to the risk of lower TFP growth in the future. Thus, a TFP risk scenario is included, with a lower TFP growth rate (0.8%). The TFP risk scenario essentially shows that GDP growth could be much lower in the event that future TFP growth rates developed less dynamically than in the baseline scenario, i.e. more in line with the growth rate (0.8%) observed over the last 20 years. In overall potential GDP terms, it would grow by 1.2% on average up to 2060, as opposed to 1.4% in the baseline scenario. In the euro area, it would be even lower, growing by 1.1% on average. In terms of GDP per capita levels, it would be 10% lower in the TFP risk scenario compared with the baseline by 2060 in the EU.

- **AWG risk scenario:** Non-demographic driver may exercise an upward push on costs in the health care and long-term care areas. In order to gain further insights into the possible importance of such developments, another set of projections were run which assumes the partial continuation of recently observed trends in health care expenditure due to, e.g. technological progress. Moreover, an upward convergence of coverage and costs to the EU average is assumed to take place in long-term care.

The TFP risk scenario primarily affects pension expenditure, projected to rise by almost  $\frac{1}{2}$  pp. of GDP more on average (EU and EA) up to 2060 compared with the baseline scenario. This is

because pensions in payments are on average projected to rise in line with inflation, i.e. slower than wages (which evolve in line with labour productivity growth, which in turn depends on TFP growth). By contrast, it only has a small impact on health care and long-term care, as unit costs in these areas are closely linked to labour productivity growth and hence with wage growth. The projected increase in total age-related expenditure would be about  $\frac{1}{3}$  pps. of GDP higher than the baseline scenario up to 2060 in the EU and EA (see Graph 3.7 and Table 3.2).

The AWG risk scenario has strong impact on health care and long-term care expenditure. The projected increase in total age-related expenditure would be 2.1 pps. of GDP higher than the baseline scenario up to 2060 for both the EU as a whole and the EA. It would entail an increase over the entire projection horizon of 3.4 pps. in the EU and of 3.5 pps. in the EA. However, in both risk scenarios, the EU aggregates mask considerable variety and the expenditure projections are very different across Member States (see Graph 3.7 and Table 3.2).

#### A lower projected increase in age-related spending in the current projections than in the 2012 Ageing Report

Compared with the projections in the 2012 Ageing Report<sup>(82)</sup>, total age-related public expenditure

<sup>(82)</sup> Pension reforms implemented and having been subject to a peer review by the EPC since the 2012 Ageing Report was

according to the baseline scenario is now projected to rise less in all countries except Spain, Latvia and Portugal over the entire projection horizon. This is mostly due to less pronounced increases in pension expenditure over the long-term (see Graph 3.10). This reflects not only the impact of pension reforms, but also a less pronounced population ageing effect in the EU, according to the EUROPOP2013 demographic projection. <sup>(83)</sup>

Over the period 2013-2060, the increase in the EU is almost 1 ½ pps. of GDP, compared with a projected increase of 3 ½ pps. of GDP in the 2012 Ageing Report (see Graph 3.10). The largest downward revisions have occurred in Luxembourg, France, Greece, Romania, Denmark, Lithuania, Finland and Belgium (more than 3 ½ pps. of GDP).

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published are included in the 2012 AR projections in Graph 6.

<sup>(83)</sup> A lower increase in the old age dependency ratio (aged 65 or more/aged 20-64) over the period 2013-2060 in the EU as a whole and in all countries except EL, PT, SK, UK projected in EUROPOP2013 compared with EUROPOP2010.

## 4. QUANTITATIVE RESULTS ON FISCAL SUSTAINABILITY INDICATORS

This chapter presents the results of the sustainability analysis in terms of the S0, S1 and S2 indicators and their respective components, as described in Section 1.4.

### 4.1. RESULTS ON THE SHORT-TERM SUSTAINABILITY INDICATOR

The assessment of short-term sustainability challenges is based on the S0 indicator, which is a composite indicator aimed at identifying fiscal risks in the short-term.<sup>(84)</sup>

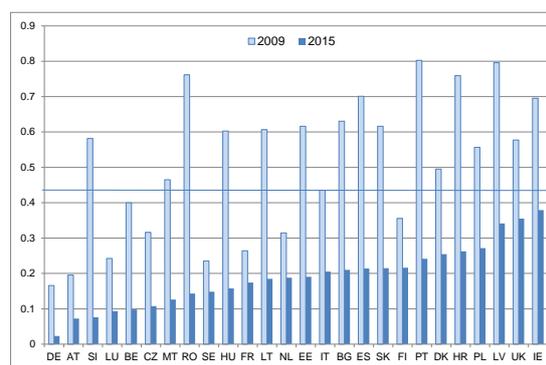
The analysis of short-term (one-year ahead) fiscal sustainability risks is conducted at three different levels. First of all, and primarily, the value of the S0 indicator is used to assess overall risks. Secondly, the values of the fiscal and financial-competitiveness sub-indexes are taken into account separately to identify countries where fiscal risks emerge from one of the two thematic areas, though not at aggregate level. The consideration of the two sub-indexes is, moreover, relevant also to gain insights on the specific area(s) risks stem from for the countries, where overall fiscal sustainability risks are detected to be high by the S0. Finally, the identification of specific sources of vulnerability, at country level, is done through the analysis of individual variables included in the S0.

With regard to overall short-term risks of fiscal stress, 2015 values of the S0 indicator are reported for EU Member States in Graph 4.1 (values for 2009 are also reported for reference). In 2009 more than half of EU countries had a value of the S0 above the threshold, pointing to high risk in the short term, up to 1 year ahead. Since then, the situation has improved in all countries. In 2015, no country faces short-term risks of fiscal stress among the (non-programme) EU countries (in Graph 4.1 no single country reports a value of the S0 indicator above its threshold, represented by the horizontal line).

By looking at the two thematic sub-indexes (Graph 4.2 reports 2015 values, and also 2009 values for reference, with thresholds represented by

horizontal lines), overall risks can be qualified as stemming from both the fiscal and the financial-competitiveness sides of the economy, or stemming only from the fiscal side.

Graph 4.1: The S0 indicator for EU countries, 2009 and 2015



Source: Commission services.

The analysis of the thematic sub-indexes highlights a substantial improvement over the last five years. There's only one country (Ireland) facing short-term challenge to fiscal sustainability stemming from the financial-competitiveness side, and another one (the United Kingdom) facing short-term challenges stemming from the fiscal side. Though, in both cases, challenges are not as acute to be reflected in overall high risk of fiscal stress according to the S0 indicator.

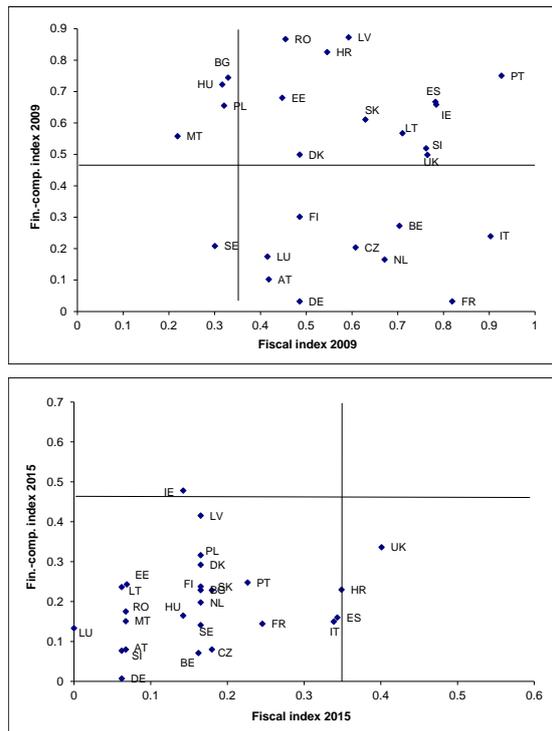
The comparison between 2015 and 2009 values shows a substantial improvement intervened both in terms of overall risks highlighted by the S0 indicator and in terms of risks specifically emanating from the fiscal and/or financial-competitiveness side(s) of the economy. No country is reported to be above the threshold for both the fiscal and the financial-competitiveness sub-indexes in 2015 against twelve (non-programme) countries in 2009.

Values taken by the specific variables incorporated in the composite indicator S0 are reported in Table 4.1 and Table 4.2 for the fiscal and financial-competitiveness subgroups respectively (values above the variable-specific thresholds are highlighted in the tables). The tables allow tracking down the specific sources of fiscal risk for

<sup>(84)</sup> See Chapter 1 and Berti, Salto and Lequien (2012) for more details.

each Member State, thereby identifying areas calling for policy action. However, the relevance of the individual breaches should be evaluated taking into account the signalling power of each variable as identified in Table 1.1 of this report.

Graph 4.2: Fiscal and financial-competitiveness sub-indexes, 2009 and 2015



Source: Commission services.

#### 4.2. RESULTS ON THE MEDIUM-TERM SUSTAINABILITY INDICATOR

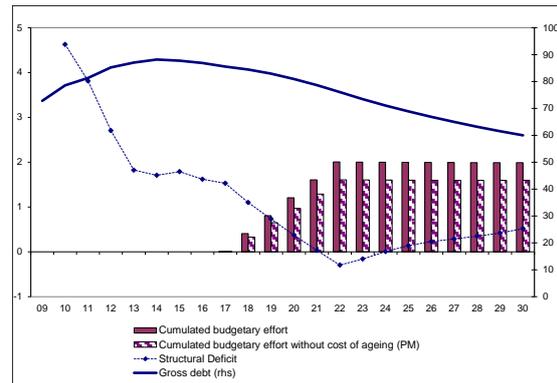
The medium-term sustainability indicator S1 shows the additional adjustment required, in terms of a cumulated gradual improvement in the structural primary balance over 5 years (starting from the year after the forecasts, currently 2018),<sup>(85)</sup> to reach a specific public debt-to-GDP ratio in 2030 (60%, as in the standard definition of the indicator used in the Fiscal Sustainability Report 2012; or alternatively the pre-crisis debt ratio or the end-of-forecast debt ratio), including

<sup>(85)</sup> After 2022 the structural primary balance remains constant at its 2022 value (which incorporates the additional consolidation efforts made till that year), meaning that no further additional consolidation is assumed after 2022, while deconsolidation is also ruled out.

paying for any future additional expenditure (until the target date) arising from an ageing population.<sup>(86)</sup> The timescale of the indicator has been chosen to be long enough to allow the impact of ageing to be analysed in a meaningful way, while still remaining within the sights of current taxpayers and policy makers.

The consolidation to the structural primary balance implied by the S1 indicator in the EU-28 is shown in Graph 4.3, together with the resulting evolution of debt and the structural balance. The required consolidation without budgetary costs due to ageing populations is also shown, pointing to the medium term benefits achievable through structural reforms, which are still quite remarkable.

Graph 4.3: Fiscal required adjustment until t+5 to reach a 60% public debt to GDP ratio by 2030 (as % of GDP) - EU



Source: Commission services.

Updated results on S1, under the baseline no-fiscal policy change scenario, are provided in Table 4.3, for the standard definition of the indicator used in the FSR 2012 (target debt ratio of 60% of GDP in 2030). The Table also report the decomposition of the S1 indicator into: i) the initial budgetary position; ii) the cost of delay, which shows the additional required adjustment due to the gradual improvement in the primary balance compared to an immediate adjustment; iii) the debt requirement to reach the 60% target debt; and, iv) the required adjustment to cover the ageing costs until 2030.

<sup>(86)</sup> A negative value of the S1 indicator does of course not imply that current fiscal policy should be relaxed, since the 60% of GDP value in the Treaty is not a target but a ceiling. Moreover, a negative value does not mean that debt remains below 60% of GDP throughout the projection period, but may well be above initially.

Table 4.1: Fiscal variables used in the S0 indicator, 2015

	Balance (%GDP)	Primary balance (%GDP)	Cycl. adj. balance (%GDP)	Stabil. primary balance (%GDP)	Gross debt (%GDP)	Change gross debt (%GDP)	Short-term debt (%GDP)	Net debt (%GDP)	Gross financing needs (%GDP)	Interest growth rate diff.	Change expend. gen. gov't (%GDP)	Change consumpt. gen. gov't (%GDP)	Old-age depend. ratio 20 years ahead	Change in proj. age-related expend (%GDP)
BE	-2.7	0.2	-2.2	0.5	106.7	0.1	9.5	65.8	13.9	0.4	-0.8	-0.3	36.5	0.0
BG	-2.8	-1.8	-2.6	0.3	31.8	4.8	5.9	-0.7	5.2	1.0	-2.6	-0.2	41.7	-0.2
CZ	-1.9	-0.7	-2.0	-0.8	41.0	-1.8	2.9	7.5	7.5	-2.0	0.4	-0.5	36.6	0.0
DK	-3.2	-1.7	-1.5	0.2	40.2	-4.9	3.9	6.3	8.9	0.5	-1.1	-0.1	39.4	-0.2
DE	0.9	2.4	1.1	-1.1	71.4	-3.5	7.3	48.4	5.0	-1.6	-0.7	0.0	53.9	0.1
EE	0.2	0.3	0.0	-0.2	10.0	-0.4	0.0	0.5	0.5	-2.1	1.9	0.4	42.2	0.0
IE	-2.2	1.1	-2.9	-4.8	99.8	-7.7	14.0	82.4	3.4	-4.8	-2.1	-0.7	34.5	0.2
ES	-4.7	-1.6	-2.6	-0.4	100.8	1.5	8.8	64.8	18.8	-0.4	-1.1	-0.3	46.8	0.0
FR	-3.8	-1.8	-2.7	0.2	96.5	0.9	11.4	89.4	14.5	0.2	-0.3	-0.2	42.1	0.0
HR	-4.9	-1.3	-3.6	2.4	89.1	4.1	8.0	8.0	16.0	2.8	-0.2	-0.5	42.0	-0.1
IT	-2.6	1.7	-1.0	2.6	133.0	0.7	19.3	113.5	20.4	2.0	-0.4	-0.3	45.9	-0.1
LV	-1.5	-0.2	-2.1	-0.2	38.3	-2.4	1.9	34.9	2.6	-0.4	-0.7	0.5	45.3	-0.2
LT	-1.0	0.6	-1.2	1.1	42.9	2.2	2.7	17.8	5.7	2.8	0.8	0.5	53.5	0.0
LU	0.0	0.4	0.7	-0.3	22.3	-0.7	1.6	0.0	0.0	-1.1	1.2	0.5	28.0	0.2
HU	-2.3	1.2	-2.4	0.1	75.8	-0.3	10.6	70.3	12.9	0.1	-0.5	0.2	36.7	-0.2
MT	-1.7	1.0	-2.0	-1.6	65.9	-2.4	3.0	0.0	4.7	-2.5	-0.1	-0.4	40.4	0.1
NL	-2.1	-0.8	-1.1	-0.6	68.6	0.4	8.0	34.8	6.5	-0.9	-1.5	-0.7	45.1	0.0
AT	-1.9	0.5	-1.2	0.6	86.6	2.4	4.7	48.7	7.3	0.7	-0.6	0.1	42.4	0.0
PL	-2.8	-1.0	-2.6	0.1	51.4	1.0	0.1	26.1	8.1	0.2	-0.3	0.0	37.3	-0.1
PT	-3.0	2.0	-1.8	1.0	128.2	-2.0	16.9	120.6	13.9	0.8	-3.8	-0.4	49.0	0.2
RO	-1.2	0.4	-0.8	-0.3	39.4	-0.5	2.7	0.0	5.4	-0.7	1.7	-0.1	37.6	0.0
SI	-2.9	0.0	-2.7	0.5	84.2	3.4	3.2	0.0	9.3	0.6	-2.1	-0.4	44.6	0.0
SK	-2.7	-1.1	-2.3	-0.1	52.7	-0.8	0.1	0.0	7.4	-0.2	1.0	0.1	35.8	0.0
FI	-3.2	-2.0	-1.7	0.2	62.5	3.2	4.6	-46.5	6.9	0.3	-0.2	-0.2	42.3	0.2
SE	-1.4	-0.8	-1.0	-1.5	44.7	-0.2	12.8	-18.4	5.9	-3.5	-0.4	0.0	36.9	0.0
UK	-4.3	-1.8	-4.5	-0.8	88.3	0.1	11.9	80.3	8.8	-1.0	-1.3	-0.4	37.9	0.0

Source: Commission services.

Table 4.2: Financial-competitiveness variables used in the S0 indicator, 2015

	Yield curve	Real GDP growth	GDP per capita in PPP (%US level)	L.Net intern. Invest. position (%GDP)	L.Net savings households (%GDP)	L.Private debt (%GDP)	L.Private credit flow (%GDP)	L.Leverage fin. corp.	L.Short-term debt nonfin. corp. (%GDP)	L.Short-term debt households (%GDP)	L.Construction (%value added)	L.Current account (%GDP)	L.Change real eff. exchange rate	L.Change nom. unit labour costs
BE	1.2	1.3	77.9	57.2	2.8	181.4	1.0	2.4	52.3	3.3	5.7	-0.1	-0.7	5.6
BG	2.7	1.7	30.7	-73.4	1.4	124.3	-0.3	5.3	19.3	2.1	4.4	0.9	-0.7	17.0
CZ	1.0	4.3	57.1	-35.6	2.9	72.7	1.8	5.7	17.1	2.0	5.6	-0.5	-3.0	3.8
DK	0.8	1.6	82.8	47.0	-1.3	220.4	1.7	2.6	33.0	4.7	4.6	6.9	2.2	4.1
DE	0.8	1.7	81.9	42.3	5.7	100.4	1.1	4.5	16.6	2.2	4.6	6.9	1.5	7.6
EE	1.9	0.9	49.7	-43.6	1.7	116.1	6.4	4.2	32.9	0.8	6.5	-0.5	2.4	13.0
IE	1.5	6.0	92.8	-106.7	-0.2	263.3	13.7	0.9	45.1	3.7	2.9	1.8	2.5	-2.2
ES	1.6	3.1	61.9	-94.1	2.4	164.6	-7.4	4.9	10.6	2.6	5.4	0.7	-1.7	-4.1
FR	1.2	1.1	70.6	-19.5	5.8	143.2	3.3	5.2	35.6	1.8	5.7	-1.0	0.1	4.8
HR	2.9	1.1	38.9	-88.6	4.7	120.6	0.3	5.6	18.9	4.0	5.0	0.5	-0.7	-5.9
IT	2.0	0.9	63.7	-27.9	2.1	119.3	-0.9	8.5	23.2	3.6	4.9	0.8	1.6	3.6
LV	2.0	2.4	42.6	-60.9	-5.7	96.4	-11.9	7.0	17.9	2.8	6.8	-2.5	4.7	12.9
LT	2.0	1.7	49.6	-46.4	-2.2	52.5	-1.2	4.9	8.5	1.1	7.5	1.3	-1.3	8.3
LU	0.9	3.1	177.4	36.0	0.0	342.2	0.5	0.7	8.0	2.8	5.8	5.8	10.3	7.6
HU	2.6	2.9	46.0	-73.8	2.6	91.3	-0.5	1.3	26.1	0.0	4.4	2.7	-6.2	6.7
MT	2.0	4.3	57.3	39.5	0.0	146.4	7.8	0.8	61.8	3.2	4.0	2.6	0.8	7.0
NL	1.0	2.0	87.5	60.8	4.0	228.9	-1.6	1.7	44.4	3.9	4.5	10.9	-0.5	5.4
AT	1.0	0.6	83.1	2.2	4.6	127.1	0.2	2.3	14.2	3.9	6.4	1.8	1.1	7.8
PL	0.9	3.5	45.7	-68.3	0.7	77.9	4.7	3.4	9.2	3.1	7.4	-2.3	1.5	2.5
PT	2.3	1.7	52.5	-113.3	-1.5	189.6	-8.7	4.0	24.4	3.2	4.5	0.0	-0.4	-2.3
RO	2.6	3.5	36.3	-57.2	0.0	62.2	-2.4	4.8	14.2	1.0	7.1	-2.1	-4.3	2.3
SI	1.8	2.6	55.5	-43.7	3.7	100.1	-4.6	5.2	20.5	2.8	5.7	5.1	0.0	-0.2
SK	1.3	3.2	51.6	-69.4	2.2	76.2	3.9	9.0	12.8	2.4	8.4	1.0	-4.3	2.2
FI	1.0	0.3	72.2	-0.7	-0.1	150.0	0.4	3.5	6.4	3.9	6.2	-1.5	-0.4	8.0
SE	1.1	3.0	82.3	-6.5	8.4	194.4	6.5	2.6	43.0	14.6	6.0	6.5	-2.3	7.1
UK	1.6	2.5	73.1	-25.3	-1.2	157.7	3.4	6.5	26.3	10.0	6.2	-4.3	7.7	1.9

(1) Variables' names preceded by L are taken in lagged values.

Source: Commission services.

Results in the following table show that substantial fiscal adjustment would be required to ensure sustainability over the medium term in a number of countries, though required consolidation efforts vary significantly across EU countries, depending on the initial structural primary balance, starting debt ratio and growth prospects over the next 20 years.

For the EU and the EA, the required improvement in the structural primary balance to achieve a debt-to-GDP ratio target of 60% by 2030 amounts respectively to 2.0 and 2.1 pps. of GDP over the period 2018–2022, i.e. an average budgetary consolidation effort of 0.4 percentage points per year respectively. In other words, the average structural primary balance for the EU would have to improve from a projected surplus of 0.6% of GDP in 2017 to a surplus of 2.6% in 2022, and for the EA the structural primary balance would have to improve from a surplus of 1.0% of GDP in 2017 to a surplus of 3.1% in 2022.

Table 4.3: The medium-term sustainability indicator (S1) and its components - all data as % of GDP

	S1	Due to			
		Initial Budgetary position		Debt requirement	Ageing costs
		Gap to the debt-stabilizing primary balance	Cost of delaying adjustment		
BE	3.8	-0.7	0.6	3.6	0.3
BG	-1.2	1.5	-0.2	-1.9	-0.6
CZ	-0.6	0.3	-0.1	-1.5	0.7
DK	-3.3	-0.4	-0.5	-1.6	-0.8
DE	-0.8	-2.0	-0.1	0.4	0.9
EE	-4.0	0.2	-0.6	-3.8	0.2
IE	2.7	-1.6	0.4	2.6	1.3
ES	2.5	0.1	0.4	3.1	-1.0
FR	4.4	0.6	0.7	2.9	0.3
HR	4.5	1.9	0.8	2.3	-0.4
IT	4.2	-1.4	0.7	5.1	-0.2
LV	-2.1	0.2	-0.3	-1.8	-0.3
LT	0.5	0.1	0.1	-1.1	1.5
LU	-4.4	-1.7	-0.6	-3.2	1.1
HU	-0.6	-0.5	-0.1	0.9	-1.0
MT	-0.2	-1.0	0.0	0.1	0.8
NL	0.6	0.3	0.1	0.5	-0.3
AT	1.3	-1.2	0.2	1.9	0.5
PL	1.0	1.2	0.1	-0.5	0.2
PT	4.7	-0.5	0.8	4.4	0.1
RO	1.4	2.2	0.2	-1.3	0.3
SI	3.0	0.5	0.5	1.4	0.7
SK	-0.7	0.0	-0.1	-0.6	0.0
FI	2.6	0.2	0.4	0.4	1.6
SE	-1.3	-0.1	-0.2	-1.3	0.3
UK	3.3	-0.2	0.5	2.1	0.8
EU	2.0	-0.5	0.3	1.9	0.3
EA	2.1	-0.8	0.3	2.3	0.2

Source: Commission services.

The debt target of 60% in 2030 would require a particularly high fiscal adjustment for ES, FI, IE, SI, UK, BE, IT, FR, HR and PT (all at high risk in the medium-term) and would be also important for

LT, NL, AT, PL and RO (medium risk in the medium-run).<sup>(87)</sup>

Table 4.3 finally also shows that for eleven countries (LU, EE, DK, LV, SE, BG, DE, SK, CZ, HU and MT) the S1 indicator takes a negative value, thus indicating that already under current policies these countries would not breach the 60% of GDP threshold by 2030. Most of these countries (except DE, MT and HU) are expected to have a debt level in 2017 already below the 60% target. However, if the pre-crisis (2007) debt ratio is taken as the reference target, only DE, DK, MT and HU among the aforementioned countries would still have a negative value of the S1 indicator.

Table 4.4 reports, in detail, the S1 indicator values and yearly adjustment needs with different debt end-points. While the starting budgetary position in 2017 would need to be only slightly improved to stabilize debt at its current level's for the EU as a whole, the required adjustment to reach pre-crisis levels (2007 levels) in 2030 would be even higher than with the 60% debt target, due to fact that several Member States experienced debt levels significantly below 60% of GDP in 2007. The table also shows that the structural primary balance adjustment required to stabilise the debt-to-GDP ratio at pre-crisis levels would be particularly demanding for IE, ES, FR, HR, LT, RO, SI, FI and the UK (a cumulated budgetary consolidation effort at least equal to 4% of GDP). Finally, Table 4.4 presents the impact of an increase of one percentage point to the interest rate of new and rolled over debt. The increase in the required adjustment is directly proportional to the current debt ratio and medium-term financing needs of a country.

A better knowledge of the S1 components can be drawn by Graph 4.4, which shows that in the EU as a whole and in the EA the initial budgetary position has a mitigating impact on the S1 indicator. By contrast, all other components (the debt requirement, the ageing cost and the cost of

<sup>(87)</sup> The thresholds used to assess the scale of the sustainability challenge based on the S1 indicator are as follows: 1) if S1 is less than zero, the country is assigned low risk; 2) if S1 is between 0 and 2.5 (thus requiring an adjustment in the structural primary balance of up to 0.5 pps. of GDP per year till 2021), the country is assigned medium risk; 3) if S1 is greater than 2.5 (implying an adjustment in the structural primary balance of more than 0.5 pps. of GDP per year), the country is assigned high risk.

Table 4.4: The adjustment of primary balances required until 2022 to reach a given target public debt/GDP ratio by 2030 (all data as % of GDP)

	Baseline									+1p.p in the short-term/long-term interest rate on maturing and new debt from 2018		
	Structural Primary balance 2014	Structural Primary balance 2017	Required annual adjustment of structural primary balance between 2018 and 2022			Budgetary effort by 2022 (cumulated SPB)			Difference in budgetary effort by 2022 (cumulated SPB)			
			2030 Debt Target									
			60 percent of GDP (S1)	Pre-crisis levels (2007)	End-forecast levels (2017)	60 percent of GDP (S1)	Pre-crisis levels (2007)	End-forecast levels (2017)	60 percent of GDP (S1)	Pre-crisis levels (2007)	End-forecast levels (2017)	
BE	0.3	0.5	0.8	0.3	-0.1	3.8	1.3	-0.6	0.4	0.5	0.6	
BG	-1.6	-1.3	-0.2	0.5	0.2	-1.2	2.7	1.2	0.3	0.1	0.2	
CZ	0.5	-0.3	-0.1	0.5	0.2	-0.6	2.3	1.2	0.4	0.2	0.3	
DK	2.1	0.2	-0.7	-0.1	-0.3	-3.3	-0.3	-1.3	0.3	0.2	0.2	
DE	2.6	1.9	-0.2	-0.2	-0.3	-0.8	-1.1	-1.3	0.4	0.4	0.4	
EE	0.4	-0.1	-0.8	0.2	0.1	-4.0	0.9	0.4	0.3	0.0	0.1	
IE	0.8	1.3	0.5	1.2	-0.1	2.7	6.1	-0.4	0.4	0.2	0.5	
ES	1.6	0.2	0.5	1.0	-0.3	2.5	4.8	-1.3	0.5	0.4	0.7	
FR	-0.6	-0.5	0.9	0.8	0.2	4.4	4.0	0.9	0.5	0.5	0.6	
HR	-0.4	-0.1	0.9	1.3	0.3	4.5	6.6	1.5	0.7	0.6	0.8	
IT	3.6	2.5	0.8	0.1	-0.5	4.2	0.4	-2.5	0.6	0.7	0.9	
LV	-0.3	-0.6	-0.4	0.5	0.0	-2.1	2.6	-0.1	0.4	0.2	0.3	
LT	0.2	0.6	0.1	0.8	0.4	0.5	4.1	1.9	0.4	0.2	0.3	
LU	2.5	1.3	-0.9	0.2	-0.2	-4.4	0.8	-0.8	0.3	0.0	0.1	
HU	1.5	0.9	-0.1	-0.2	-0.4	-0.6	-1.1	-1.8	0.6	0.6	0.6	
MT	0.5	0.8	0.0	-0.1	-0.1	-0.2	-0.4	-0.3	0.3	0.3	0.3	
NL	0.9	-0.4	0.1	0.4	0.0	0.6	2.2	0.0	0.4	0.3	0.4	
AT	1.8	1.0	0.3	0.2	-0.2	1.3	0.8	-1.0	0.4	0.4	0.5	
PL	-0.7	-1.3	0.2	0.5	0.3	1.0	2.5	1.6	0.4	0.3	0.4	
PT	3.5	1.9	0.9	0.8	-0.2	4.7	3.9	-1.1	0.6	0.6	0.8	
RO	1.0	-2.3	0.3	1.1	0.6	1.4	5.7	3.0	0.4	0.2	0.4	
SI	0.4	-0.3	0.6	1.3	0.3	3.0	6.4	1.3	0.4	0.3	0.5	
SK	-0.1	-0.4	-0.1	0.4	0.0	-0.7	2.2	0.1	0.3	0.2	0.3	
FI	-0.5	-0.4	0.5	1.0	0.4	2.6	4.9	2.0	0.4	0.3	0.4	
SE	-0.1	-0.3	-0.3	0.1	0.1	-1.3	0.7	0.3	0.4	0.3	0.3	
UK	-2.5	-0.1	0.7	1.0	0.1	3.3	4.9	0.7	0.2	0.2	0.4	
EU	0.8	0.6	0.4	0.5	-0.1	2.0	2.3	-0.4	0.4	0.4	0.5	
EA	1.6	1.0	0.4	0.3	-0.2	2.1	1.7	-0.8	0.4	0.5	0.6	

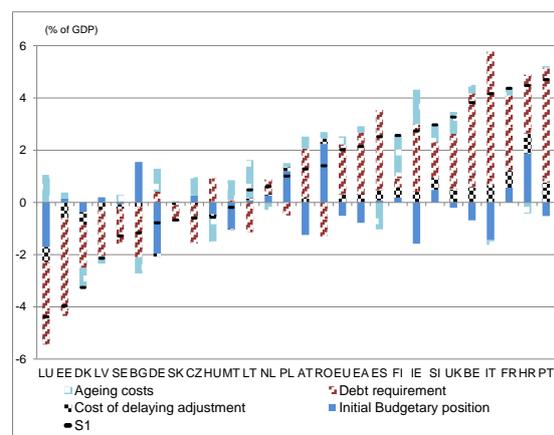
Source: Commission services.

delay) contribute to increasing the S1 indicator for both the EU and the EA aggregate.

Taking into account the gradual adjustment of the primary balance (the so-called "cost of delay" subcomponent), the required adjustment measured by the IBP doesn't turn positive in both the EU and the EA. In particular, the additional adjustment due to the debt requirement of 60% of GDP (DR) (positive only for those countries with the initial level of debt over 60% of GDP) accounts for the largest adjustment in both the EU and the EA by respectively 1.9 and 2.3 pps. of GDP, but for countries like BE, ES, IT and PT it explains more than 3.0 percentage points of GDP of adjustment.

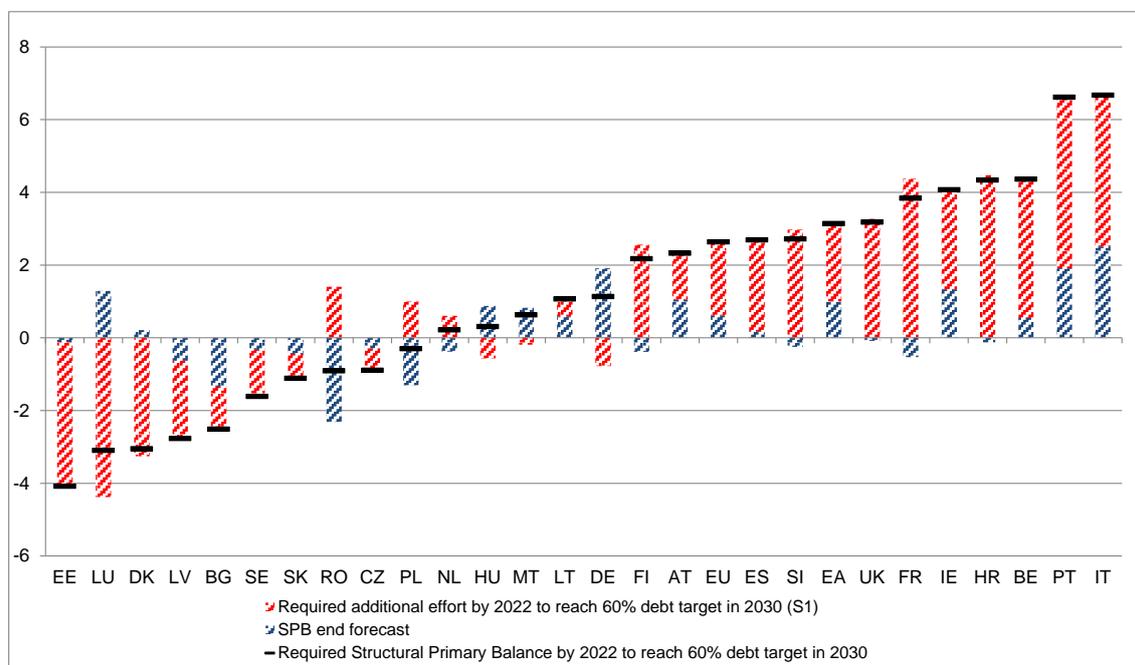
Finally, the CoA component accounts for 0.3% of GDP of the S1 sustainability gap for the EU and EA, however with large differences across countries ranging from -1.0% of GDP in Spain and Hungary to 1.6% of GDP in Finland.

Graph 4.4: The S1 sustainability indicator and its components



Source: Commission services.

Graph 4.5: The Required Structural Primary Balance by 2022 to reach 60% debt target in 2030 (% of GDP)



Source: Commission services.

#### 4.2.1. THE REQUIRED STRUCTURAL PRIMARY BALANCE

It is informative to see the overall size of the structural primary balance required to close the medium-term sustainability gap; that is, to reach a debt target of 60% of GDP by 2030. This is given by the required structural primary balance (RSPB), which represents the structural primary balance that would be necessary at the beginning of the long-term projection to ensure medium-term sustainability. It is calculated by summing up the structural primary balance (at the end of forecast period) with the required adjustment estimated by S1.

The Graph 4.5 shows that there is significant variation in terms of the RSPB across Member States. While for the EU it will represent an average of 2.6% of GDP, and 3.2% for the EA, the figures range from under -3.0% of GDP for Estonia, Luxemburg and Denmark, to over 3% of GDP for the United Kingdom, France, Ireland, Croatia, Belgium, Portugal and Italy. Among them, five countries will require a primary balance greater than 4% of GDP (IE, HR, BE, PT and IT).

While for a few Member States the RSPB is enough large to see it as political and social unsustainable, empirical evidence also suggests that the required adjustments emerging from S1 results (as reported in Table 4.3 and Graph 4.5) would not be unprecedented. Indeed, during the past three decades, there have been 14 episodes in advanced economies and 26 in emerging economies when individual countries adjusted their structural primary balance by more than 7 percentage points of GDP.<sup>(88)</sup>

#### 4.3. RESULTS ON THE LONG-TERM SUSTAINABILITY INDICATOR

The long-term sustainability indicator S2 shows the upfront adjustment to the current structural primary balance (kept then constant at the adjusted value forever) required to stabilise the debt-to-GDP ratio over the infinite horizon, including paying for any additional expenditure arising from an ageing population. It should be borne in mind

<sup>(88)</sup> IMF (2010). The list includes the following EU countries (end date of episodes in parentheses): BE (1998), CY (2007), DK (1986), FI (2000), GR (1995), IE (1989), IT (1993), PT (1985), SE (1987, 2000), UK (2000). See also Cottarelli et al. (2010).

that the S2 indicator does not put any restrictions on the level of debt; rather, it imposes that debt does not grow faster than output. However, in the short- to medium-term, the current high level of debt is a source of risk in times of changing economic and fiscal circumstances.<sup>(89)</sup>

Overall, the S2 long-term sustainability gap is, on average, 1.7% of GDP in the EU and 1.1% of GDP in the EA, which highlights low risk for long-term sustainability.

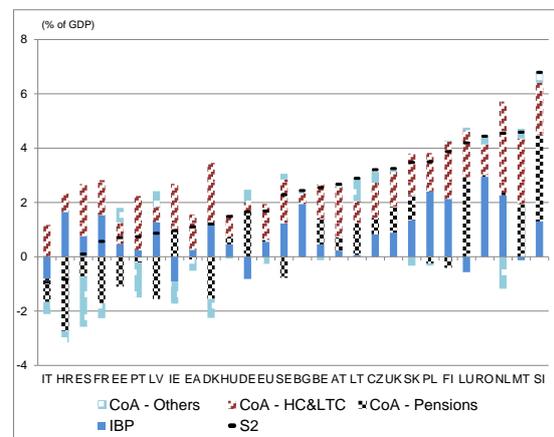
Looking at individual countries, Graph 4.6 shows that only one country (SI) is classified as high risk with substantial long-term sustainability challenges.<sup>(90)</sup> Most of the countries (BE, BG, CZ, LT, LU, MT, NL, AT, PL, RO, SK, FI, SE and the UK) also faces sustainability challenges in the long term, though of a lower magnitude (medium risk).

When assessing the long-term sustainability challenges, it is also important to look at the nature and source of the challenge the countries are facing, in particular whether this is related to the initial budgetary position (IBP)<sup>(91)</sup> or to the long-term ageing cost (CoA).<sup>(92)</sup>

Besides the distinction between the two-subcomponents (IBP and CoA), Graph 4.6 makes it possible to further quickly visualize, by country, the disaggregation of the S2 ageing cost component into pensions, healthcare and long-term care and other determinants (education expenditure and unemployment benefits, see also Table 4.5). It emerges that the health and long-term components

always contribute to raise the sustainability gap for all member states, going from 0.4% of GDP for DE and BG to 3.4% of GDP for the NL. On the other hand, the pension expenditure contributes to reduce the sustainability gap in eight countries (DK, EE, FR, HR, LV, ES, IT and SE) by more than 0.5 pps. of GDP.

Graph 4.6: The S2 sustainability indicator and its components



Source: Commission services.

Overall, the cost of ageing is expected to be very significant in Belgium, the Czech Republic, Germany, Ireland, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Slovenia, Slovakia, Finland and the UK.

Given S2, it is thus possible to allocate EU countries along the two components as in the Graph 4.7. The further along the horizontal axis countries are, the larger the required adjustment to stabilise the debt ratios given the initial budgetary position (IBP), before considering the long-term costs of ageing. If, however, the debt ratio is above the 60% of GDP threshold, the EU fiscal rules stipulate that it should be reduced below it, while this is not a constraint in the S2 indicator. The higher up the vertical axis, the greater the required adjustment due to the long-term change in age-related costs (CoA). The sustainability gap (S2) is the sum of the vertical and horizontal distances from each dot to the solid diagonal line. Countries that are north-east of the solid diagonal line have a sustainability gap; the further away from that line, the greater their gap. Countries that lie south-west of the solid line (in the chart Italy) don't have a sustainability gap in the long-term, the ageing population

<sup>(89)</sup> This underpins the importance of considering several indicators when analysing fiscal sustainability challenges, which is the purpose of the multi-dimensional approach used since the Commission's Fiscal Sustainability Report 2012.

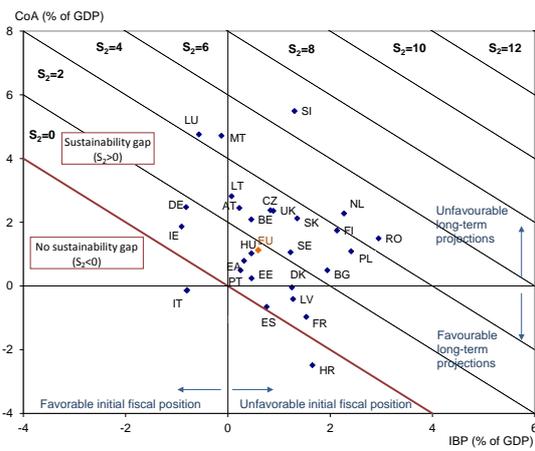
<sup>(90)</sup> For the long-term sustainability indicator S2, the following thresholds are used to assess the scale of the sustainability challenge: 1) if S2 is lower than 2, the country is assigned low risk; 2) if S2 is between 2 and 6, the country is assigned medium risk; 3) if S2 is greater than 6, the country is assigned high risk (see European Commission, 2012).

<sup>(91)</sup> More specifically, this component of S2 is given by the gap between the current or initial structural primary balance and the debt-stabilising primary balance to ensure sustainability.

<sup>(92)</sup> New long-term budgetary projections (incorporated in the calculation of the sustainability indicators presented here) have recently been published in European Commission (2015b).

notwithstanding. The dotted diagonals are ‘isogap’ lines: two countries located on the same line have the same sustainability gap ( $S_2$ ) over an infinite horizon, though they may have different initial budgetary positions and different ageing-related costs.

Graph 4.7: The EU countries map across the  $S_2$  components



Source: Commission services.

Most countries are in the top right quadrant in Graph 4.7, showing that their sustainability gap is due to the compounding effects of an unfavourable initial fiscal position and an increase in the budgetary cost of ageing. IE, DE and LU are located in the top left quadrant due to a favourable initial budgetary position in 2017, accompanied by an unfavourable impact of projected age-related costs (to different degrees for the three countries). Indeed, for these countries, the favourable initial budgetary position is not enough to ensure long-term sustainability, given the expected long-term increase in expenditure due to the ageing population (as usual, under the assumption of no fiscal policy change). Italy, on the contrary, lies in the bottom left quadrant with both projected age-related costs and an initial budgetary position that do not give rise to long-term sustainability challenges (as usual, based on the no fiscal policy change assumption). Only Croatia is in the bottom right quadrant with a small negative sustainability gap, due to a favourable developments in long-term age-related spending that compensate for an otherwise unfavourable initial budgetary position.

Finally, Table 4.5 summarises the relevant information on the  $S_2$  components and shows an alternative forward-looking fiscal measure of sustainability,<sup>(93)</sup> the Intertemporal Net Worth (INW), defined as the total of the discounted sum of future primary balances under current policies and current net worth (the difference between assets and liabilities, i.e. the negative of net debt).<sup>(94)</sup>

As can be seen from the data, the INW of most EU countries (except Spain, Croatia and Italy) is negative and deeply negative for Ireland, pointing to the need for further fiscal consolidation and reforms of welfare systems to keep age-related expenditures (pensions and health care) under control, in order to bring future liabilities in line with the capacity to generate assets.

Table 4.5: Results of the  $S_2$  indicator and the Intertemporal Net Worth (INW)

	$S_2$			CoA					INW
	$S_2$	IBP	CoA	Pensions	HC	LTC	Others		
BE	2.5	0.5	2.1	1.0	0.1	1.1	-0.1	-291.3	
BG	2.4	1.9	0.5	0.0	0.3	0.1	0.1	-135.2	
CZ	3.2	0.8	2.4	0.6	0.8	0.5	0.5	-280.0	
DK	1.2	1.3	0.0	-1.5	0.6	1.6	-0.7	-88.7	
DE	1.7	-0.8	2.5	1.7	0.4	0.0	0.5	-75.5	
EE	0.7	0.5	0.2	-1.1	0.4	0.4	0.5	-11.1	
IE	1.0	-0.9	1.9	1.0	1.0	0.7	-0.8	-2889.3	
ES	0.1	0.8	-0.7	-0.7	0.8	1.1	-1.8	21.2	
FR	0.6	1.5	-1.0	-1.7	0.7	0.6	-0.6	-17.5	
HR	-0.8	1.7	-2.5	-2.7	0.6	0.0	-0.4	104.4	
IT	-0.9	-0.8	-0.1	-0.9	0.6	0.6	-0.4	103.8	
LV	0.9	1.3	-0.4	-1.6	0.4	0.1	0.6	-54.9	
LT	2.9	0.1	2.8	1.2	0.1	0.7	0.8	-184.8	
LU	4.2	-0.6	4.8	2.9	0.4	1.3	0.1	-727.3	
HU	1.5	0.5	1.0	0.3	0.5	0.3	-0.1	-74.6	
MT	4.6	-0.1	4.7	1.9	1.5	0.9	0.4	-383.8	
NL	4.5	2.3	2.3	0.1	0.7	2.7	-1.2	-353.3	
AT	2.7	0.2	2.4	0.5	0.9	0.9	0.1	-180.2	
PL	3.5	2.4	1.1	-0.2	0.8	0.6	-0.1	-205.3	
PT	0.7	0.2	0.5	-0.2	1.7	0.2	-1.3	-0.3	
RO	4.4	2.9	1.5	0.1	0.6	0.6	0.3	-324.5	
SI	6.8	1.3	5.5	3.2	0.9	1.0	0.4	-501.9	
SK	3.5	1.4	2.1	0.9	1.3	0.2	-0.3	-219.8	
FI	3.9	2.1	1.7	-0.4	0.5	1.6	0.0	-239.0	
SE	2.3	1.2	1.1	-0.8	0.3	1.3	0.2	-267.6	
UK	3.2	0.9	2.4	1.0	1.0	0.3	0.1	-430.0	
EU	1.7	0.6	1.1	0.1	0.7	0.6	-0.3	-205.8	
EA	1.1	0.3	0.8	-0.1	0.6	0.7	-0.4	-139.1	

Source: Commission services

#### 4.3.1. THE REQUIRED STRUCTURAL PRIMARY BALANCE

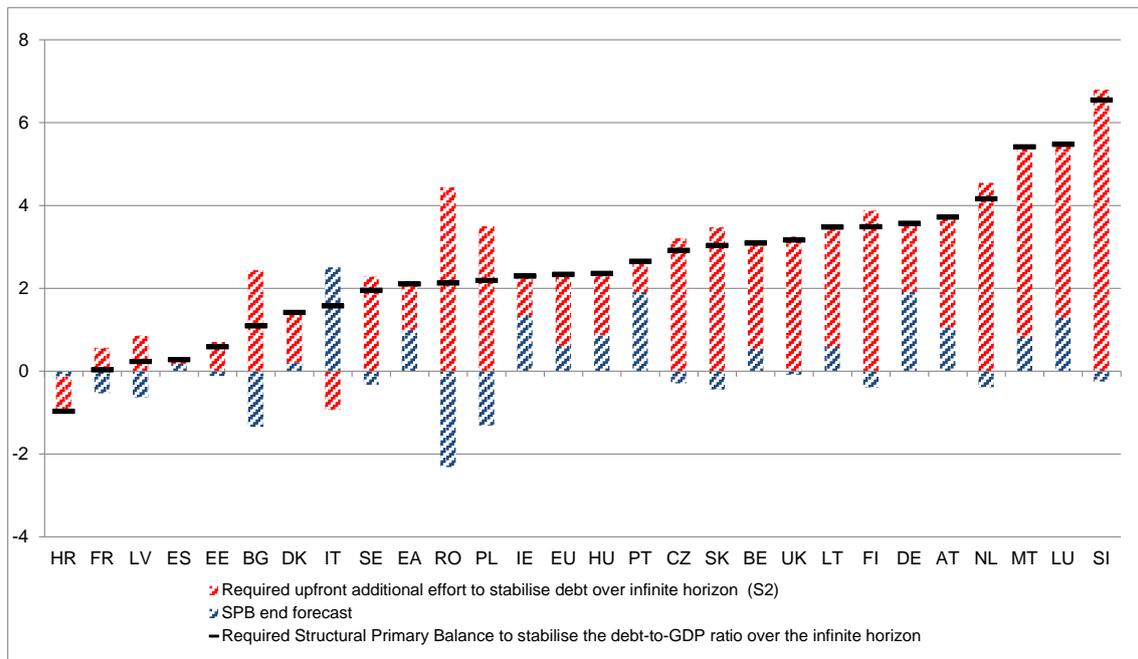
It is informative to see the overall size of the required structural primary balance to close the sustainability gaps.

This is given by the required structural primary balance (RSPB). The RSPB represents the structural primary balance that would be necessary

<sup>(93)</sup> The INW indicator is calculated by using its direct correspondence with the  $S_2$  indicator. Data on assets are from AMECO - Financial assets: general government (see Annex A2 for the mathematical derivation of the INW from the  $S_2$  indicator).

<sup>(94)</sup> See European Commission (2012a).

Graph 4.8: The Required Structural Primary Balance to stabilise the debt-to-GDP ratio over the infinite horizon (% of GDP)



Source: Commission services

at the beginning of the long-term projections to ensure long-term sustainability in the light of these liabilities, once all other spending has been covered and is calculated by summing the structural primary balance at the end of forecast with the additional effort measured by S2.

Likewise the S2 results, Graph 4.8 shows that the RSPB varies widely across Member States. The figures range from below 0.0% of GDP for Croatia to over 5.0% of GDP for Malta, Luxemburg and Slovenia.

#### 4.4. SENSITIVITY ANALYSIS OF SUSTAINABILITY INDICATORS

Sustainability indicators are obviously sensitive to a number of assumptions. Indeed, fiscal projections over a long period of time need assumptions that may have a strong impact on the results, and are surrounded by high uncertainty. This section analyses how sensitive are the results on the S1 and S2 sustainability indicators to three different scenarios, such as:<sup>(95)</sup>

1) the baseline no-fiscal policy change scenario (which includes ageing cost) relying on Commission Autumn Forecast and the EPC agreed long-run convergence assumptions of underlying macroeconomic variables.

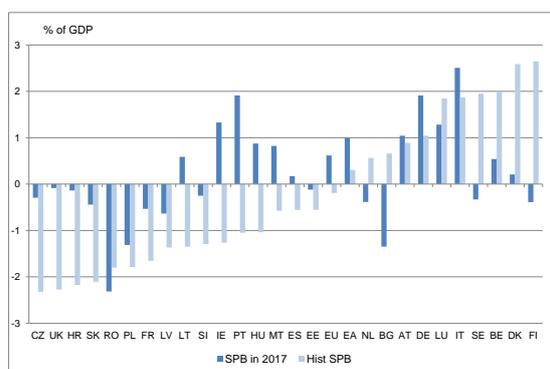
2) The "AWG risk scenario", which captures the impact of additional non-demographic cost drivers, which may stimulate expenditure growth in healthcare and long-term care in excess of what can be expected due to purely demographic factors. The impact of non-demographic drivers on healthcare and long term care is related, inter alia, to technological change (e.g. development of new drugs and treatments) and institutional factors (e.g. widening of healthcare coverage).

3) The "historical SPB scenario", in which gradual convergence (over 4 years) to the last 15 year historical average is assumed for the SPB beyond forecasts, while all other macroeconomic assumptions are kept as in the baseline scenario. As shown by Graph 4.9, the structural primary balance at the end of the forecast period (2017) is significantly higher than the 15-year average for most of the countries, highlighting that currently high primary balance might lead to fiscal fatigue beyond the medium-term and so fiscal

<sup>(95)</sup> See Section 1.3 of this report for more details.

sustainability risks might be higher than those captured by the fiscal indicators. In a few countries (IE, PT, UK, CZ and HR), the forecasted fiscal position in 2017 means an improvement in the budgetary condition compared to the historical average by over 2.0 pps. of GDP. By contrast, a particularly low current fiscal stance (compared to the historical SPB scenario) might not be the most likely outcome beyond the medium-term horizon, suggesting that the fiscal sustainability risk could be overestimated for a few countries such as FI, SE and DK.

Graph 4.9: The 15-year historical SPB against the forecasted value in 2017



Source: Commission services

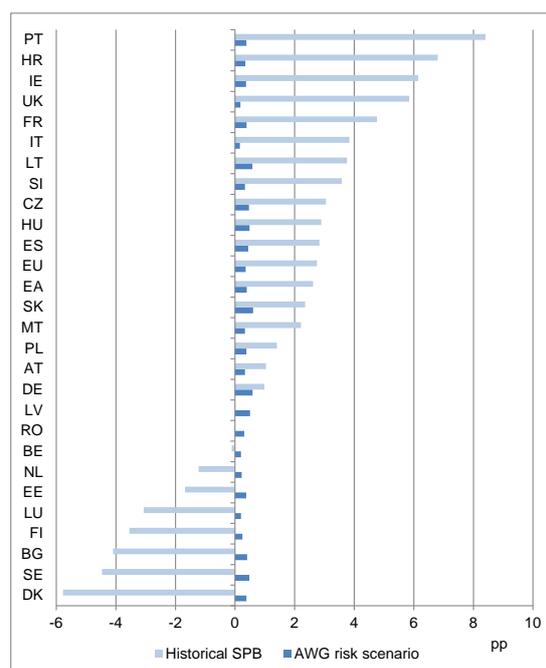
Graph 4.10 shows deviations in percentage points of the S1 indicators calculated over the risk scenarios in comparison with the baseline.

In both the EU and the EA, the "AWG risk scenario" involves a small increase in the cumulated adjustment required by 2022, equal to 0.4 pps. over the baseline scenario. Across countries, the gap between this risk scenario and the baseline varies limitedly from about 0.2 pps. of GDP in Italy, Finland the UK, the Netherlands and Luxembourg to 0.6 pps. of GDP in Germany, Lithuania and Slovak Republic.

Using the "historical SPB scenario", the deviations from the baseline would be larger than in the "AWG risk scenario" for both the euro area and the EU as a whole. The S1 indicator would increase by 2.7 percentage points of GDP compared to the baseline in the EU and 2.6 pps. of GDP in the euro area. Across countries, deviations from the baseline range widely, from -5.8 pps. of GDP in Denmark to 8.4 pps. of GDP in Portugal.

Eight countries show a negative deviation from the baseline (DK, SE, LU, BG, EE, FI, EE and NL), meaning that the consolidation history of these countries would envisage a better fiscal sustainability compared to the baseline.

Graph 4.10: Difference from the baseline scenario (S1)



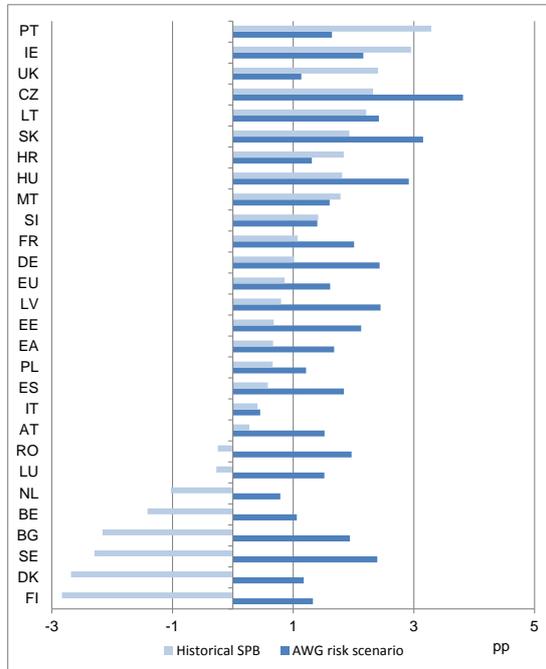
Source: Commission services

Likewise, Graph 4.11 shows deviations of the S2 indicator calculated on the alternative scenarios compared to the baseline. In both the EU and the EA, the "AWG risk scenario" involves a permanent adjustment higher than the baseline scenario (1.6 and 1.7 pps. of GDP, respectively). Across countries, the gap between the risk and the reference scenario varies from -0.5 pps. in Italy to 3.8 pps. in Czech Republic.

Instead, the "historical SPB scenario" would produce a wider range of deviations from the baseline S2 values, though the average would be smaller than in the "AWG risk scenario" for both the Euro area and the EU as a whole (respectively 0.7 pps. and 0.9 pps. of GDP).

In particular, the countries badly affected by the "historical SPB scenario" are PT, IE, CZ, LT and the UK, which would register a positive deviation of more than 2.0 percentage points of GDP from the baseline required adjustment.

Graph 4.11: Difference from the baseline scenario (S2)



Source: Commission services

#### 4.5. COMPARISON WITH PREVIOUS RESULTS

The results in this report are in line with those presented three years ago in the 2012 Fiscal Sustainability Report, <sup>(96)</sup> but in a cross-country comparison there are a few significant changes.

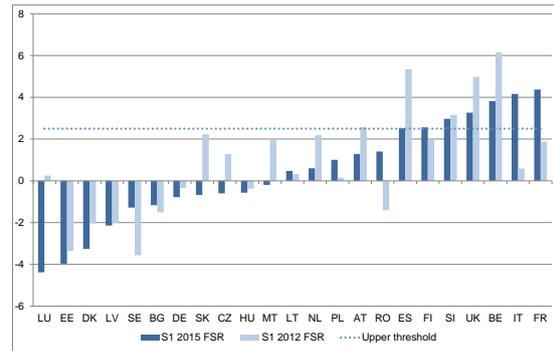
Graph 4.12 shows that the medium-term sustainability risk (S1) has become more demanding in term of the required adjustment for two countries (France and Italy) and is also significantly increased for Finland in the current FSR. For all these countries the increase is due to a worse initial budgetary position and a higher starting debt ratio (see also Graph 4.14). On the other hand, Austria has moved from high to medium sustainability risk thank to a better initial budgetary position. As a result the number of countries, among those present in the 2012 FSR, exceeding the current high risk threshold (that is, 2.5% of GDP), <sup>(97)</sup> has slightly increased, from

<sup>(96)</sup> The comparison with the 2012 FSR is limited to only 23 countries, excluding those under programmes in both vintages and Croatia, which joined the EU in 2013 after the publication of the FSR 2012.

<sup>(97)</sup> In the FSR 2012 the last forecast year was 2014, implying a fiscal adjustment period of 6 years (from 2015 to 2020,

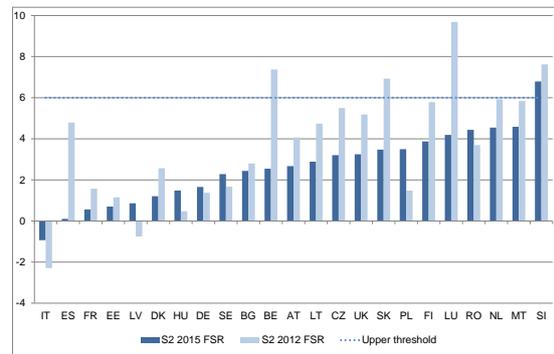
five to seven, with Belgium, Spain, Slovenia and the UK that have maintained their high risk ranking, though at different degrees.

Graph 4.12: S1 in comparison with the FSR 2012 results (all as % of GDP)



Source: Commission services

Graph 4.13: S2 in comparison with the FSR 2012 results (all as % of GDP)



Source: Commission services

The Graph 4.13 shows that the long term sustainability risk measured by the S2 indicator is improved in most of the countries compared to the 2012 FSR. The exceptions are DE, SE, HU, RO, IT, LV and PL, though with a different relevance

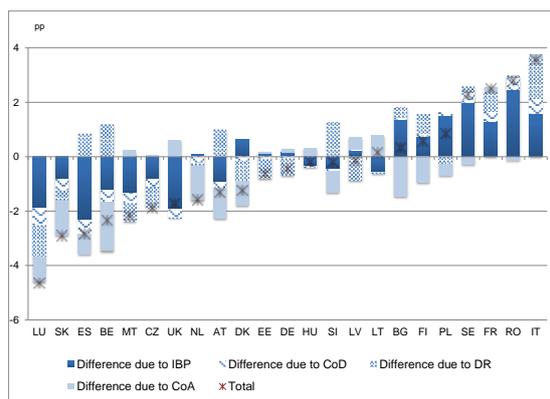
according to the S1 definition) leading to a 3.0 pps. of GDP threshold for high risk of medium-term fiscal sustainability. In this FSR, 2017 is the last forecast year and gradual fiscal adjustment is assumed to take place over a 5-year period following forecasts, based on S1 definition, thus implying a high risk threshold at 2.5 pps. of GDP.

as DE, IT, HU and LV still belong to the low risk category.

Compared to the latest FSR (relatively to the countries evaluated in both vintages), the number of Member States exceeding the upper threshold has decreased from four to one (SI) in the current FSR.

The following Graphs 4.14-4.15 split the total variation of both indicators, S1 and S2, between 2012 and 2015 FSRs, into their sub-components to verify, to what extent, it is due to the changes in the initial budgetary position and/or the cost of ageing.<sup>(98)</sup> For the indicator S1 the Graph 4.14 also reports the changes due to the debt requirement and to the cost of delay.

Graph 4.14: Components of S1 changes between the 2012 and the 2015 FSR



Source: Commission services

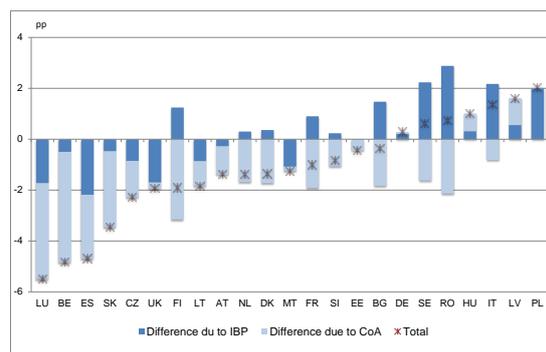
There is a large heterogeneity in the contributions to the changes in S1. The highest positive variations (which means an increasing required adjustment in the medium term) are mainly due to a weaker budgetary position in terms of lower structural primary balance, along with higher debt requirements not balanced by reductions in the CoA component.

Fifteen countries register a lower S1 value in the current FSR (among those evaluated in 2012), while the CoA component is lower in thirteen countries of the sample, confirming that the recent reform process of the pension systems will

<sup>(98)</sup> The positive changes mean that the fiscal indicators and/or their components have increased between the 2012 and the 2015 FSR.

produce positive budgetary effects. As a result of the consolidation efforts in the aftermath of the economic crisis, a better IBP is registered in eleven countries, leading to a lower adjustment due to the debt requirement.

Graph 4.15: Components of S2 changes between the 2012 and the 2015 FSR



Source: Commission services

When an infinite horizon is taken into account (S2), the contribution of the CoA component to decrease the long term sustainability risk compared to 2012 is wider (Graph 4.15). Only four countries (PL, LV, HU and DE), from those evaluated in 2012, don't benefit from a decrease in the CoA component between 2012 and 2015 FSRs. The required adjustment due to the IBP components has become tighter in thirteen countries, and in three cases (SE, RO and IT) the change is larger than 2.0 percentage points of GDP.

More extensively, the evolution of the S1 indicator along various waves of Commission forecasts is displayed in Graph 4.16 with reference to all EU MSs.<sup>(99)</sup>

<sup>(99)</sup> The delimitation between the medium and high risk categories has been set to reflect the 0.5 pps. of GDP benchmark fiscal consolidation effort per year since the Spring 2015 forecasts; while previously the adjustment period was assumed to end by 2020. So, in the Autumn 2010 and Spring 2011 forecasts the last forecast year was 2013, implying a fiscal adjustment period of 8 years (between 2014 and 2020, according to the S1 definition) leading to a 4 pps. of GDP threshold for high risk of medium-term fiscal sustainability. Later, from the Autumn 2011 to the FSR 2012 the threshold was set to 3.0 pps. of GDP (a fiscal adjustment period of 6 years) and later it was further reduced to 2.5 and 2.0 pps. of GDP (Spring and Autumn 2014). In this FSR, 2017 is the last forecast year and gradual fiscal adjustment is assumed to take place over a 5-year period following forecasts, based on S1 definition, thus implying a high risk threshold at 2.5 pps. of GDP.

For the EU the S1 indicator has decreased significantly, from close to 4.0 pps. in 2010 to below 2.0 pps. of GDP in the autumn 2012 and has since then broadly stabilised at around 2.0 pps. of GDP. This highlights the impact of significant consolidation measures and structural reforms undertaken since the onset of the economic and financial crisis. At the same time, the stickiness of the indicator at around 2.0 pps. of GDP indicates that the debt ratio has not been further reduced over more recent years in the EU as a whole.

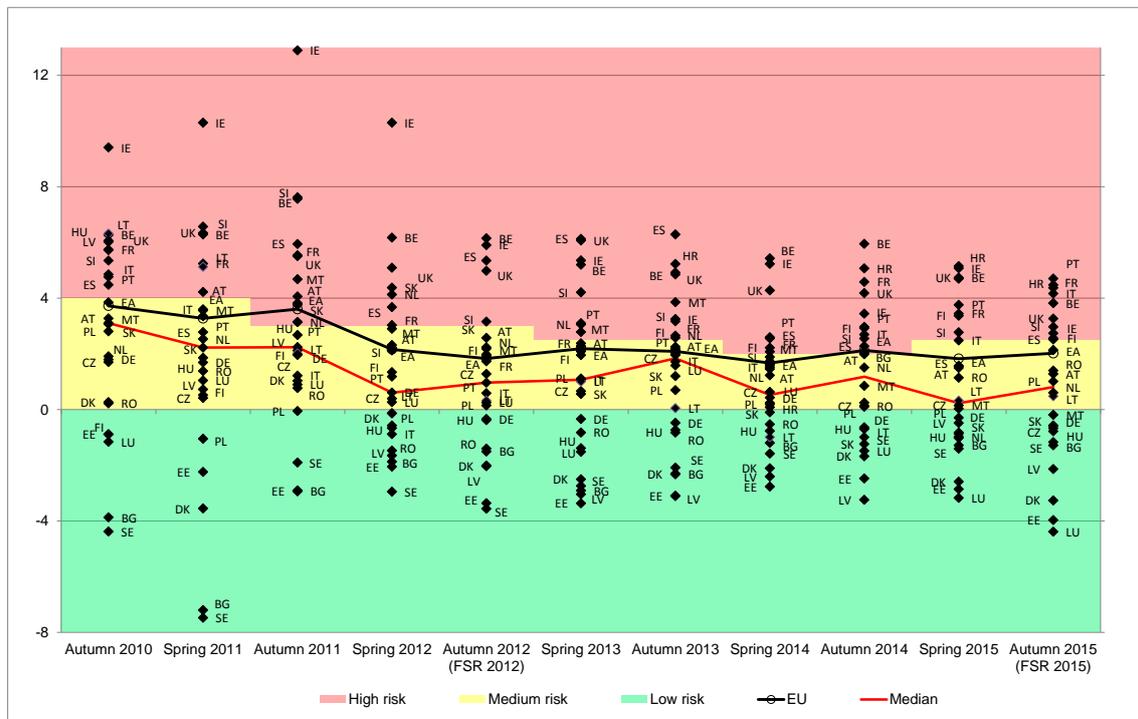
the update to autumn 2015 forecasts and the new long-term budgetary projections (the only exception to this being SI).

Graph 4.16 also shows the country by country risk classification based on the S1 indicator along various waves of Commission forecasts. The number of high-risk countries was at its highest in autumn 2010 (10 countries). Since then and until spring 2014, the number has varied between five and nine and ten countries (ES, FI, IE, SI, BE, FR, IT, HR, PT and the UK) are classified as high risk in the medium term in this edition of the FSR.

Finally, Graph 4.17 allows a comparison between values of the S2 indicator in the Fiscal Sustainability Report 2012 (FSR2012), the Sustainability Report 2009 (FSR2009), and values of the indicator calculated over Commission forecasts vintages (up to Autumn 2015 scenario).<sup>(100)</sup> For the EU as a whole, the S2 sustainability gap has decreased significantly – actually to almost one sixth of what it was – since the release of the 2009 Sustainability Report (from above 6.0 pps. of GDP – high risk – recorded in Autumn 2009 to below 2.0 pps. of GDP – low risk – in the current FSR). This reflects the determined fiscal consolidation since the onset of the crisis, as well as the general improvement in pension projections as from the 2015 Ageing Report. In terms of country-by-country risk classification, Graph 4.17 shows that the majority of the European countries have joined the medium risk area. In particular, three out of the four countries that were at high risk in the FSR 2012 (BE, LU and SK) joined the medium-risk group following

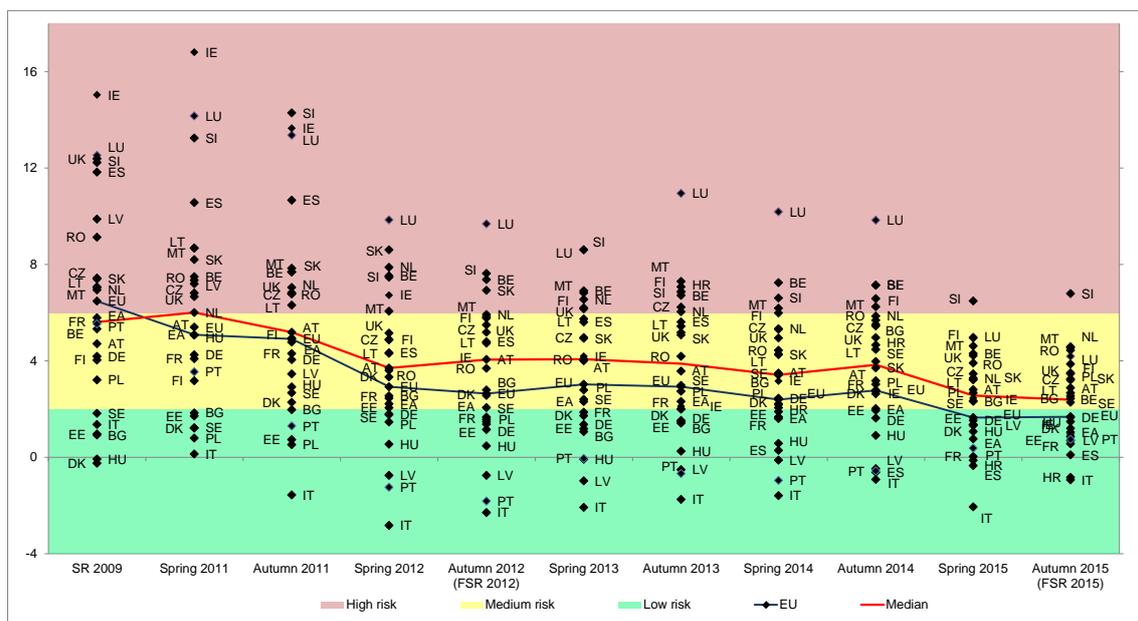
<sup>(100)</sup> The SR2009 used, as starting point of the calculations, the debt levels and structural primary balances in 2009 (2009 spring forecasts), while 2014 and 2016 forecast figures are used respectively for the starting debt levels in the SR2012 (autumn 2012 forecasts) and in the spring 2015 scenario. The current FSR is based on the autumn 2015 scenario. The SR2009 is based on the long-run budgetary projections of the 2009 Ageing Report, the SR 2012 is based on the 2012 Ageing Report, while the spring 2015 forecast scenario is based on the 2015 Ageing Report.

Graph 4.16: The S1 sustainability indicator throughout Commission services forecast vintages (% of GDP)



Source: Commission services

Graph 4.17: The S2 sustainability indicator throughout Commission services forecast vintages (% of GDP)



Source: Commission services

## 5. OTHER RELEVANT FACTORS TO BE TAKEN INTO ACCOUNT

Chapters 2, 3 and 4 of this report presented figures and sensitivity analyses for various sustainability indicators.

This chapter discusses a number of additional factors which do not enter the calculation of sustainability indicators, but which provide complementary information. First of all, factors such as government contingent liabilities, the structure of public debt and certain government assets are relevant to the assessment of a country's overall sustainability of public finances because they address two questions: *i*) liquidity-related: within the actual explicit level of government liabilities, which share has short remaining maturity, is volatile or entails currency risks? *ii*) solvency-related: is the actual explicit level of government liabilities accurate? Which is the risk that government liabilities become larger, how large can they become if risk materialises and which back-stops can there be identified on the assets side to mitigate the risks? These additional factors are considered in the overall assessment of fiscal sustainability presented in Chapter 6, as well as in the country-specific analysis in Chapter 7. Moreover, while sustainability of public finances should be evaluated idiosyncratically depending on each economy's structure and specific risks, historical data shows that some EU countries have sustained surpluses over considerable periods of time. These statistics are presented in Chapter 5's section on projected primary balance versus historical standards. Chapter 5 closes with an overview of the literature exploring the links between public debt, fiscal consolidation and growth.

### 5.1. RISKS RELATED TO THE STRUCTURE OF PUBLIC DEBT FINANCING

Analysing the structure of public debt financing (in terms of maturity, creditor base and currency of denomination) can inform further about risks associated with public debt. Consequently, three variables of debt structure form part of DG ECFIN's DSA <sup>(101)</sup>: *i*) the share of short-term debt in total public debt (y-o-y change, at original maturity); *ii*) the share of debt held by non-

residents in total public debt, and *iii*) the share of debt denominated in a foreign currency in total public debt.

Large increases in the share of short-term public debt provide an indication of higher rollover risk at any given debt level in terms of a government's reliance on temporary market financing. A large share of public debt held by non-residents may capture vulnerabilities in terms of volatility of capital holdings as shown by the literature, though it can also signal strong confidence in a well-performing economy. Finally, a large share of debt in a foreign currency provides an indication of risks related to exchange rate fluctuations. Each of the three variables is analysed using critical thresholds of fiscal risk calculated using the signals' approach (the approach for threshold determination used in S0 computation). <sup>(102)</sup> Values taken by the variables are examined in relation to the calculated critical thresholds to establish whether fiscal risks related to the structure of public debt financing seem to emerge under one dimension or another.

The results of the analysis are presented in the form of a heat map reporting values of the three variables as follows: *i*) in red, if they are at or above the critical threshold of fiscal risk from the signals' approach; *ii*) in yellow, if they are below the threshold, as obtained from the signals' approach, but at or above a benchmark of around 80% of the same threshold, highlighting an intermediate level of fiscal risk; *iii*) in green otherwise. Heat maps highlighting risks related to public debt structure are reported for each Member State in the country fiches in Chapter 7.

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<sup>(102)</sup>See Chapter 1 for details on the signals approach. This methodology shows that, based on historical events, the three variables appear to be very good leading indicators of fiscal stress, having an excellent in-sample performance in anticipating fiscal stress (signalling powers of 0.36, 0.29 and 0.24 are obtained respectively for the share of public debt by non-residents, the change in the share of short-term public debt and the share of public debt in foreign currency). The three public debt structure variables appear to be among the best-performing *fiscal* variables also in terms of relatively low type-II errors (i.e. erroneous prediction of no fiscal stress ahead of a fiscal stress event – false negative). See Annex A1 for more details.

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<sup>(101)</sup>See European Commission (2014c).

An overview of results across countries is reported in Table 5.1. Fiscal risks related to the debt maturity structure are flagged for Bulgaria, and to a lesser extent for Sweden and Portugal. In particular, Bulgaria has seen an increase of more than 19 pps. of short-term public debt in 2014 (partially resulting from the public support to the financial sector). As it could be expected, the exposure to exchange rate risks appears critical (high fiscal risks) for some Central and Eastern European countries (CEEC) (Bulgaria, Croatia, Lithuania, Hungary, Poland and Romania). Finally, potential fiscal risks related to the creditor base (share of debt held by non-residents) need to be carefully evaluated against country-specific contexts to assess whether vulnerabilities under this dimension effectively arise. Indeed, since a relatively high share of public debt held by non-residents may also signal, for instance, particularly strong confidence in a currently well-performing economy, risks related to the higher volatility of a non-resident creditor base need to be assessed against such background. Information on the share of public debt held by non-residents is thus qualified by each country's average spread on 10-year government bonds vs. Germany for the same year. To this end, table 5.1. shows foreign held debt heat map as blended shading between the volatility risks linked to non-resident tenure (left side hue of the shaded cells) and the sovereign risk given by spreads (right side of the shaded cells). It is thus evident that several countries with large shares of foreign held public debt are at this juncture associated with creditor confidence (Belgium, Germany, France, Latvia, the Netherlands, Austria and Finland), whereas for some CEEC (Hungary, Poland, Romania, Slovenia, Lithuania) and Portugal this large share of foreign held debt is more prone to volatility due to high sovereign risks and speculative investment.

## 5.2. RISKS RELATED TO GOVERNMENTS' CONTINGENT LIABILITIES

Beyond actual explicit and direct liabilities that governments have incurred through borrowing – short- and long-term loans and bonds (i.e. debt) or in the form of currency and deposits, there are a number of other government commitments that are

Table 5.1: Heat map of risks related to the structure of public debt financing, by country (2014)

	Change in share of short-term public debt (p.p.) in 2014:	Share of public debt by non-residents (%) in 2013:	Share of public debt in foreign currency (%) in 2014:
BE	0.6	49.9	0
BG	19.2	43.9	81.6
CZ	-0.5	13.6 (2012)	14.3
DK	-0.5	39.3	6.8
DE	-0.6	56.1	3.6
EE	-1	65.1	0
IE	-3.6	n.a.	9.5
ES	-0.9	38.8	0.4
FR	-0.7	55.5	2.2
HR	-0.5	n.a.	78.5
IT	-0.6	31.8	0.2
LV	-0.5	80.2	23.7
LT	-0.6	69.9	37.2
LU	0.9	19.5	0
HU	-1.1	57.7	39.7
MT	-1.8	7.1	0
NL	-0.5	52.9	1.5
AT	0.9	73.5	1.1
PL	0	50.1	35.2
PT	3.7	66.4	14.3
RO	0.5	54.5	57
SI	1.1	62	0.1
SK	-1.3	47.1 (2012)	8
FI	0.4	81.2	1.6
SE	7.5	32.9	26.8
UK	2.1	n.a.	0

(1) One-off events in relation to short term debt may influence significantly its share in overall public debt – e.g. governments may choose to use short-term initial maturities due to interest rates. Arguably, IMF loans do not pose fiscal risks due to creditor base. Similarly, countries with a peg or a currency board are less exposed to fiscal risks from the share of public debt in foreign currency.

(2) Critical upper and lower thresholds (see Annex A6): (i) y-o-y change in the share of short-term public debt: upper threshold 2.76 pps.; lower threshold 2.2 pps.; (ii) Share of public debt by non-residents: upper threshold 49.02%; lower threshold 40%. Spread on 10-year government bonds vs. Germany – 2013 average - upper threshold 231; lower threshold 185; (iii) Share of public debt in foreign currency: upper threshold 29.82%; lower threshold 24%.

(3) All values refer to 2014 unless otherwise specified.

**Source:** Eurostat for the change in the share of short-term public debt over total debt; ECB and OECD for the share of public debt by non-residents and average spread on 10-year government bonds vs. Germany; Eurostat, ECB and OECD for the share of public debt in foreign currency.

not included in gross debt (here Maastricht debt) and that could usefully gauge fiscal risks.<sup>(103)</sup> These commitments represent implicit and contingent liabilities for which estimation methods are still developing and depending largely on available reporting by countries.

There are two main criteria to classify the sources of government obligations and thereby determine the scale of public sector commitments. According to the first criterion, the extent to which a source of obligations is legally binding, government liabilities can be either explicit i.e. legally stipulated (e.g. sovereign debt, various types of state guarantees or insurance schemes recognized by law or contract), or implicit i.e. liabilities not backed up by law, but underpinned by an expectation of materialising or a moral obligation of the government reflecting public and interest group pressures (e.g. future budgetary expenditure on public pensions, health care, social security schemes, potential absorption of losses generated by different events such as disasters, bailouts etc). From the point of view of the second criterion, certainty of materializing, liabilities can be either direct i.e. certain to be incurred by the government (such as debt, present and future budgetary spending commitments on pensions, health care) or contingent on the occurrence uncertain events outside the government's full control (e.g. execution of guarantees and insurance, costs from defaults, financial institutions failure, environmental disasters, wars etc).<sup>(104)</sup>

Implicit and contingent liabilities are therefore not mutually exclusive concepts, but different dimensions of categorization. Within this classification, contingent liabilities are uncertain government obligations that can be either explicit when backed up by legal provision or implicit when the scope is open.

Assessing the value of implicit and contingent liabilities and commitments requires an understanding of the probability that situations giving rise to such liabilities occur, as well as assumptions on the size of these liabilities under

<sup>(103)</sup> For the definition of Maastricht debt and the instruments not included in it (SDR allocations, liabilities related to insurance, pensions and standardised guarantees and other accounts, payable) see section 5.3.

<sup>(104)</sup> For a full classification see Polackova Brixi and Mody (2002) and OECD (2015).

various possible scenarios, i.e. assessing the impact or extent of potential exposure. Data limitations may further affect the evaluation of both explicit and implicit contingent liabilities, making it difficult to estimate these categories fully or accurately. For these reasons, this report includes only selected information on explicit and implicit liabilities, focusing mainly on those stemming from the banking sector.<sup>(105)</sup>

The contingent liability risk analysis module presented in the remaining part of section 5.2 consists of three tools: *i*) statistics on explicit contingent liabilities, *ii*) statistics on risks or triggers for contingent liabilities, as well *iii*) estimations of implicit contingent liabilities based on banking stress scenarios (SYMBOL model).

#### 5.2.1. Contingent liabilities, primarily related to the banking sector

In the first tool, statistics on explicit contingent liabilities are summarized in the corresponding table presented in the country fiches (Chapter 7). The classes included here<sup>(106)</sup> refer to government guarantees fixed in the form of a law or a contract in favour of both the financial and non-financial sector such as debt guarantees or guarantees on assets held by (public and private) corporations or households and covering potential losses from the decrease in these assets' value; <sup>(107)</sup> government guarantees are reported as overall value as well as disaggregated between one-off and standardised

<sup>(105)</sup> For more details on the evaluation of fiscal risks from contingent liabilities see European Commission (2014c), and Chapter 2.3 of European Commission (2015e).

<sup>(106)</sup> Eurostat statistics on explicit contingent liabilities also cover outstanding liabilities of government controlled entities classified outside the general government, liabilities related to public-private partnerships PPP, and non-performing government loans, but these are not included here due to gaps, limited comparability across countries, and lack of recent data. For a more detailed presentation of explicit liabilities collected by Eurostat see the aforementioned Chapter 2.3 of European Commission (2015e).

<sup>(107)</sup> Eurostat data on government guarantees excludes: 1. Government guarantees issued within the guarantee mechanism under the Framework Agreement of the European Financial Stability Facility (EFSF); 2. Derivative-type guarantees meeting the ESA2010 definition of a financial derivative; 3. Deposit insurance guarantees and comparable schemes; 4. Government guarantees issued on events whose occurrence is very difficult to cover via commercial insurance (earthquakes, large scale flooding, etc.), as explained in Eurostat (2015b).

guarantees as percent of GDP. <sup>(108)</sup> A subset of government guarantees, i.e. government contingent obligations *related to public support to financial institutions in the context of the financial crisis* is separately reported. This includes financial sector support deemed to be triggered by recent episodes of financial instability and potentially contributing to future government liabilities, contingent on future events, <sup>(109)</sup> in percentage of GDP; these obligations are reported as total value and disaggregated into government guarantees on liabilities and assets of financial institutions; securities issued by the government under liquidity schemes and liabilities of special purpose entities, including those to which certain impaired assets of financial institutions were transferred.

The second tool comprises a set of five variables capturing short-term risks and indirectly signalling potential future government obligations in support of *the banking sector*: private sector credit flow in percentage of GDP, <sup>(110)</sup> bank loan-to-deposit ratio, the share of banks' non-performing loans both as level and change (which should be read in conjunction to data on bank provisions to non-performing loans reported in Annex A12), and the nominal house price index as y-o-y change. <sup>(111)</sup>

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<sup>(108)</sup> A one-off guarantee is an individual guarantee for which guarantors are not able to reliably estimate the risk of calls. One-off guarantees are linked to debt instruments (e.g. loans, bonds). Standardised guarantees are guarantees issued in large numbers, usually for fairly small amounts, along identical lines. It is not possible to estimate precisely the default risk of each loan, but it is possible to estimate how many, out of a large number of such loans, will default. Examples are mortgage loan guarantees, student loan guarantees, etc. See Eurostat (2015b).

<sup>(109)</sup> This data is collected regularly by Eurostat with the EDP notifications, in the supplementary tables for the financial crisis (data collection started with the October 2009 EDP notification). Data provided by Member States in these tables indicates the potential maximum impact that could (theoretically) arise for government finances from such contingent liabilities (see Eurostat, 2015a). Similarly to the broader category of government guarantees, government deposit insurance guarantees are not included in the contingent liabilities related to financial sector support in the context of the financial crisis.

<sup>(110)</sup> This variable that is also an indicator in the scoreboard of the macroeconomic imbalance procedure is used here in a narrower way, capturing *risks of fiscal stress* from vulnerabilities in the financial sector.

<sup>(111)</sup> The change in the nominal house price index has been found in the literature to be a good leading indicator of banking crises. Messages from this variable need nonetheless to be interpreted with caution. In the context of an early-warning system of possible fiscal stress only relatively high positive values of the variable flash red in the heat map, signalling risks of bubbles building up. Yet,

These variables are presented in the form of a heat map whereby critical thresholds of fiscal risk have been calculated using the signals' approach, <sup>(112)</sup> with the upper risk thresholds corresponding to the original signals' approach thresholds and lower threshold of risk set at about 80% of the original thresholds.

Both the table reproducing statistics on government's contingent liabilities and the heat map on government contingent liability risks from the banking sector are reported country by country in Chapter 7. For the heat maps, an overview of results across countries is also provided in Table 5.2 The table shows that, as expected at this juncture, no risks emanate from the credit flow to the private sector for practically any EU country (with the only exception of Ireland), while the same appears to hold generally for the change in the nominal house price index except Estonia, Ireland and moderately the UK. The ratio of bank loans to deposits reaches levels of high risk for one Ireland only (though, as indicated in Table 5.2, the variable is missing for as many as nine Member States and the latest available data refers to 2013 for all countries but Croatia (2012)). The share of non-performing loans appears, on the contrary, to be problematic for almost all countries with few exceptions (Estonia, Luxembourg, Finland and Sweden), thus representing a major source of risks at the current juncture. The change in the share of non-performing loans additionally signals vulnerabilities in some of the countries for which the share itself is already at a critical level (Portugal, Italy, Latvia, Austria, Denmark, Malta, Croatia, Germany and Estonia. Other large y-o-y increases are visible in Finland, Sweden, Germany and Estonia).

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in crisis context, negative values of the variable could also pose risks (due to the loss in value of properties repossessed by banks), aspect that needs to be considered in the data interpretation/risk assessment.

<sup>(112)</sup> See Chapter 1 and Annex A1 for more details.

Table 5.2: Heat map on governments' contingent liability risks from the banking sector (2014), by country

	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (p.p.):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:
BE	1	62.1	3.3	-1.9	-0.5
BG	-0.3	n.a. ()	18.4	-0.2	1.4
CZ	1.8	n.a. ()	5.6	0.4	2.4
DK	1.7	n.a. ()	5.1	1.2	3.7
DE	1.1	102.7	2.5	0.7	2.5
EE	6.4	112.6	2.6	0.7	13.7
IE	13.7	126.6	16.3	-2.1	13
ES	-7.4	134.5	6.9	-1	0.4
FR	3.3	119.8	3.6	-1	-1.6
HR	0.3	90.6 (2012)	12.9	1.1	-2.3
IT	-0.9	120.9	15.8	2.9	-4.3
LV	-11.9	77.0	7.6	2.1	5.9
LT	-1.2	109.7	6.5	-2	6.4
LU	0.5	96.3	0.7	0.5	4.4
HU	-0.5	n.a. ()	14.2	0.2	4.2
MT	7.8	73.5	3.2	1.2	2.6
NL	-1.6	118.9	3	0.2	0.8
AT	0.2	122.4	6.2	2	3.5
PL	4.7	n.a. ()	5.4	-0.6	1
PT	-8.7	130.8	12.7	4.9	4.3
RO	-2.4	104.5 (2013)	15.8	-2	-2.4
SI	-4.6	116	16.6	-0.6	-6.6
SK	3.9	97.5	4.1	0.4	1.5
FI	0.4	164.4	1.4	0.8	-0.4
SE	6.5	n.a. ()	1.4	0.9	9.4
UK	3.4	n.a. ()	1.5	-0.3	10.1

(1) Critical upper and lower thresholds (see Annex A6): (i) Private sector credit flow (% GDP): upper threshold 10.9%; lower threshold 8.7%; (ii). Bank loans-to-deposits ratio: upper threshold 142.09%; lower threshold 110%; (iii). Share of non-performing loans: upper threshold 2.3%; lower threshold 1.8%; (iv). Share of non-performing loans (Change): upper threshold 0.3 pps.; lower threshold 0.2 pps.; (v) Nominal house price index (Y-o-Y Change): upper threshold 12.59; lower threshold 10;

(2) Variables' values in the heat map refer to 2014 unless differently specified.

**Source:** Eurostat for private sector credit flow; Eurostat and WB's GFDD for bank loans-to-deposits ratio; ECB, IMF's FSI and WB's GFDD for the share of non-performing loans; Eurostat, ECB, BIS and OECD for the change in nominal house price index.

Finally, the third tool - the SYMBOL model - simulates a severe banking stress scenario for which it estimates implicit contingent liabilities i.e. the residual burden on public finances after the legal safety net has been used. These estimates are presented in the following section.

## 5.2.2. Implicit contingent liabilities from severe stress scenarios on the banking sector (SYMBOL model)

The economic and financial crisis has highlighted the importance of complementing fiscal sustainability analyses with evaluations of governments' contingent liabilities stemming from the banking sector. As shown by recent experience, a government's decision to support a distressed banking sector can sizeably impact public finances. This reality points to the need to stress test public finances for "tail event" type of bank failures (i.e. events with a small probability of materialising, but with extreme effects).

Estimates of the potential impact of banking losses on public finances <sup>(113)</sup> are obtained using SYMBOL (Systemic Model of Banking Originated Losses), a model developed by the European Commission's Joint Research Centre (JRC) and the Directorate General Financial Stability, Financial Services and Capital Markets Union (DG FISMA). Similarly to previous exercises, the SYMBOL model <sup>(114)</sup> uses unconsolidated balance sheet data to assess the individual banks' losses in excess of bank capital and the recapitalization needed to enable banks to continue to operate in case of distress. As such, the model gauges the potential residual burden on government budget after the mitigating effect of safety net tools (capital, bail-in, resolution funds) available to absorb shocks has been taken into account.

The impact of a banking crisis is separated into that on the government deficit and that on gross public debt alone (through the stock-flow

<sup>(113)</sup> Although the relationship between the government's budget and banks' balance sheets is not uni-directional but circular and dynamic, such second-round fiscal effects of bank failures are not taken into account. Thus, the analysis herewith does not reflect, for instance, that a downgrading of sovereign bonds reduces the value of bank assets and can lead in turn to higher funding costs and/or to bank downgrading (see European Commission (2011a).

<sup>(114)</sup> More details are reported in Annex A7. SYMBOL has been used by the European Commission for the ex-ante quantitative impact assessment of several legislative proposals (see Marchesi *et al.* (2012); European Commission, (2011b); Cariboni *et al.* (2012); Cannas *et al.* (2013); Cariboni *et al.* (2015)), for the cumulative evaluation of the entire financial regulation agenda (ERFRA, European Commission, (2014c)), and for the estimation of contingent liabilities linked to public support to the EU banking sector (European Commission, 2011a and 2012a; Benczur *et al.*, 2015).

adjustment). This distinction is important because financial assets bought by the government to support the banking sector can be sold at a later stage, so that part of the increase in the debt-to-GDP ratio related to bank recapitalization needs can be eventually fully or partly recouped.

The following assumptions are made: first, results are calibrated to match the gravity of the 2008-2012 crisis, <sup>(115)</sup> i.e. a severe and systemic crisis event. Second, a conservative assumption is used whereby all simulated bank excess losses and recapitalization needs that cannot be covered by the safety net fall on public finances. <sup>(116)</sup> Third, the safety net is considered able to fully rule out contagion effects; more specifically, in the main scenario systemic banks are recapitalised and non-systemic banks are liquidated. <sup>(117)</sup>

The current exercise illustrates how the regulatory framework set up by the Commission in recent years would limit the impact of a systemic banking crisis on public finances. Three pieces of legislation are considered: the new Capital Requirement Regulation and Directive IV (CRDIV), <sup>(118)</sup> which improved the definitions of regulatory capital and risk-weighted assets, increased the level of regulatory capital by introducing the capital buffers, including an extra capital buffer for European Global Systemically Important Institutions (G-SIIs); the Bank Recovery and Resolution Directive (BRRD), <sup>(119)</sup> which introduced bail-in <sup>(120)</sup> and national resolution funds, <sup>(121)</sup> and the Single Resolution Mechanism

Regulation (SRMR), <sup>(122)</sup> which introduced the Single Resolution Fund (SRF). To reflect the phasing-in <sup>(123)</sup> of the safety-net tools foreseen by this body of legislation, two regulatory scenarios are modelled. <sup>(124)</sup>

*An initial (2016 Q1) short-term scenario with safety net in progress, comprising:*

- Bank total capital and risk-weighted assets (RWA) taken directly from the banks' balance sheets, adjusted to the new definitions proposed in the CRDIV <sup>(125)</sup> and representing at least 8% of RWA.
- Extra capital buffers for G-SIIs, phased in proportion of 1/4 of the final buffers prescribed by the Financial Stability Board (FSB). <sup>(126)</sup>
- Bail-in: modelled as a worst-case scenario whereby a Loss Absorbing Capacity (LAC) is built to represent, together with regulatory capital, 8% of TA. <sup>(127)</sup>

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<sup>(122)</sup> See European Parliament and Council (2014b).

<sup>(123)</sup> CRDIV increased capital requirements are being phased-in from 2014 to 2019 and banks are progressively introducing the capital conservation buffer; according to BRRD and SRMR, national RFs and the SRF have a target of 1% of covered deposits to be collected over 10 years from 2015 onwards and 8 years from 2016 onwards, respectively.

<sup>(124)</sup> In the estimation G-SII buffers are applied only to the parent group. G-SIIs requirements on Total Loss Absorbing Capacity (TLAC) recently discussed by the FSB are not considered. See Financial Stability Board (2014b).

<sup>(125)</sup> These decrease capital and increase RWA. To properly estimate the effects of these CRDIV improved definitions, the results of the Basel III monitoring exercise (Quantitative Impact Study, QIS), run by the European Banking Authority (2015) are used. Since Basel III definitions of RWA and capital reflect better banks' true risk and capital quality, SYMBOL adjusts inputs to reflect these definitions even in scenarios where CRDIV is not yet implemented.

<sup>(126)</sup> See Financial Stability Board (2014a).

<sup>(127)</sup> The BRRD does not establish a harmonized level of liabilities eligible for bail-in, but Art. 44 sets out that the RF can kick in only after shareholders and holders of other eligible instruments have made a contribution to loss absorption and recapitalisation of at least 8% of TA. Since bank-level data on bail-inable liabilities is unavailable, the bail-in tool is modelled in both the short- and long-term by imposing that individual banks hold a LAC of at least 8% of their TA. In practice banks with total capital under this threshold are assumed to meet the 8% minimum threshold via bail-in liabilities. In the simulation, bail-in stops once the 8% of TA limit has been reached. If a bank holds capital above 8% of TA, there would be no bail-in, but capital might be bearing losses above 8% of TA.

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<sup>(115)</sup> Bank losses and recapitalization needs triggered by the last crisis are proxied by state aid data, in particular the total recapitalization and asset relief provided to banks over 2008-12 (around 615 bn euro), see European Commission's DG Competition State Aid Scoreboard, European Commission (2014b) and Benczur et al. (2015).

<sup>(116)</sup> The severity of the systemic crisis assessed in this exercise is higher than that of the "2014 EU-wide stress test" performed by the EBA and results cannot be compared directly due to different methodologies.

<sup>(117)</sup> Potential contagion across banks through bail-in (some of the losses absorbed by the safety net re-entering the banking system) is disregarded due to scarce data. Work to address this simplification is ongoing at DG JRC.

<sup>(118)</sup> See European Parliament and Council (2013).

<sup>(119)</sup> See European Parliament and Council (2014a).

<sup>(120)</sup> A legal framework ensuring that part of the distressed banks' losses are absorbed by unsecured creditors. The bail-in tool is foreseen to enter into force in all Member States on 01/01/2016 at the latest.

<sup>(121)</sup> Funds financed by banks to orderly resolve failing banks, avoiding contagion and other spill-overs.

- Resolution Funds <sup>(128)</sup> - national (NRFs, for Member States not part of the Banking Union) and single (SRF, for Banking Union members) – phased in in proportion of 1/10 of their target or long-run level <sup>(129)</sup> and contributing to resolution absorbing losses by up to 5% of the TA of the insolvent bank, provided that at least 8% LAC has already been called in. <sup>(130)</sup>

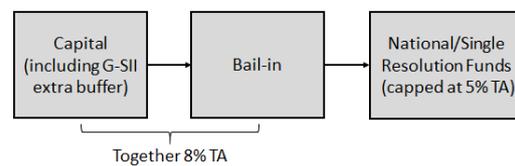
A *final (long-term) 2025 scenario* as of when a completely phased-in safety net comprises:

- Bank total capital reflecting the CRDIV improved definition and an increased minimum level <sup>(131)</sup> set at the maximum between the CRDIV adjusted capital and 10.5% of the CRDIV adjusted RWA. <sup>(132)</sup>
- Extra capital buffers for G-SIIs: fully built at the levels posted by the Financial Stability Board.
- Bail-in: as in the 2016 scenario.
- Resolution Funds: Both NRFs and SRF fully in place and able to absorb losses of up to 5% of the TA of the insolvent bank provided that at least 8% LAC has already been called in.

In the 2025 scenario banks are first "topped up" to the required minimum capital (see footnote 131) and, in case of G-SIIs, to the extra capital buffer. In both scenarios, only the subset of banks considered to be systemic will go into resolution and recapitalize (Annex A7 explains how systemic banks are selected and shows results for the case in which all banks must recapitalize). All remaining banks are assumed not to be systemic and to be liquidated in case of distress. Under each scenario two levels of bank recapitalization are considered: 8% and 10.5% of each bank's RWA, representing the minimum level of capital (CET1 + AT1) and capital conservation buffer set by the CRDIV. The extra capital buffers built for G-SIIs are not recapitalised. Table 5.3 summarizes the scenarios and recapitalization levels considered.

Graph 5.1 illustrates the order of intervention of different tools. The first cushion assumed to absorb simulated losses is capital, the second tool is bail-in, and the last are RFs, as legally foreseen. <sup>(133)</sup>

Graph 5.1: Order of intervention of resolution tools



Source: Commission services.

The SYMBOL model is run on a sample of about 2400 EU banks with December 2014 unconsolidated data. Table A7.1 in Annex A7 describes the sample, showing that it is representative for most Member States. When the sample includes only a small number of banks and/or where the share of total assets covered is low, results should be interpreted with caution.

<sup>(128)</sup> In practice, under the Agreement on the mutualisation and transfer of contributions to the SRF (IGA), in the short-term only a part of current SRF contributions would be mutualised (i.e. available to all banks irrespective of their location), while the rest of the fund is only available to banks from their country of origin. Since a system-wide waterfall under IGA with sequential intervention of national and mutualised SRF is complex to model and since in the short-term only 10% of the SRF would be in place, the model assumes that the entire SRF is already mutualised.

<sup>(129)</sup> Given the aim to portray worst-case fiscal consequences, ex-post contributions to the NRFs/SRF are not modelled, but these can actually go up to 3 times the ex-ante contributions, further reducing the impact on public finances.

<sup>(130)</sup> In case of excess demand for SRF funds, funds are rationed in proportion to demand (i.e., proportionally to excess losses and recapitalization needs after the minimum bail-in, capped at 5% of TA at bank level).

<sup>(131)</sup> Only mandatory components of total capital, i.e. common equity Tier 1 (CET1), additional Tier (AT1) and capital conservation buffer are included. The discretionary counter-cyclical capital buffer (at the regulator's choice) is not.

<sup>(132)</sup> Before running the simulation, banks are "topped up" to this increased level of minimum capital requirement. In practice, it affects only a small subset of banks, as most already hold capital exceeding the long-run requirement.

<sup>(133)</sup> Additional tools are available to absorb residual losses and recapitalization needs, including additional bail-in liabilities, leftover resolution funds and the deposit guarantee scheme. See Benczur et al. (2015) for a discussion.

Table 5.3: Scenario settings

Scenario	Total regulatory capital	Risk Weighted Assets	Bail-in	National / Single RF	Deposit Guarantee Scheme	Recapitalization levels for systemic banks
<b>Initial (2016 Q1) short term</b>	K <sup>QIS</sup> + 1/4 of buffers for G-SIIs	RWA <sup>QIS</sup>	Yes	Yes, 5% TA cap, after LAC of 8% has been called in	No	8% RWA <sup>QIS</sup>
			Capital plus bail-in	1/10 of full target (end of Q1 2016)		10.5% RWA <sup>QIS</sup>
<b>Final (2025) long term</b>	Max {K <sup>QIS</sup> , 10.5%·RWA <sup>QIS</sup> + buffers for G-SIIs}	RWA <sup>QIS</sup>	Yes	Yes, 5% TA cap, after LAC of 8% has been called in	No	8% RWA <sup>QIS</sup>
			Capital plus bail-in	At full target		10.5% RWA <sup>QIS</sup>
			8% TA	No ex-post contributions		

(1) K and RWA are the capital and Risk Weighted Assets as of end 2014 balance sheet or estimated by JRC. Superscript QIS refers to CRDIV adjusted values.

Source: Commission services.

The cases where this problem is particularly acute (Estonia and Ireland) or it is present but less severe (Austria, Hungary, Lithuania, Malta, Slovakia) are marked by asterisks.

Implicit contingent liabilities from total funding needs, i.e. losses in excess of capital and recapitalization needs at 8% and 10.5% are presented by Member State for the initial 2016 and final 2025 scenarios in Table 5.4 and Graph 5.2. Bank losses in excess of capital are assumed to be covered by public injections of funds to the banking sector, affecting equally public deficit and gross and net debt. Conversely, recapitalization is deemed recoverable since capital injection is done in exchange of shares (partial government ownership of the bank) being recorded as a financial transaction affecting neither the deficit nor net debt, but only gross debt through the stock-flow adjustment. <sup>(134)</sup>

Table 5.4 shows that in the initial phase the estimated impact on budget deficit from excesses losses is in all cases almost negligible at below

0.4% of GDP (0.1% approx. for the EU) while in the final stage it is essentially zero.

As for recapitalization needs with direct impact on debt levels, the situation is more nuanced. In the short term, estimates in Table 5.4 show that most EU countries' contingent liabilities from severe bank distress are lower than 1% of GDP even in the 10.5% recapitalization scenario, though the highest isolated cases are between 3% and 4%. <sup>(135)</sup> In the long term, half of the countries with estimated exposures above 1% in the short term would go below this threshold, and the maximum estimated exposures decrease by around one half. Hence, completing the implementation of the safety net implies a decrease over time of the estimated overall risks at EU level from about 0.9% of GDP in the short term to roughly 0.5% of GDP in the long run for the high recapitalization scenario. Moreover, countries with relatively larger exposures benefit more (in absolute terms) from the introduction of the SRF. <sup>(136)</sup>

<sup>(134)</sup> Under the assumption that such recapitalisations meet the following criteria of the Eurostat's decisions on the statistical recording of public interventions to support financial institutions and markets: the financial instrument used ensures a sufficient non-contingent rate of return and the State Aid rules are complied with (see March 2013 decision <http://ec.europa.eu/eurostat/documents/1015035/2041337/ESTAT-decision-Criteria-for-classif-of-gov-capital-injec.pdf>) and the earlier July 2009 Decision <http://ec.europa.eu/eurostat/documents/1015035/2041337/FT-Eurostat-Decision-9-July-2009-3--final-.pdf>).

<sup>(135)</sup> Countries with the highest exposure tend to have *i)* very high RWA/TA ratios, *ii)* relatively low level of capitalization, and *iii)* a high TA/GDP ratio. This can be further seen in Table A7.1 of Annex A7.

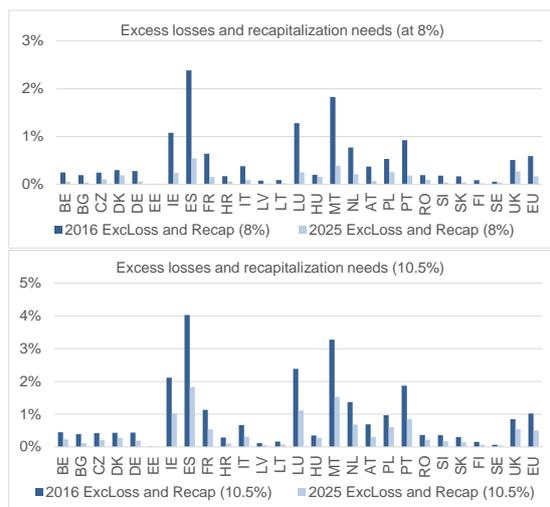
<sup>(136)</sup> This finding is further supported by the comparison of results under SRF and NRFs (results not reported).

Table 5.4: Implicit contingent liabilities from banks' excess losses and recapitalization needs under the short term and long term scenario (% GDP)

	Initial (2016 Q1) short term			Final (2025) long term		
	Excess Losses (to deficit and debt)	Recap 8% (directly to debt)	Recap 10.5% (directly to debt)	Excess Losses (to deficit and debt)	Recap 8% (directly to debt)	Recap 10.5% (directly to debt)
BE	0.03%	0.22%	0.42%	0.00%	0.05%	0.23%
BG	0.02%	0.17%	0.37%	0.00%	0.04%	0.12%
CZ	0.05%	0.20%	0.37%	0.02%	0.08%	0.18%
DK	0.11%	0.19%	0.32%	0.08%	0.11%	0.20%
DE	0.08%	0.20%	0.36%	0.01%	0.05%	0.18%
EE**	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%
IE**	0.07%	1.01%	2.05%	0.00%	0.23%	1.02%
ES	0.32%	2.06%	3.71%	0.03%	0.52%	1.80%
FR	0.10%	0.54%	1.04%	0.02%	0.14%	0.53%
HR	0.03%	0.14%	0.25%	0.01%	0.05%	0.10%
IT	0.05%	0.32%	0.61%	0.01%	0.08%	0.30%
LV	0.02%	0.05%	0.10%	0.00%	0.01%	0.05%
LT*	0.01%	0.08%	0.16%	0.00%	0.02%	0.08%
LU	0.16%	1.12%	2.22%	0.01%	0.24%	1.10%
HU*	0.04%	0.16%	0.31%	0.03%	0.13%	0.26%
MT*	0.23%	1.60%	3.05%	0.01%	0.38%	1.52%
NL	0.13%	0.64%	1.24%	0.01%	0.20%	0.67%
AT*	0.05%	0.32%	0.64%	0.01%	0.06%	0.30%
PL	0.07%	0.46%	0.90%	0.02%	0.24%	0.58%
PT	0.07%	0.86%	1.81%	0.01%	0.18%	0.85%
RO	0.02%	0.17%	0.35%	0.01%	0.09%	0.22%
SI	0.02%	0.16%	0.35%	0.00%	0.04%	0.17%
SK*	0.02%	0.15%	0.29%	0.00%	0.04%	0.14%
FI	0.01%	0.07%	0.14%	0.00%	0.02%	0.06%
SE	0.02%	0.03%	0.05%	0.02%	0.02%	0.03%
UK	0.09%	0.42%	0.76%	0.04%	0.23%	0.50%
EU	0.09%	0.50%	0.93%	0.02%	0.15%	0.49%

(1) All figures are % of the corresponding economy's GDP. Data as of December 2014. Asterisks denote countries with sample representativeness issues. (\*) denotes mild problems, (\*\*) denotes severe problems. **Source:** Commission services.

Graph 5.2: Implicit contingent liabilities from banks' excess losses and recapitalization needs under the short term and long term scenario (% GDP)



**Source:** Commission services.

Table 5.5 presents the risk heat map of a high impact on public finances (i.e. the risk that public finances are hit for at least 3% of GDP). The

colour coding reflects the relative magnitude of the theoretical probabilities of such an event (see Annex A7 for the details of the procedure). It is evident that contingent liabilities have a potential high impact on public finances only for a very limited subset of countries and only in the short term, high recapitalization scenario.

Table 5.5: Risk (theoretical probability) of public finances being hit by more than 3% of GDP in case of a systemic event involving banks excess losses and recapitalisation needs

	Initial (2016 Q1) short term scenario		Final (2025) long term scenario	
	Recap 8%	Recap 10.5%	Recap 8%	Recap 10.5%
BE	0.005%	0.014%	0.000%	0.001%
BG	0.000%	0.000%	0.000%	0.000%
CZ	0.000%	0.000%	0.000%	0.000%
DK	0.006%	0.007%	0.004%	0.006%
DE	0.001%	0.001%	0.000%	0.000%
EE**	0.000%	0.000%	0.000%	0.000%
IE**	0.026%	0.079%	0.004%	0.014%
ES	0.094%	0.410%	0.006%	0.024%
FR	0.004%	0.008%	0.001%	0.002%
HR	0.000%	0.000%	0.000%	0.000%
IT	0.001%	0.002%	0.000%	0.001%
LV	0.000%	0.000%	0.000%	0.000%
LT*	0.000%	0.000%	0.000%	0.000%
LU	0.030%	0.072%	0.005%	0.016%
HU*	0.004%	0.009%	0.004%	0.008%
MT*	0.044%	0.142%	0.008%	0.022%
NL	0.025%	0.063%	0.002%	0.009%
AT*	0.000%	0.001%	0.000%	0.000%
PL	0.000%	0.000%	0.000%	0.000%
PT	0.016%	0.072%	0.001%	0.007%
RO	0.000%	0.000%	0.000%	0.000%
SI	0.000%	0.000%	0.000%	0.000%
SK*	0.000%	0.000%	0.000%	0.000%
FI	0.000%	0.000%	0.000%	0.000%
SE	0.001%	0.001%	0.001%	0.001%
UK	0.002%	0.002%	0.001%	0.002%

(1) Green (grey): low risk (theoretical probability not exceeding 0.05%). Yellow (light grey): medium risk (theoretical probability between 0.05% and 0.2%). Red (dark): high risk (theoretical probability exceeding 0.2%). Asterisks denote countries with sample representativeness issues. (\*) denotes mild problems, (\*\*) denotes severe problems. **Source:** Commission services.

### 5.3. THE VALUE OF GOVERNMENT ASSETS AND NET DEBT

Debt figures presented so far in this report are based on what is known as Maastricht (or EDP) debt, i.e. total general government <sup>(137)</sup> debt outstanding at the end of the year in gross and consolidated terms at nominal (face) value. Maastricht debt reflects financial liabilities for a

<sup>(137)</sup> General government consists of central government, state government (if applicable), local government and social security funds (if applicable).

subset of debt instruments - currency and deposits, debt securities and loans. <sup>(138)</sup> Using debt figures in gross terms means that the financial (or non-financial) assets owned by the government are not netted out. Using consolidated figures means that any liability of a general government unit that is an asset of another general government unit is netted out and does not add to the general government total.

Keeping gross debt as benchmark indicator is natural since Maastricht debt represents the policy relevant variable in the context of fiscal surveillance in the EU. This choice has a number of advantages. Firstly, it allows keeping a clear record of the government's contractual obligations, tracking developments in gross financial liabilities separately from those in assets which may be particularly volatile due to asset price movements when assets are marked to market. Secondly, gross debt is more widely used and a more straightforward concept to work with in opposition with the methodology of computing net liabilities or net debt. The latter may prove intricate due to the granularity of asset categories that could be chosen to offset liabilities and the fact that the selection criterion, assets liquidity, is not clear cut (liquidity may vary over time and depends on the existence of a market for each instrument and each individual asset - e.g. the market for a particular type of loan may be difficult to identify).

Nonetheless, taking assets into account may provide a useful perspective on the current and future sustainability of Member States public finances since the income generated by government assets may contribute to offsetting debt in two alternative ways: *i) from* returns on assets over the period during which these assets are held on the government's books (property income <sup>(139)</sup> or *ii) from* the value at which assets could be traded if the government decided to redeem them. The first source of proceeds (property income) from both financial (debt and non-debt instruments) and non-financial assets is already accounted for in the SPB calculation and future adjustments to property income are included in the medium and long term fiscal sustainability

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<sup>(138)</sup> See Annex A9 for a more detailed definition, including the composition and valuation method used.

<sup>(139)</sup> See Annex A9 for a description of how property income is assumed to contribute to medium and long run projections.

indicators. <sup>(140)</sup> The second source refers only to a subset of (debt instruments-related) financial assets and is covered by this section in the government net debt concepts presented below.

Consequently, discussing net debt serves an illustrative purpose that highlights the relevance of the value of government assets as complementary indicator and its usefulness for solvency analysis, in particular when assets held by governments are significant and liquid. Net debt can thus provide a more informed view on the countries' current debt sustainability through the lenses of the government's ability to repay its debt at a particular point in time. <sup>(141)</sup>

Yet, defining net debt is not a straightforward task and different countries and institutions use different approaches in terms of composition and valuation method. While methodological differences remain outside the scope of this section, the main goal is to illustrate the contrast between net and gross debt values. With this aim two sources - Eurostat and IMF (WEO) - are used to portray 2014 net and gross debt (Graph 5.3). Since the two sources considered apply different tentative definitions of both gross and net debt, <sup>(142)</sup> it is recommended to look at comparisons across countries within the same source rather than across sources. The main difference is that the IMF/WEO gross debt concept <sup>(143)</sup> is broader and includes, in addition to Maastricht debt, three other liabilities categories i.e. monetary gold and SDR's, accounts payable, <sup>(144)</sup> and insurance, pensions and standardised guarantees. <sup>(145)</sup> This distinction is also valid on the assets side. <sup>(146)</sup>

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<sup>(140)</sup> On the latter see Annex A8.

<sup>(141)</sup> Broader concepts of netting assets and liabilities such as net financial worth and net worth can also be used. These are provided by National Accounts balancing items. As regards net worth, data coverage of non-financial assets is still under development.

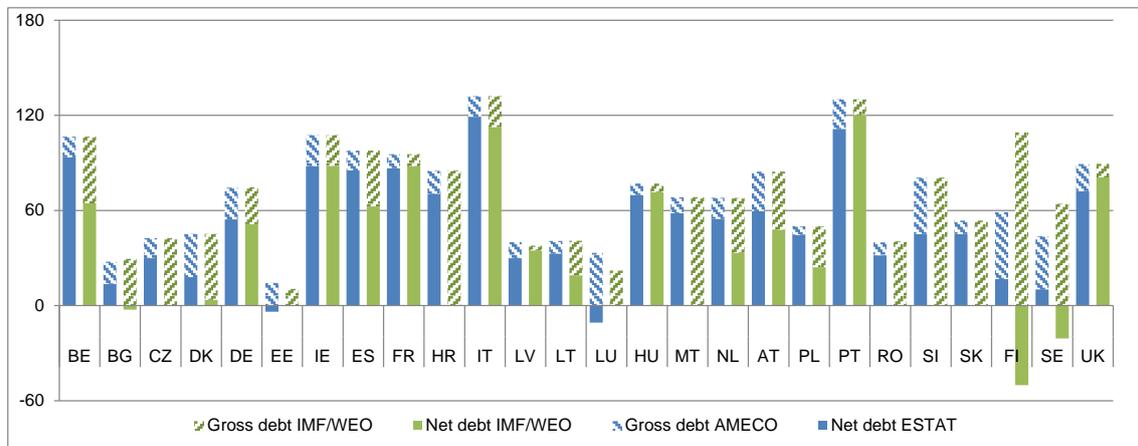
<sup>(142)</sup> See Annex A9 for details.

<sup>(143)</sup> See public sector debt guide issued by TFFS; the IMF/WEO actually employs four different measures of net debt of which the one referred to in this section is the broadest.

<sup>(144)</sup> This category covering trade credits and advances and other accrued but unpaid income from taxes, dividends, purchases and sales of securities, rent, wages and salaries, social contributions, and similar transactions is mostly relevant for countries incurring trade-related liabilities and assets.

<sup>(145)</sup> This category includes: non-life insurance technical reserves; life insurance and annuity entitlements; pension

Graph 5.3: Gross and net government debt (% of GDP), 2014



(1) See Annex A9 for details on ESTAT and IMF/WEO net debt definitions. "Net debt ESTAT" represents Commission services calculations based on Eurostat data (ESA 2010 methodology). Official Eurostat statistics on net debt using ESA 2010 will become available as of July 2016. Both assets and liabilities of Social Security Funds (part of general government) are included in the net debt concepts calculated by both ESTAT and IMF, these funds' assets and liabilities will feature in the measure of net debt in the categories Currency and deposits, Debt securities and Loans.

Source: AMECO, IMF/WEO and Commission services based on Eurostat data.

A few messages can be extracted from Graph 5.3. In some countries (Austria, Germany, Denmark, Estonia, Finland, Sweden) there are significant differences between gross and net debt figures<sup>(147)</sup> which may be explained by various factors - reinforcements in cash and reserves held during the crisis (Denmark), government take-over of defeasance structures (Germany, Austria) or large amounts of government financial assets notably social security funds, such as pension reserve assets characteristic to some countries (Denmark, Finland, Sweden, Estonia, Poland). This observation essentially portrays how the size of government financial assets varies considerably across countries, reflecting, *inter alia*, differences in pension systems, exposure to (crisis-related) events or country-specific approaches underpinning the build-up of buffers, provisions and reserves. Some countries post negative net debt figures (i.e. positive net assets) either due to

the liabilities side - traditionally low gross debt to GDP ratios (Estonia) - or to the assets side of insurance, pensions and standardised guarantees (Finland, Sweden) whose role stands out when looking at the IMF/WEO definition.

Generally, it is evident that accounting for financial assets puts gross debt in perspective. Yet liquidity-related reasons make it advisable to read results under a double proviso *i)* similar asset values may stand for different asset qualities, opaque to the fact that higher rated assets (e.g. bonds) trade more easily than lower rated ones: *ii)* reducing gross debt through a sale of assets remains a largely theoretical idea, hinging on the assumption that the asset categories selected can be totally liquidated.

Not least, it is useful to note that over 2009-2012 Eurostat country rankings by net debt remained fairly similar to those on gross debt except for Finland.<sup>(148)</sup> Moreover, OECD research shows that markets do not seem to react to net financial liabilities more than to gross financial liabilities,<sup>(149)</sup> indicating that cautions such as asset quality and feasibility of asset liquidation mentioned above are in fact already internalised.

entitlements; claims of pension funds on pension managers; entitlements to non-pension benefits and provisions for calls under standardised guarantees. It is particularly relevant for countries that prefund public pension plans holding public pension reserve assets from surpluses from employee and/or employer pension contributions over current pay-outs and, in some cases, from top-up contributions from the government through fiscal transfers.

<sup>(146)</sup> See Annex A9 and Eurostat (2014) – [Measuring Net Government Debt: Theory and Practice](#).

<sup>(147)</sup> Gross and net are compared from the same source to avoid the incidence of methodological differences.

<sup>(148)</sup> Eurostat (2014).

<sup>(149)</sup> OECD (2015).

Another possible angle to look at debt is that of net present value (NPV), whereby explicit account is taken of the maturity structure of debt and the extent to which non-market debt is present. NPV is a method that discounts future nominal cash flows related to debt-service streams by the same interest rate <sup>(150)</sup> to obtain a present value equivalent of debt, often presented as % of GDP. This method shows that for positive discount rates (usually the market interest rate) the NPV of debt is smaller than its nominal value if the interest rate on the loan is smaller than the discount rate and that the same nominal value of a loan may imply very different effective debt burdens depending on the interest rate and repayment structure applied. While data limitations impede to provide cross-country evidence on this method, it is noted that grace periods, longer maturities and a back-loaded repayment profile can substantially ease up debt burden. <sup>(151)</sup>

#### 5.4. PROJECTED PRIMARY BALANCE VERSUS HISTORICAL STANDARDS

Given unprecedented high level of public debt in several EU countries, some papers, based on empirical analysis of past trends, have recently questioned the degree of realism of the fiscal consolidation implied by strict application of current fiscal rules in the EU. Indeed, this literature points to the low frequency of *large sustained* fiscal consolidation episodes. <sup>(152)</sup> For instance, Eichengreen and Panizza (2014) found that, on the basis of a sample of 54 emerging and advanced economies over the period 1974-2013, primary surpluses of at least 3% of GDP, sustained for at least 5 years, occur only in 15% of the sample. The occurrence of such large primary surpluses over at least 10 years is found to be even more exceptional (11% of the sample). Moreover, Velloso *et al* (2010) also put into evidence the difficulties of maintaining large primary surpluses after a period of adjustment (*fiscal fatigue*): based on a sample of advanced economies, having experienced large

fiscal adjustments in the past, a sizeable proportion is found to have reduced their primary balance thereafter, despite remaining high levels of public debt (and sometimes after a relatively short consolidation episode).

However, as pointed by Escolano *et al* (2014), there is no clear-cut definition of fiscal consolidation episodes, and results across this empirical literature vary greatly depending on the sample considered (geographical- / time-span) and the scope of fiscal adjustments taken into account. Reinhart *et al* (2003) also stressed the importance of country-specific factors (such as the quality of political institutions and the degree of economic diversification) to determine countries' ability to sustain stronger fiscal efforts than others, and hence ensure debt sustainability (beyond simple average cross-country metrics). Finally, Abbas *et al* (2013) and Eichengreen and Panizza (2014) establish some factors that are likely to support lasting primary surpluses such as high growth (see following section for a review of the literature exploring the links between fiscal variables and growth), high debt to GDP ratio (hence a higher urgency of fiscal adjustment), supportive external demand and monetary policy.

Looking at a sample of the 28 EU countries and over the period 1980 – 2015, we can see that the probability for SPB to take values greater than 3% of GDP over 3 to 10 years is relatively low (around 17-18%, see Table 5.6), <sup>(153)</sup> as in Eichengreen and Panizza (2014). Sustaining a SPB greater than 2% over 10 years, as in the SGP scenario for the EA average (see second part of Table 5.6), is however more frequent (probability of 27%), although still clearly challenging. Based on this empirical analysis, the FRF scenario <sup>(154)</sup> would be the one based on the most prudent fiscal assumptions at the EU / EA aggregate level, lying close to the middle of the SPB distribution.

<sup>(150)</sup>In National Accounts, interest is not what was paid but includes an estimate of the value of the services provided by financial intermediaries for which no explicit charges are made i.e. FISIM (Financial Intermediation Services Indirectly Measured).

<sup>(151)</sup>Section 5.3 on debt maturity structure captures some aspects of the principle of NPV.

<sup>(152)</sup>Eichengreen and Panizza (2014); Zengh, (2014); IMF (2013).

<sup>(153)</sup>Graphs showing the whole distributions based on SPB 3-year averages can be found in Chapter 2 of this report.

<sup>(154)</sup>See Chapter 2 and Annex A4 for more details on this scenario.

Table 5.6: Probability of SPB to be greater than... over all EU countries, period 1980-2015 (3-year, 6-year and 10-year moving averages) and average SPB level over the period 2017-2026

	-0.5% of GDP	0% of GDP	0.5% of GDP	1% of GDP	1.5% of GDP	2% of GDP	2.5% of GDP	3% of GDP	3.5% of GDP
3-year average	64.5%	56.8%	46.6%	38.1%	31.2%	25.2%	20.7%	17.4%	13.6%
6-year average	61.2%	53.6%	44.7%	38.9%	31.6%	25.5%	20.1%	17.5%	13.7%
10-year average	60.1%	50.3%	44.1%	36.2%	30.9%	26.6%	21.6%	18.1%	13.8%
<b>Average SPB level 2017-2026 (number of years sustained = 10)</b>									
	EU		EA						
Historical SPB scenario	0.0	0.5							
FRF scenario	0.3	0.5							
Baseline scenario	0.6	1.0							
SGP scenario	1.8	2.3							

Source: Commission services.

Over the period 1980-2015, the majority of EU countries (22) have reached at least at some point an SPB greater than or equal to 1% of GDP (see Table 5.7),<sup>(155)</sup> although only around half of them have been able to sustain such a level during a period of 10 years or more. The sample restricts further to a total of seven countries (Denmark, Sweden, Finland, Belgium, Italy, Ireland and the UK) when looking at episodes of sustained SPB of at least 1% of GDP over 10 *consecutive* years.<sup>(156)</sup>

When considering a more restrictive threshold of 2% of GDP,<sup>(157)</sup> it is found that 17 countries have reached such a level at least one year since the 1980's (see Table 5.8). Moreover, the average SPB when the threshold of 2% of GDP has been reached can be quite high (e. g. Denmark, Finland, Sweden, Bulgaria, Belgium, Estonia and Ireland where it is above 4% of GDP). Moreover, 10 countries were able to achieve such a level of SPB over at least 10 years since 1980, but only 4 Member States (Denmark, Finland, Belgium and Ireland) maintained their SPB at 2% of GDP at least over a minimum on 10 *consecutive* years.

Table 5.7: Occurrence of SPB  $\geq$  1% of GDP, average SPB over years concerned, maximum number of consecutive years with SPB  $\geq$  1% of GDP and last episode

	Total number of years	Average SPB (years higher than threshold)	Max consecutive number of years	Last episode
DK	33	4.2	32	1983-2014
SE	28	3.9	17	1996-2012
FI	26	4.5	14	1996-2009
BE	24	4.1	24	1985-2008
LU	23	3.2	8	2011-2015
IT	21	2.9	12	2007-2015
IE	20	3.6	15	2003-2006
NL	19	2.3	7	2004-2006
UK	15	2.3	10	1997-2001
AT	14	1.6	3	2013-2015
BG	13	3.9	7	2003-2008
DE	11	2.0	5	2011-2015
PT	10	2.6	5	2012-2015
ES	8	1.6	3	2013-2014
HU	8	2.4	4	2012-2015
EE	4	3.7	3	2009
RO	3	1.6	2	2014
FR	2	1.1	1	1998
LV	2	1.8	1	2012
CZ	1	1.4	1	2013
MT	1	1.1	1	2006
PL	1	1.5	1	1995
HR	0	:	:	:
LT	0	:	:	:
SI	0	:	:	:
SK	0	:	:	:
EL	:	:	:	:
CY	:	:	:	:

(1) Based on series covering the period 1980 – 2015.

Source: Commission services

<sup>(155)</sup>This level corresponds roughly to the average SPB assumed at the EU aggregate level in the baseline scenario.

<sup>(156)</sup>This sustained level of SPB greater than 1% of GDP is reached both over periods of high and low growth episodes, as well as fiscal consolidation efforts in the 1980's and 1990's in some Member States (and more recently, following the sovereign risk crisis).

<sup>(157)</sup>This level corresponds roughly to the average SPB assumed at the EU aggregate level in the SGP scenario.

Table 5.8: Occurrence of SPB  $\geq$  2% of GDP, average SPB over years concerned, maximum number of consecutive years with SPB  $\geq$  2% of GDP and last episode

	Total years	Average SPB (years higher than thresholds)	Max consecutive number of years	Last episode
DK	27	4.8	26	2014
FI	24	4.7	13	1996-2008
BE	22	4.3	20	2006-2007
SE	21	4.7	9	2004-2009
LU	18	3.7	7	2012-2014
IE	16	4.1	14	2006
IT	13	3.8	8	2012-2015
NL	11	3.0	5	2004-2006
BG	10	4.6	7	2004-2006
UK	10	2.8	4	1998-2001
PT	8	2.9	4	2013-2015
DE	5	2.5	4	2012-2015
HU	5	2.8	2	2012-2013
EE	3	4.3	3	1995-1997
AT	3	2.3	3	2001-2003
ES	1	2.1	1	2006
RO	1	2.1	1	1999
CZ	0	:	:	:
FR	0	:	:	:
HR	0	:	:	:
LV	0	:	:	:
LT	0	:	:	:
MT	0	:	:	:
PL	0	:	:	:
SI	0	:	:	:
SK	0	:	:	:
EL	:	:	:	:
CY	:	:	:	:

(1) Based on series covering the period 1980 - 2015.  
Source: Commission services.

## 5.5. PUBLIC DEBT, FISCAL CONSOLIDATION AND GROWTH <sup>(158)</sup>

This section aims at providing a short summary of the insights from the economic literature on the relationship between public debt, fiscal consolidation and growth. The impact of fiscal consolidation on GDP growth already features in the analysis presented in this report through a short-term multiplier (a 1 pp. of GDP fiscal consolidation reducing GDP growth by 0.75 pps. in the same year, as explained in Chapters 1 and 2), wherever appropriate (the effect is incorporated in the SGP debt projection scenario, the FRF scenario, the historical SPB scenario and the

<sup>(158)</sup> Since fiscal consolidation corresponds to a long-run decline in public debt via improvements in the primary balance, this discussion could concentrate to analysing the long-run dynamics between public debt and growth. However, the short-run relation between these concepts is policy relevant, so it will also be analysed. Studies cited here are those relevant for developed economies. The general term "(public) debt" will hereinafter refer to general government debt, although in some cases similar considerations may apply to private debt.

sensitivity test scenario on the primary balance, described in Chapter 2). But the size of the multiplier can change substantially depending on the more general macroeconomic context and is object of vivid discussion in the relevant economic literature. This section therefore serves as a qualifier to the debt projection results presented in the report, in light of the complex relationship existing between debt, fiscal consolidation and growth.

The interaction between debt, consolidation and growth has been topical in recent years, also in light of the challenges faced by advanced economies' policymakers - high debt, following the economic and financial crisis, low inflation and low growth.

Following Reinhart and Rogoff's (2010) <sup>(159)</sup> inference that debt above 90% of GDP negatively impacts growth, a body of literature has further explored the relationship between these variables, refining previous findings. This newer literature attempts to correct formerly restrictive assumptions regarding cross-country homogeneity in the macro variables' long-run co-movement, unaccounted circularity (endogeneity) between debt and GDP, and unmeasured cross-country spillovers. <sup>(160)</sup> In these studies, the debt and growth codetermination is tackled through methods <sup>(161)</sup> addressing simultaneity and endogeneity – instrumental variables, fixed effects, natural experiments or narrative approaches trying to disentangle the effects of discretionary fiscal policy ("exogenous shocks") from the impact of fiscal stabilisers. <sup>(162)</sup>

Overall, this new set of empirical evidence appears broadly in line with the neoclassical view that in an economic environment, such as the one prompted by a crisis or zero lower bound (ZLB) conditions for monetary policy, government spending (an increase in debt) can stimulate aggregate demand and GDP in the short run in a Keynesian manner, while crowding out capital and reducing output in the long run.

<sup>(159)</sup> Reinhart and Rogoff (2010).

<sup>(160)</sup> Baum, Checherita-Westphal and Rother (2012); Panizza, and Presbitero (2014); Batini, Eyraud, and Weber (2014).

<sup>(161)</sup> Most estimation methods use panel approaches so do not deliver country-specific data, but averages.

<sup>(162)</sup> Ramey (2012).

The main findings on the long-run relationship between debt and growth are threefold. First, an array of studies lends support to a negative <sup>(163)</sup> non-linear <sup>(164)</sup> relationship, whereby high levels of debt beyond certain debt-to-GDP thresholds are associated with lower levels of growth (Table 5.9). Second, threshold effects appear to be country-variant and not universal. <sup>(165)</sup> Third, other elements such as the debt trajectory, <sup>(166)</sup> debt structure or institutions <sup>(167)</sup> appear relevant when analysing the debt - growth relationship. <sup>(168)</sup> The idea that fiscal expansion can have positive long-run effects on growth is also advanced in some contributions. <sup>(169)</sup> But the view that the positive short-run effects can extend into the more distant future could suffer from potentially overestimated multipliers.

As for the short run, a vast literature on fiscal multipliers yields more mixed results in terms of the sign of the debt-growth correlation, depending on the different scenarios taken into account. It also points to possible non-linearity (see Table 5.9) and the relevance of additional factors.

Generally, estimates of multipliers range from -2.5 to 4.0 in the theoretical literature, and from -2.3 to 3.6 in the empirical literature. <sup>(170)</sup> There is no single multiplier for all times, countries and time intervals (the short run can be defined as either 1, 2, or 3 years) and at the same juncture the economy can respond asymmetrically to fiscal tightening vs. fiscal expansion. <sup>(171)</sup> Regarding the sign, on the one hand, a positive short-run relationship between debt and growth takes the form of either a Keynesian-like fiscal stimulus spurring growth or fiscal consolidation triggering

economic contraction. <sup>(172)</sup> On the other hand, a close to zero or negative non-Keynesian short-run relationship between fiscal stimulus and growth may occur for combinations of the monetary policy at the zero-lower bound (ZLB) with fiscal (and banking) stress associated to high debt-to-GDP ratios. <sup>(173)</sup>

Table 5.9: **Thresholds beyond which the debt - growth relationship is negative (non-Keynesian)**

Threshold (% of GDP)	Horizon	Study
67% universal	Short run	Baum <i>et al.</i> (2012)
100% and/or net government borrowing exceeding 6% of GDP	Short run	Corsetti <i>et al.</i> (2012)
85% universal	Medium run (5y)	Cecchetti <i>et al.</i> (2011), Hernandez de Cos and Moral-Benito (2013)
60% universal	Long run	Ilzetzki <i>et al.</i> (2013)
90% not universal	Long run	Kumar and Woo (2015)
90% universal	Long run	Reinhart and Rogoff (2010)

(1) Not all of these studies indicate a precise threshold with respect to the short run, but they all find non-Keynesian effects. The studies are carried out on different samples (economies and time spans).

Source: Studies indicated.

The size of the multipliers also depends on various structural, as well as temporary characteristics of the economy analysed. <sup>(174)</sup> Structural characteristics increasing multipliers are: trade openness, <sup>(175)</sup> labour market rigidity, small automatic stabilisers, fixed exchange rate regime, <sup>(176)</sup> lower debt level, efficient management of public expenditure and smooth revenue administration. Temporary characteristics increasing multipliers are the state of the economy in particular bad times (downturn, recession, financial crisis), <sup>(177)</sup> a high degree of monetary accommodation to fiscal shocks (expansionary monetary policy) or a monetary policy at the ZLB. <sup>(178)</sup>

<sup>(163)</sup> Reinhart and Rogoff (2010); Kumar and Woo (2015); Cecchetti, Mohanty and Zampolli (2011); Furceri and Zdzienicka (2011); Erberhardt and Presbitero (2015).

<sup>(164)</sup> Reinhart and Rogoff (2010); Panizza and Presbitero (2014); Erberhardt and Presbitero (2015); Chudik, Mohaddes, Pesaran and Raissi (2013); Chudik, Mohaddes, Pesaran and Raissi (2015).

<sup>(165)</sup> Erberhardt and Presbitero (2015); Chudik *et al.* (2013, 2015); Kumar and Woo (2015); Egert (2013).

<sup>(166)</sup> Chudik *et al.* (2013, 2015).

<sup>(167)</sup> Chudik *et al.* (2013, 2015).

<sup>(168)</sup> According to Chudik *et al.* (2013, 2015), provided that public debt is on a downward path, a country with high level of debt can grow just as fast as its peers.

<sup>(169)</sup> De Long and Summers (2012); Rendahl (2012).

<sup>(170)</sup> Riera-Crichton, Veigh, and Vultein (2012).

<sup>(171)</sup> IMF (2010); Riera-Crichton, Veigh and Vultein (2014); Baum and Koester (2011).

<sup>(172)</sup> Atinasi and Klemm (2014); in't Veld (2013).

<sup>(173)</sup> Baum *et al.* (2012); Corsetti, Meier and Muller (2012); Hernandez de Cos and Moral-Benito (2013); Cecchetti *et al.* (2011); Ilzetzki, Mendoza, and Vegh (2013).

<sup>(174)</sup> Batini, Callegari, and Melina (2012); Riera-Crichton *et al.* (2014); Corsetti and Müller (2015).

<sup>(175)</sup> Carnot and de Castro (2015); Batini *et al.* (2014).

<sup>(176)</sup> Corsetti and Müller (2015); Batini *et al.* (2014).

<sup>(177)</sup> Blanchard and Leigh (2013a); Blanchard and Leigh (2013b); Auerbach and Gorodnichenko (2012); Carnot and de Castro (2015).

<sup>(178)</sup> Batini *et al.* (2014).

Table 5.10: Short run expenditure multipliers in recent literature

Value and qualifiers	Notes	Sample	Horizon	Study	
0.5	Pre-crisis	Fiscal stimulus	Advanced economies 1970 - 2007	2 years	Blanchard and Leigh, IMF (2008), IMF (2010)
1.0-1.8	Crisis	Fiscal consolidation	Advanced economies 2008 - 2010	2 years	
< 1.0	Normal conditions, no credit frictions or fiscal stress; larger under an exchange rate peg than under a float		17 OECD countries 1975 - 2008	2 years	Corsetti and Müller (2015)
> 1.0	ZLB, no fiscal stress (high debt and/or government borrowing)				
0 or < 1.0	No ZLB				
-0.2	Normal economic circumstance, no ZLB				
2.2	Financial crisis, no ZLB				
0.6	Currency peg, no ZLB				
-1.2	No ZLB, fiscal stress				
-0.45	Benign times		38 emerging and advanced economies 1990 - 2014	2 years	Born <i>et al.</i> (2015)
0.69	Boom				
0.72	Fiscal stress				
1.45	Recession				
0.5-1.0 <sup>(2)</sup>	Crisis - high share of constrained households, ZLB	Fiscal consolidation	7 euro area countries 2011 - 2013	3 years	in't Veld (2013)
0.75	Normal times		Advanced economies	1 year	Mineshima <i>et al.</i> (2014)
0.8-0.9	Good times		EU 27 2003 - 2013	1 year	Carnot and de Castro (2015)
0.9-1.0	Bad times				
0.4	Linear		OECD 1985 - 2010	1 years	Auerbach and Gorodnichenko (2012b)
0	Expansion				
1.7	Recession				
0-0.5	Expansion		US 1947 - 2008	1.5 years	Auerbach and Gorodnichenko (2012a)
1.-1.5	Recession				
0.93	Linear		Euro area 15, Japan, US 1990 - 2012	1 year	Batini <i>et al.</i> (2012)
0.82	Expansion				
2.08	Recession				
0.4-0.6		Narrative approach	US 1917 - 2008	1 year	Barro and Redlik (2011)
0.4, 0.7	Expansion	Narrative approach	US 1890 - 2010 and Canada 1921 - 2011	2 years	Owyang, Ramey, Zubairy (2013)
0.8, 1.6	Recession				
1.1-1.2		Narrative approach	US 1939 - 2008	1 year	Ramey (2011)
0.6		Narrative approach	US 1930 - 2008	1 year	Hall (2009)
0.6	Tranquil times		Spain 1986 - 2012	1 year	Hernandez de Cos and Moral-Benito (2013)
1.3	stress (high debt) and banking stress (liquidity crisis)				
0.26	Good times (positive output gap)	Fiscal expansion	Germany 1976 - 2009	1 year	Baum and Koester (2011)
1.27	Bad times (negative output gap)				
0.84	In both bad and good times	Fiscal tightening			

(1) The sign of values shown in the first column is that of the multiplier (i.e. of the ratio between the change in output and the change in fiscal spending), indicating whether a certain fiscal measure and GDP move in the same (+) or opposite (-) direction.

(2) Increasing with openness.

Source: Batini *et al.* (2014), Corsetti and Müller (2015) and other papers cited in this section.

Moreover, short-run fiscal multipliers are larger for expenditure than for revenue measures and for a set of combined scenarios - at the ZLB *if public debt and deficits are low* (no fiscal stress)<sup>(179)</sup> or even under fiscal stress if monetary policy is unconstrained and the exchange rate is freely floating.<sup>(180)</sup> Expansionary effects of fiscal stimulus could occur in such circumstances because government spending shocks are less likely to crowd out private spending when the economy has slack and is catching up; when interest rates are low in an economic environment free from uncertainty and cash hoarding; when a floating exchange rate and sovereign risk driven depreciation boost foreign demand and

compensate internal demand drops<sup>(181)</sup>; or when unconstrained monetary policy can absorb and outstrip fiscal shocks. However, in circumstances where the ZLB coincides with fiscal stress the multiplier drops or even changes its sign in a non-Keynesian manner.<sup>(182)</sup> This happens as a sovereign risk channel drives up borrowing costs, while monetary policy locked at the ZLB cannot offset crowding out effects on investments and pull up depressed aggregate demand.<sup>(183)</sup> Table 5.10 gives an overview of the short-run expenditure multipliers in the recent literature.

Based on the considerations above, the case for fiscal consolidation appears to hinge on several considerations - size of the multipliers, growth,

<sup>(179)</sup> Some authors (Born, Müller, and Pfeifer, 2015; Corsetti and Müller, 2015) highlight that the size of public debt and budget deficit are not necessarily the most telling indication of fiscal macroeconomic stress, but financial and banking crises are.

<sup>(180)</sup> Corsetti and Müller (2015).

<sup>(181)</sup> Krugman (2014).

<sup>(182)</sup> Ilzetzki *et al.* (2013); Corsetti and Dedola (2012); Hernandez de Cos and Moral-Benito (2013); Corsetti and Müller (2015).

<sup>(183)</sup> Ramey (2012); Corsetti and Müller (2015).

hysteresis and debt overhang <sup>(184)</sup> - that are country-variant and further interact with fiscal consolidation in a circular manner. Such complexities indicate that the most difficult issue is deciding the pace and timing of fiscal consolidation - frontloading, gradual adjustment or backloading. Based on the above, when fiscal multipliers are large and GDP is far from its potential, the drag on growth from fiscal consolidation tends to be bigger than usual, so caution to avoid slipping into recession would favour backloading or a gradual adjustment. Yet, the latter would not tackle the debt overhang and must be weighed against the risks of entering a bad equilibrium for public finances and fiscal fatigue, which would point to a preference for frontloading. <sup>(185)</sup> These considerations clearly highlight the complexities of the issues at stake.

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<sup>(184)</sup> Blanchard and Leigh (2013b).

<sup>(185)</sup> Blanchard and Leigh (2013a and 2013b); in't Veld (2013).



# 6. OVERALL ASSESSMENT OF FISCAL SUSTAINABILITY CHALLENGES

## 6.1. INTRODUCTION

As mentioned in the introduction to the report, public debt stocks have soared in the EU-28 during the economic and financial crisis, with the legacy of high public and private debt making deleveraging in both sectors of the economy challenging in a number of EU countries. At the same time, where high debt levels linger, growth may pick up more slowly, which makes it important to set the appropriate pace on the path to deleveraging in the public and the private sector.

The current macroeconomic context of very low inflation and moderate GDP growth makes the reduction of debt-to-GDP ratios more difficult, leaving the task to growth-friendly fiscal consolidation.

In light of these considerations, it is the more important to assess the sustainability challenges faced by Member States (including those expected to be brought about by population ageing in a longer-term perspective), as well as the fiscal space that appears to be available to them (with projected public spending on ageing also affecting future fiscal space and possibly the need for fiscal buffers).<sup>(186)</sup> This is indeed the aim of this concluding chapter of the report.

The Chapter brings together in a synthetic way the main results on debt sustainability analysis and fiscal sustainability indicators (based on Autumn 2015 Commission forecasts) presented in the rest of the report. Results are systematized here in the context of a horizontal assessment framework on fiscal sustainability, making it possible to gain a consistent overview of fiscal sustainability challenges across countries, based on a series of explicit and transparent criteria. Results are

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<sup>(186)</sup> In this report, we cover all EU countries but those currently under macroeconomic adjustment programmes (CY and EL). The latter are already monitored, with higher frequency, in the context of specific programme reviews. Moreover, the time horizon covered by the forecasts for programme countries is different from the standard for other EU countries (2 years). This would necessarily imply methodological differences on how programme and non-programme countries would be treated in the report, thus invalidating cross-country comparisons. For these reasons, programme countries are not covered in this report.

summarised in an overall summary heat map of fiscal sustainability risks per time dimension (short, medium and long run), relying on the various analytical tools employed in the report (Tables 6.1-6.2). The framework is meant to allow identifying the scale, nature and timing of fiscal sustainability challenges. It therefore aims at ensuring a comprehensive and multidimensional assessment of sustainability risks, which is key to devise appropriate policy responses. It should nonetheless be kept in mind that quantitative results and ensuing risk assessments based on the horizontal framework presented in what follows should always be complemented with a broader reading and interpretation of results, so as to give due account to country-specific contexts.

## 6.2. ASSESSMENT OF SHORT-TERM FISCAL SUSTAINABILITY CHALLENGES

Fiscal sustainability challenges over the short term (the upcoming year) are evaluated based on the fiscal stress risk indicator S0.<sup>(187)</sup> In the horizontal assessment framework on fiscal sustainability used here, for which results are reported in Tables 6.1-6.2 (see Annex A11 for more details), countries are deemed to face potential high short-term risks of fiscal stress whenever the S0 indicator is above its critical threshold.<sup>(188)</sup> In all other cases, countries are deemed to be at low short-term risk.

In Tables 6.1-6.2, no EU country (among those object of analysis in this report) appears to be at high risk in the short run, based on S0. Indeed, risks of short-term fiscal stress have very significantly receded relative to the first crisis years (the comparison of 2015 values for S0, signalling risks for 2016, with 2009 values, highlighting risks for 2010, witnesses a striking difference in this respect, as shown in Chapter 4).

Beyond the values of S0 used to reach an overall short-term risk assessment, Tables 6.1-6.2 also report, by country, values of the two fiscal and financial-competitiveness sub-indexes

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<sup>(187)</sup> See Chapter 1, and Berti et al. (2012) for more information on S0.

<sup>(188)</sup> The threshold for S0 (calculated using the "signals' approach") is 0.43 (see Chapter 1).

(incorporating only fiscal and macro-financial variables respectively), and the most relevant variables (in terms of economic interpretation, as well as predictive power based on past fiscal stress events) taken from S0 and from the heat maps on risks related to the structure of public debt financing and government contingent liabilities.<sup>(189)</sup> These are meant to support the reading and interpretation of S0 results on a country by country basis, and are as such used in country-specific assessments in Chapter 7.

### 6.3. OVERALL ASSESSMENT OF MEDIUM-TERM FISCAL SUSTAINABILITY CHALLENGES

Medium-term fiscal sustainability challenges are assessed based on the joint use of two tools, the DSA and the S1 indicator. As anticipated in Chapter 1, the integration of DSA results in medium-term risk assessments (an innovation introduced with this report) importantly allows reaching conclusions that reflect, in a more detailed way, the projected evolution of public debt over the next 10 years, on top of the synthetic assessment based on the medium-term fiscal gap indicator S1.<sup>(190)</sup> This additionally confers more stability to medium-term risk evaluations as DSA conclusions (centred as they are on the debt stock) tend to be more stable than S1 values, which are relatively more sensitive to changes in the initial budgetary position from one forecast to the next.

Overall, the joint use of the DSA and S1 indicator allows capturing medium-term sustainability

challenges in a more comprehensive way, as S1 appears relatively more suited to capture risks for public finances from ageing,<sup>(191)</sup> while the DSA allows a more detailed and stable assessment of the budgetary position net of implicit liabilities from ageing, including the consideration of the specific debt trajectory (an element not accounted for in detail in S1 that is based on the discounted value of expenditure and revenue items).

The horizontal assessment framework on sustainability challenges used here (see Tables 6.1-6.2 and Annex A11 for more details) sets at potential high medium-term sustainability risk countries that are deemed to be at overall high risk based on DSA results or at high risk based on S1 (under the baseline no-fiscal policy change scenario).<sup>(192)</sup> A country is therefore considered to face high sustainability challenges if either its DSA or baseline S1 or both point in that direction. This means that high risks are highlighted also in case this is the conclusion pointed to by the DSA alone (while S1 does not), or by S1 alone (while the DSA does not). For the attribution of a medium-risk level, the criterion applies the same way: a country is considered to be at medium sustainability risk in the medium term if either its DSA or S1 point in that direction (while none of the two indicates high risks).

#### 6.3.1. Approach used in the assessment of medium-term challenges based on DSA

The assessment of medium-term sustainability challenges is therefore based on an overall assessment of DSA results on one side and the assessment of S1 results on the other. The overall DSA assessment by country is based on debt projection results under the three main DSA scenarios: i) the baseline no-fiscal policy change scenario; ii) the historical structural primary balance (SPB) scenario; iii) the Stability and

<sup>(189)</sup> Values for all S0 variables are reported by country in Chapter 4. Values for all the variables included in the summary heat map on risks from the structure of public debt financing and government contingent liability risks are reported by country in Chapter 5. Upper thresholds of risk (above which values are in red) for the individual variables are obtained using the "signals' approach" (see Chapter 1). Lower thresholds of risk are generally prudentially set at around 80% of the respective upper thresholds (the only exceptions being the variables private debt and net international investment position that are common to the Macroeconomic Imbalances Procedure (MIP) scoreboard, for which the scoreboard thresholds are used as lower thresholds).

<sup>(190)</sup> In principle, different projected paths of the public debt ratio can be consistent with the same synthetic assessment provided by fiscal gap indicators (as long as the differences cancel out in the government inter-temporal budget constraint), while differences in the projected trajectory of the debt ratio should also be taken into account in the fiscal sustainability assessment (if anything else, through the factoring in of the possible reaction by financial markets).

<sup>(191)</sup> S1 is a particularly suited tool to assess the impact of ageing, thanks to the decomposition of the indicator that allows singling out the cost of ageing contribution to the fiscal gap in terms of overall discounted value. Debt projections are a less appropriate tool to serve this purpose as the contribution of the cost of ageing to the overall debt stock, year by year, as could be extracted from the DSA, would be much less intelligible than the S1 age-related sub-component.

<sup>(192)</sup> See Chapter 1 for the definition of the scenario.

Growth Pact (SGP) scenario.<sup>(193)</sup> Additionally, the overall DSA assessment relies on results for the negative sensitivity tests (on nominal growth, interest rates and the government primary balance) and stochastic projections, as tools that allow assessing the impact of individual and joint macroeconomic shocks on baseline projections. Practically, for each of these DSA scenarios and sensitivity tests, plus stochastic projections, individual assessments are made (in terms of high/medium/low risk for the country under examination) that are then aggregated into an overall DSA assessment per country.

A country's DSA results into an assessment of potential overall high risk if baseline no-fiscal policy change projections point to such a high level of risk, or alternatively if the latter point to an overall medium risk assessment but potential high risks are highlighted by alternative scenarios (historical SPB scenario; sensitivity test on macro-fiscal assumptions) or stochastic projections. This second criterion for a high-risk assessment allows prudentially capturing upward risks around baseline projections in cases where the latter, already by themselves, appear to entail medium risks.

In Annex A11, the economic rationale followed to reach the overall DSA assessment is explained in detail through decision trees, starting from the individual assessments by DSA scenario, sensitivity test and stochastic projections. It is nonetheless useful to indicate already here what variables/indicators are used in the assessments (as reported in Tables 6.1-6.2). For the DSA scenarios, variables used are: i) the level of gross public debt over GDP *at the end of projections* (2026); ii) the year at which the debt ratio peaks over the 10-year projection horizon (which provides a synthetic indication on debt dynamics); and iii) the position of the average SPB (in the overall SPB distribution for all EU-28 countries over 1980-2014) assumed over the projection period under the specific scenario (as summarised by its percentile rank,

<sup>(193)</sup> See Chapter 1 for the definition of all these scenarios. The Stability and Convergence Programme (SCP) scenario, also used in the report, is not taken into account in the country risk evaluation, which is based on Commission forecasts only. In terms of scenarios reflecting historical fiscal behaviour over post-forecast years, the traditional SPB historical scenario has been preferred to the new fiscal reaction function (FRF) scenario to the purpose of reaching the overall DSA assessment.

which gives a sense of how common/uncommon the assumed fiscal stance is relative to cross-country historical record). The first two variables (end-of-projection debt ratio and debt peak year) are used also in the assessment of each of the sensitivity tests.

Stochastic projection results are evaluated based on the following two indicators: i) the probability of a debt ratio at the end of the 5-year stochastic projection horizon (2020) greater than the initial debt ratio (in 2015), which captures the probability of a higher debt ratio due to the joint effects of macroeconomic shocks; ii) the difference between the 90<sup>th</sup> and the 10<sup>th</sup> debt distribution percentiles, measuring the width of the stochastic projection cone, i.e. the estimated degree of uncertainty surrounding baseline projections. Annex A11 reports all upper and lower thresholds used for each of the individual variables and indicators mentioned above.

### 6.3.2. Approach used in the assessment of medium-term challenges based on S1

For the S1 indicator, the identification of medium-term sustainability challenges relies on calculations based on the baseline no-fiscal policy change scenario, as traditionally done in previous issues of the report. Countries are therefore deemed to face potential high/medium/low sustainability risks in the medium term, according to S1, depending on the value taken by the indicator under the aforementioned scenario.<sup>(194)</sup> S1 calculations under two alternative scenarios, the historical SPB scenario and the AWG risk scenario (incorporating less favourable ageing cost projections)<sup>(195)</sup> are nonetheless also reported in Tables 6.1-6.2 to support the reading and interpretation of S1 results.

<sup>(194)</sup> As in the FSR 2012, the lower and upper thresholds of risk for S1 are set having regard to the benchmark structural fiscal adjustment in the SGP (a structural adjustment of up to 0.5 pps. of GDP per year). Given that the adjustment is assumed to take place over 5 years, according to the S1 standard definition, the upper threshold of risk is set at 2.5 pps. of GDP, while the lower threshold is at 0 pps. of GDP. Countries are considered at high risk when the S1 value is above 2.5 pps., and at medium risk when S1 is between 0 and 2.5 pps.

<sup>(195)</sup> See Chapter 3 for more details on this alternative S1 scenario.

Finally, for each of the three scenarios mentioned above, S1 values are accompanied in Tables 6.1-6.2 by the indication of the relative position (in the SPB distribution for all EU-28 countries over 1980-2014) of the related required structural primary balance (RSPB). This makes more immediate to grasp how common/uncommon the implied fiscal position is. As for the variables used for DSA assessment, thresholds used for the S1 sub-components and the percentile rank of the RSPB are reported in Annex A11.

### 6.3.3. Country-specific results on medium-term sustainability challenges

The approach described above (and with more detail in Annex A11) leads to the country-specific assessments of medium-term sustainability challenges reported in the summary heat map in Tables 6.1-6.2. Countries that appear to face potential high medium-term risks are BE, IE, ES, FR, HR, IT, PT, RO, SI, FI and UK. For 10 of these 11 countries, risks are deemed to be high based on both the DSA and S1. The only exception is RO, which would be at medium risk for S1, while at high risk for the DSA (due to a debt ratio at the end of projections, under the baseline no-fiscal policy change scenario, above the 60% Treaty reference value, leading to a significantly higher and still increasing debt ratio at the end of projections under the sensitivity tests).

Among the 10 high-risk countries, for which assessments based on DSA and S1 are aligned, 6 countries (BE, ES, FR, HR, IT and PT) are deemed to be at high risk for their DSA due to their high level of debt as a percentage of GDP *at the end of projections* (above 90%), under the baseline no-fiscal policy change scenario (which of course leads to even higher debt ratios under negative sensitivity tests). For the two countries, among the aforementioned, having a debt below 100% of GDP in 2015 (FR and HR), the ratio would be still increasing at the end of the 10-year projection period under a no-fiscal policy change assumption (reaching levels above 100% by the end of projections), and the probability of a debt ratio in 2020 greater than in 2015 from stochastic projections would be very significant (almost 50% and 65% respectively).

As far as the other countries with high medium-term challenges are concerned, IE is considered at

high risk for its DSA due to a debt ratio at the end of no-fiscal policy change projections that highlights medium risk (well beyond the 60% reference value but still below 90%), together with potential high risks highlighted by the historical SPB scenario. The remaining 4 high medium-term risk countries (RO, SI, FI and UK) are all highlighted at high risk for the DSA because of a debt ratio at the end of projections at medium risk (above 60% but below 90%), coupled with high risks highlighted by deterministic sensitivity tests simulating possible upward risks to the macro-fiscal variables (for all these countries, the debt ratio would still be on an increasing path at the end of projections, in 2026, under the baseline and/or sensitivity test scenarios).<sup>(196)</sup>

Based on the analysis of S1 results, for 5 countries (BE, ES, FR, IT and PT) among the countries facing high sustainability challenges in the medium term, the main determinant is assessed to be the distance of the countries' debt ratios relative to the 60% debt target incorporated in S1. For 2 of these countries (ES and IT), projected age-related costs have overall a mitigating effect contributing to reducing the required fiscal adjustment under S1, <sup>(197)</sup> while for the other 3 countries (BE, FR and PT) ageing cost contribute to raising the required adjustment. For HR (other high-risk country), both the initial budgetary position and the distance from the 60% debt target are the main components of the required adjustment, with projected ageing costs having a mitigating effect. For the remaining 4 high sustainability risk countries highlighted by S1 (IE, SI, FI and UK), the overall contribution of projected age-related spending to the required fiscal adjustment is, on the contrary, particularly important (above 0.7 pps. of GDP). For FI, in particular, ageing costs are the main determinant of the high risk highlighted by S1, while for IE, SI and UK the impact of ageing costs is still important, though not representing the largest S1 sub-component (which is instead the distance from the 60% debt ratio).

Five EU countries are deemed to be at medium sustainability risk in the medium term (LT, HU,

<sup>(196)</sup> For FI, high risks are additionally highlighted by stochastic projections, with a probability of a debt ratio in 2020 greater than in 2015 as high as 80%.

<sup>(197)</sup> Though for ES positive projected developments on public spending on pensions are counterbalanced by negative developments on healthcare spending.

NL, AT and PL). For three of these countries (NL, AT and PL) the medium risk assessment is aligned between the DSA and S1. For these countries, the DSA highlights medium risk because of debt ratios at the end of projections above 60% (though below 90%) under no-fiscal policy change. As far as the impact of the projected cost of ageing is concerned, this would basically seem to play a certain role in determining medium-term risks for AT, and to a smaller extent for PL, while overall projected cost of ageing would contribute to reducing the required fiscal adjustment for NL (though for the latter the overall cost of ageing contribution hides negative projected developments on healthcare and long-term care).

Among the other two medium-risk countries in the medium term, for LT, medium risks are highlighted by S1 (almost exclusively due to the impact of the projected public spending on cost of ageing), while the country would be at low risk based on its DSA. For HU, the situation is reverted in that the country is at medium risk based on the DSA (due to a debt ratio above 60% at the end of projections under the baseline no-fiscal policy change assumption), while being at low risk for S1 (mostly due to positive projected developments in terms of cost of ageing).

The remaining 10 EU countries (BG, CZ, DK, DE, EE, LV, LU, MT, SK and SE) are deemed to be at low risk in the medium-term (based on the joint use of DSA and S1).

#### 6.4. ASSESSMENT OF LONG-TERM FISCAL SUSTAINABILITY CHALLENGES

Long-term fiscal sustainability challenges are identified based on the long-term fiscal sustainability indicator S2, under the baseline no-fiscal policy change scenario, as traditionally done in previous issues of the report. Countries would therefore be considered at high/medium/low sustainability risk in the long run depending on the value taken by the baseline S2 indicator.<sup>(198)</sup> Analogously to what done for S1, S2 calculations are reported in Tables 6.1-6.2 for other two

alternative scenarios (the SPB historical scenario and the AWG risk scenario), meant to support the reading and interpretation of S2 results. S2 values under all scenarios are also accompanied by an indication of the relative position of the related RSPB (in the SPB distribution for all EU-28 countries over 1980-2014) to allow to better grasp how common/uncommon the implied fiscal stance would be.

Results in Tables 6.1-6.2 show that only one country (SI) appears to be at high long-term sustainability risk, primarily due to projected cost of ageing developments (with spending on pensions accounting for most of the projected impact on public finances). 14 EU countries (BE, BG, CZ, LT, LU, MT, NL, AT, PL, RO, SK, FI, SE and UK) appear to face medium risk in terms of long-term sustainability challenges. For as many as 8 of these countries (BE, CZ, LT, LU, MT, AT, SK and UK), these challenges are brought about primarily (exclusively for LU and MT) by projected age-related costs. For other 5 countries (BG, PL, RO, FI and SE), on the contrary, long-term challenges are primarily brought about by their initial budgetary position (IBP) (though for SE and FI the cost of ageing component is also significant and not much smaller than the IBP component). For the last country (NL) long-term challenges are brought about by the cost of ageing and the IBP to the same extent. The remaining 11 EU countries (DK, DE, EE, IE, ES, FR, HR, IT, LV, HU and PT) appear to be at low sustainability risk in the long run, conditional on fiscal policy unchanged at the last Commission forecast year, as assumed in the baseline scenario.

If less favourable ageing cost projections were to materialise over the long term (especially due to higher healthcare spending, as assumed under the AWG risk scenario), significant changes would intervene in terms of long-term fiscal sustainability challenges. Four countries (CZ, MT, RO and SK) would be facing high, rather than medium, risks over the long term, while other 8 countries (DK, DE, EE, IE, FR, LV, HU and PT) would face medium, rather than low, risks.

<sup>(198)</sup> Lower and upper thresholds of risk for S2 are set at 2 and 6 pps. of GDP respectively, as in previous issues of the report. Countries with S2 above 6 pps. of GDP are therefore deemed to be at high risk, while at medium risk if S2 between 2 and 6 pps. of GDP.

Table 6.1: Summary heat map on fiscal sustainability challenges

Heat map for short-term risks in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>S0 overall index</b>	0.10	0.21	0.11	0.25	0.02	0.19	0.38	0.21	0.17	0.26	0.21	0.34	0.18
S0 Fiscal sub-index	0.16	0.17	0.18	0.17	0.06	0.07	0.14	0.34	0.25	0.35	0.34	0.17	0.06
S0 Financial competitiveness sub-index	0.07	0.23	0.08	0.29	0.01	0.24	0.48	0.16	0.14	0.23	0.15	0.42	0.24
<b>Fiscal risks from fiscal context</b>													
Primary balance (% of GDP)	0.2	-1.8	-0.7	-1.7	2.4	0.3	1.1	-1.6	-1.8	-1.3	1.7	-0.2	0.6
Change in gross debt (% of GDP)	0.1	4.8	-1.8	-4.9	-3.5	-0.4	-7.7	1.5	0.9	4.1	0.7	-2.4	2.2
Change in share of short-term public debt (p.p.)	0.6	19.2	-0.5	-0.5	-0.6	-1.0	-3.6	-0.9	-0.7	-0.5	-0.6	-0.5	-0.6
Gross financing needs (% of GDP)	13.9	5.2	7.5	8.9	5.0		3.4	18.8	14.5	16.0	20.4	2.6	5.7
<b>Fiscal risks from macro-financial context</b>													
Private debt (% of GDP) *	181.4	124.3	72.7	220.4	100.4	116.1	263.3	164.6	143.2	120.6	119.3	96.4	52.5
Private credit flow (% of GDP) *	1.0	-0.3	1.8	1.7	1.1	6.4	13.7	-7.4	3.3	0.3	-0.9	-11.9	-1.2
Net international Investment Position (% of GDP) *	57.2	-73.4	-35.6	47.0	42.3	-43.6	-106.7	-94.1	-19.5	-88.6	-27.9	-60.9	-46.4
Change in share of non-performing loans (p.p.)	-1.9	-0.2	0.4	1.2	0.7	0.7	-2.1	-1.0	-1.0	1.1	2.9	2.1	-2.0
<b>Fiscal risks from financial market developments</b>													
Sovereign yield spreads(bp) - 10 year	30	201	-1	27	0		51	105	31	329	94	44	82
<b>Overall SHORT-TERM risk category</b>	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Heat map for medium-term risks in the EU countries													
S1 indicator in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>S1 indicator - Baseline scenario</b>	3.8	-1.2	-0.6	-3.3	-0.8	-4.0	2.7	2.5	4.4	4.5	4.2	-2.1	0.5
of which CoA	0.3	-0.6	0.7	-0.8	0.9	0.2	1.3	-1.0	0.3	-0.4	-0.2	-0.3	1.5
Required Structural Primary balance related to S1 - Percentile rank	9%	83%	68%	88%	36%	94%	10%	19%	11%	9%	1%	85%	37%
<b>S1 indicator - AWG risk scenario</b>	4.0	-0.8	-0.1	-2.9	-0.2	-3.6	3.1	3.0	4.8	4.8	4.3	-1.6	1.1
of which CoA	0.5	-0.3	1.1	-0.4	1.4	0.5	1.6	-0.7	0.6	-0.2	-0.1	0.1	1.9
Required Structural Primary balance related to S1 - Percentile rank	8%	81%	63%	85%	28%	92%	8%	16%	9%	7%	1%	82%	29%
<b>S1 indicator - Historical SPB scenario</b>	3.7	-5.3	2.5	-9.0	0.2	-5.6	8.9	5.3	9.1	11.3	8.0	-2.1	4.2
of which CoA	0.5	-0.7	0.9	-0.8	1.2	0.2	1.6	-1.3	0.4	-0.5	-0.2	-0.3	2.0
Required Structural Primary balance related to S1 - Percentile rank	3%	96%	54%	100%	34%	100%	0%	6%	0%	0%	0%	91%	18%
<b>S1 indicator - overall risk assessment</b>	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Sovereign-debt sustainability risks in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
Baseline no-policy change scenario	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	98.9	42.0	46.9	27.4	50.6	12.0	85.0	91.8	101.0	105.3	110.1	33.4	50.1
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2016	2026	2026	2015	2016	2026
Average Structural Primary Balance (2017-2026) Percentile rank	46%	73%	61%	52%	26%	58%	33%	53%	65%	58%	20%	66%	45%
Historical SPB scenario	MEDIUM	LOW	MEDIUM	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Debt level (2026)	89.0	27.1	61.6	10.0	56.9	15.3	102.7	96.8	108.7	119.8	114.3	38.5	65.0
Debt peak year	2016	2019	2026	2015	2015	2026	2026	2016	2026	2026	2015	2016	2026
Average Structural Primary Balance (2017-2026) Percentile rank	29%	53%	78%	25%	34%	63%	65%	62%	74%	76%	24%	72%	68%
Stability and Growth Pact (SGP) scenario	MEDIUM	LOW	LOW	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	HIGH	LOW	LOW
Debt level (2026)	76.5	33.2	36.8	32.6	44.2	4.7	63.4	74.9	76.9	83.9	100.6	31.1	40.1
Debt peak year	2016	2019	2016	2015	2015	2015	2015	2016	2016	2016	2015	2016	2015
Average Structural Primary Balance (2017-2026) Percentile rank	18%	55%	52%	43%	24%	49%	20%	19%	27%	23%	11%	59%	42%
Negative shock (-0.5p.p.) on nominal GDP growth	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	104.6	44.1	49.2	29.3	53.9	12.5	89.5	97.2	106.4	111.2	110.0	35.1	52.7
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2019	2026	2026	2015	2016	2026
Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	103.8	44.2	49.7	28.9	53.6	12.6	89.1	97.6	106.6	112.5	110.0	35.4	53.3
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2019	2026	2026	2015	2016	2026
Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years	HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	HIGH	LOW	LOW
Debt level (2026)	99.7	43.2	49.5	32.5	53.2	14.7	89.9	94.0	102.1	106.4	113.7	34.4	50.7
Debt peak year	2016	2026	2026	2015	2015	2026	2015	2016	2026	2026	2015	2016	2026
Stochastic projections	HIGH	MEDIUM	LOW	LOW	LOW	LOW	MEDIUM	HIGH	HIGH	HIGH	MEDIUM	MEDIUM	LOW
Probability of debt in 2020 greater than in 2015 (%)	35%	55%	53%	14%	3%	74%	28%	38%	47%	64%	11%	42%	45%
Difference of the 10th and 90th percentile in 2020 (p.p. of GDP)	30.2	36.9	30.0	16.8	17.4	3.6	48.4	22.8	14.1	53.4	21.7	47.0	25.7
<b>Debt sustainability analysis - overall risk assessment</b>	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	LOW
<b>Overall MEDIUM-TERM risk category</b>	HIGH	LOW	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH	HIGH	LOW	MEDIUM
Heat map for long-term risks in the EU countries													
	BE	BG	CZ	DK	DE	EE	IE	ES	FR	HR	IT	LV	LT
<b>S2 indicator - Baseline scenario</b>	2.5	2.4	3.2	1.2	1.7	0.7	1.0	0.1	0.6	-0.8	-0.9	0.9	2.9
of which Pensions	1.0	0.0	0.6	-1.5	1.7	-1.1	1.0	-0.7	-1.7	-2.7	-0.9	-1.6	1.2
Health care	0.1	0.3	0.8	0.6	0.4	0.4	1.0	0.8	0.7	0.6	0.6	0.4	0.1
Long-term care	1.1	0.1	0.5	1.6	0.0	0.4	0.7	1.1	0.6	0.0	0.6	0.1	0.7
Required Structural Primary balance related to S2 - Percentile rank	15%	37%	17%	37%	11%	38%	27%	47%	51%	70%	28%	52%	16%
<b>S2 indicator - AWG risk scenario</b>	3.6	4.4	7.0	2.4	4.1	2.8	3.1	1.9	2.6	0.5	-0.5	3.3	5.3
of which Pensions	1.0	0.0	0.6	-1.5	1.6	-1.1	1.0	-0.7	-1.7	-2.8	-0.9	-1.6	1.2
Health care	0.5	0.8	1.4	1.3	0.8	0.9	1.6	1.5	1.2	1.3	0.9	1.1	0.6
Long-term care	1.9	1.5	3.7	2.0	2.0	2.0	2.2	2.3	2.1	0.7	0.8	1.9	2.6
Required Structural Primary balance related to S2 - Percentile rank	9%	17%	0%	23%	1%	16%	10%	23%	23%	49%	24%	20%	3%
<b>S2 indicator - Historical SPB scenario</b>	1.1	0.3	5.5	-1.5	2.7	1.4	3.9	0.7	1.6	1.0	-0.5	1.7	5.1
of which Pensions	0.8	0.7	0.5	-1.0	1.5	-1.0	0.4	-0.5	-1.8	-2.7	-0.8	-1.0	1.0
Health care	0.2	0.2	0.7	0.5	0.3	0.3	0.8	0.7	0.5	0.5	0.5	0.4	0.0
Long-term care	1.1	0.1	0.4	1.8	0.0	0.4	0.7	1.0	0.6	0.0	0.6	0.1	0.6
Required Structural Primary balance related to S2 - Percentile rank	27%	71%	4%	76%	6%	29%	6%	37%	33%	41%	24%	37%	4%
<b>Overall LONG-TERM risk category</b>	MEDIUM	MEDIUM	MEDIUM	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	MEDIUM

\* = variable's values are taken with a 1-year lag, according to the definition of the variable in the S0 indicator.

Source: Commission services.

Table 6.2: Summary heat map on fiscal sustainability challenges

	Heat map for short-term risks in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>S0 overall index</b>	0.09	0.16	0.13	0.19	0.07	0.27	0.24	0.14	0.08	0.21	0.22	0.15	0.36
S0 Fiscal sub-index	0.00	0.14	0.07	0.17	0.06	0.17	0.23	0.07	0.07	0.18	0.17	0.17	0.40
S0 Financial competitiveness sub-index	0.13	0.16	0.15	0.20	0.08	0.32	0.25	0.18	0.08	0.23	0.24	0.14	0.34
<b>Fiscal risks from fiscal context</b>													
Primary balance (% of GDP)	0.4	1.2	1.0	-0.8	0.5	-1.0	2.0	0.4	0.0	-1.1	-2.0	-0.8	-1.8
Change in gross debt (% of GDP)	-0.7	-0.3	-2.4	0.4	2.4	1.0	-2.0	-0.5	3.4	-0.8	3.2	-0.2	0.1
Change in share of short-term public debt (p.p.)	0.9	-1.1	-1.8	-0.5	0.9	0.0	3.7	0.5	1.1	-1.3	0.4	7.5	2.1
Gross financing needs (% of GDP)	0.0	12.9	4.7	6.5	7.3	8.1	13.9	5.4	9.3	7.4	6.9	5.9	8.8
<b>Fiscal risks from macro-financial context</b>													
Private debt (% of GDP) *	342.2	91.3	146.4	228.9	127.1	77.9	189.6	62.2	100.1	76.2	150.0	194.4	157.7
Private credit flow (% of GDP) *	0.5	-0.5	7.8	-1.6	0.2	4.7	-8.7	-2.4	-4.6	3.9	0.4	6.5	3.4
Net international Investment Position (% of GDP) *	36.0	-73.8	39.5	60.8	2.2	-68.3	-113.3	-57.2	-43.7	-69.4	-0.7	-6.5	-25.3
Change in share of non-performing loans (p.p.)	0.5	0.2	1.2	0.2	2.0	-0.6	4.9	-2.0	-0.6	0.4	0.8	0.9	-0.3
<b>Fiscal risks from financial market developments</b>													
Sovereign yield spreads(bp) - 10 year	-7	281	107	15	25	220	185	306	120	13	24	30	136
<b>Overall SHORT-TERM risk category</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>
	Heat map for medium-term risks in the EU countries												
	S1 indicator in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>S1 indicator - Baseline scenario</b>	-4.4	-0.6	-0.2	0.6	1.3	1.0	4.7	1.4	3.0	-0.7	2.6	-1.3	3.3
of which CoA	1.1	-1.0	0.8	-0.3	0.5	0.2	0.1	0.3	0.7	0.0	1.6	0.3	0.8
Required Structural Primary balance related to S1 - Percentile rank	88%	50%	44%	52%	22%	61%	1%	69%	19%	71%	24%	76%	16%
<b>S1 indicator - AWG risk scenario</b>	-4.2	-0.1	0.1	0.8	1.6	1.4	5.1	1.7	3.3	-0.1	2.8	-0.8	3.4
of which CoA	1.2	-0.6	1.1	-0.1	0.7	0.5	0.3	0.5	0.9	0.5	1.8	0.7	1.0
Required Structural Primary balance related to S1 - Percentile rank	86%	41%	38%	47%	19%	55%	1%	65%	16%	64%	21%	71%	14%
<b>S1 indicator - Historical SPB scenario</b>	-7.4	2.3	2.0	-0.6	2.3	2.4	13.1	1.4	6.5	1.7	-1.0	-5.8	9.1
of which CoA	1.3	-1.2	1.0	-0.3	0.6	0.2	0.0	0.3	0.9	0.1	2.0	0.4	1.1
Required Structural Primary balance related to S1 - Percentile rank	98%	34%	32%	57%	15%	44%	0%	63%	4%	63%	29%	93%	1%
<b>S1 indicator - overall risk assessment</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
	Sovereign-debt sustainability risks in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>Baseline no-policy change scenario</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>
Debt level (2026)	13.6	60.1	54.9	62.7	72.5	62.5	111.8	61.1	81.2	51.5	75.5	42.7	89.8
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2015	2015	2026	2015	2026
Average Structural Primary Balance (2017-2026) Percentile rank	34%	40%	41%	63%	37%	73%	26%	82%	60%	63%	63%	62%	57%
<b>Historical SPB scenario</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	9.8	73.5	64.6	56.0	73.6	65.9	131.6	57.5	88.4	63.1	53.9	26.4	104.9
Debt peak year	2016	2015	2015	2015	2015	2026	2026	2026	2026	2026	2018	2015	2026
Average Structural Primary Balance (2017-2026) Percentile rank	28%	65%	60%	49%	39%	76%	61%	79%	71%	76%	26%	32%	77%
<b>Stability and Growth Pact (SGP) scenario</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>
Debt level (2026)	8.4	63.1	40.7	55.0	65.3	45.1	97.0	35.1	57.4	39.1	55.5	38.5	76.0
Debt peak year	2016	2015	2015	2015	2015	2017	2015	2017	2015	2015	2017	2015	2015
Average Structural Primary Balance (2017-2026) Percentile rank	34%	35%	27%	40%	29%	48%	13%	51%	24%	41%	39%	56%	41%
<b>Negative shock (-0.5p.p.) on nominal GDP growth</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	14.5	63.9	58.0	66.3	76.9	65.4	118.6	63.7	85.5	54.1	79.3	44.9	94.5
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2026	2026	2026	2026	2026
<b>Positive shock (+1p.p.) to the short- and long-term interest rates on newly issued and rolled over debt</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	14.2	64.8	57.0	66.4	75.9	66.0	117.8	64.8	85.3	53.9	79.8	45.7	93.2
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2026	2026	2026	2026	2026
<b>Negative shock on the PB equal to 50% of the forecasted cumulative change over the two forecast years</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
Debt level (2026)	14.6	61.2	56.2	65.8	75.9	63.1	117.4	76.1	84.1	51.5	76.7	43.1	99.4
Debt peak year	2016	2015	2015	2015	2015	2026	2015	2026	2015	2015	2026	2015	2026
<b>Stochastic projections</b>	<b>LOW</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>LOW</b>	<b>MEDIUM</b>
Probability of debt in 2020 greater than in 2015 (%)	40%	25%	29%	28%	30%	64%	28%	74%	35%	46%	80%	39%	41%
Difference of the 10th and 90th percentile in 2020 (p.p. of GDP)	15.4	30.6	34.0	19.6	33.4	20.4	29.5	36.5	30.2	31.2	19.9	13.3	21.2
<b>Debt sustainability analysis - overall risk assessment</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
<b>Overall MEDIUM-TERM risk category</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>HIGH</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>	<b>LOW</b>	<b>HIGH</b>
	Heat map for long-term risks in the EU countries												
	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK
<b>S2 indicator - Baseline scenario</b>	4.2	1.5	4.6	4.5	2.7	3.5	0.7	4.4	6.8	3.5	3.9	2.3	3.2
of which Pensions	2.9	0.3	1.9	0.1	0.5	-0.2	-0.2	0.1	3.2	0.9	-0.4	-0.8	1.0
Health care	0.4	0.5	1.5	0.7	0.9	0.8	1.7	0.6	0.9	1.3	0.5	0.3	1.0
Long-term care	1.3	0.3	0.9	2.7	0.9	0.6	0.2	0.6	1.0	0.2	1.6	1.3	0.3
Required Structural Primary balance related to S2 - Percentile rank	3%	24%	3%	9%	11%	20%	18%	15%	0%	17%	13%	26%	22%
<b>S2 indicator - AWG risk scenario</b>	5.7	4.4	6.2	5.3	4.2	4.7	2.4	6.4	8.2	6.6	5.2	4.7	4.4
of which Pensions	2.9	0.3	1.9	0.1	0.5	-0.2	-0.2	0.1	3.2	0.9	-0.4	-0.8	1.0
Health care	0.7	1.1	2.1	1.1	1.4	1.5	2.4	1.1	1.4	2.2	1.0	0.9	1.5
Long-term care	2.6	2.7	1.9	3.0	2.0	1.2	1.2	2.0	1.9	2.5	2.5	3.2	0.9
Required Structural Primary balance related to S2 - Percentile rank	0%	4%	0%	4%	3%	12%	7%	4%	0%	1%	6%	9%	14%
<b>S2 indicator - Historical SPB scenario</b>	3.9	3.3	6.4	3.5	2.9	4.2	4.0	4.2	8.2	5.4	1.0	0.0	5.7
of which Pensions	2.4	0.9	1.9	0.2	0.6	-0.1	-0.6	0.0	3.6	1.2	-1.1	-0.5	0.9
Health care	0.4	0.5	1.3	0.5	0.8	0.8	1.6	0.5	0.8	1.2	0.4	0.2	0.9
Long-term care	1.3	0.3	0.8	2.6	0.9	0.5	0.2	0.5	1.0	0.2	1.4	1.0	0.3
Required Structural Primary balance related to S2 - Percentile rank	4%	10%	0%	14%	10%	16%	1%	17%	0%	5%	44%	62%	6%
<b>Overall LONG-TERM risk category</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>LOW</b>	<b>MEDIUM</b>	<b>HIGH</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>	<b>MEDIUM</b>

\* = variable's values are taken with a 1-year lag, according to the definition of the variable in the S0 indicator.

Source: Commission services.



# 7. COUNTRY-SPECIFIC FISCAL SUSTAINABILITY ASSESSMENTS

## 7.1. BELGIUM

### 7.1.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, Belgium's structural primary balance (SPB) is expected to slightly improve from a *surplus* of 0.4% of GDP in 2015 to a *surplus* of 0.5% of GDP in 2017. Real GDP growth is expected to pick up from 1.3% in 2015 (as in 2014) to 1.7% in 2017. Gross public debt would level up in 2015 and 2016 at around 107% of GDP (as in 2014) before slightly decreasing to around 106% of GDP in 2017. This high public debt level represents a substantial source of vulnerability for the Belgium economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Belgium does not appear to face significant risks of fiscal stress arising from its fiscal, nor its macro-financial situation, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. However, the relatively high level of gross financing needs (at 13.7% of GDP) and of private debt point to possible short-term challenges.

The analysis of the structure of public debt, both in terms of maturity and currency denomination, does not give rise to significant short-term risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond the short-term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Belgium shows that, under normal economic conditions and at unchanged fiscal policy (i.e. with a constant structural primary *surplus* of 0.5% of GDP, before ageing costs, as of the last Commission forecast year (2017)) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the public debt ratio would decline to around 103% of GDP in 2020 and less than 99% in 2026 (last projection year), almost 8 pps. of GDP lower compared to the initial level in 2015. Nonetheless, the debt ratio still well above 90% of GDP at the end of projections (2026) points to high sustainability risks for

Belgium under baseline medium-term debt projections.

Moreover, standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio that is around 5 pps. higher than in the baseline scenario (i.e. a debt to GDP of about 105%), although still decreasing over the projection period. All in all, a very large set of jointly simulated shocks to economic growth, interest rates and the primary balance points to a probability close to 40% that Belgium's debt ratio in 2020 would be greater than in 2015, entailing high risks given the high starting level. Moreover, the difference between the 10<sup>th</sup> and the 90<sup>th</sup> percentile in debt level in 2020, according to stochastic projections, appears quite high (at around 30 pps. of GDP)<sup>(199)</sup>, highlighting important uncertainties surrounding the baseline no-fiscal policy change scenario.

On the contrary, were fiscal policy to revert back to historical behaviour (with the SPB gradually improving to a *surplus* of 2.0% of GDP, the average of the last 15 years, as in the SPB historical scenario), the Belgium debt ratio in 2026 would be as much as 10 pps. lower (at 89% of GDP) than under the baseline no-fiscal policy change projections.

Moreover, if the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), the Belgium public debt would decrease much more substantially than in the baseline projections, to close to 77% of GDP in 2026 (around 22 pps. less than in the baseline no-fiscal policy change scenario). This however would require a significantly higher average SPB over the projection horizon (at 2.9% of GDP over 2017-26) than the 0.5% of GDP surplus (before ageing costs) currently forecasted for 2017. With

<sup>(199)</sup>Based on stochastic projections, Belgium public debt is projected to lie roughly between 88% of GDP and 118% of GDP in 2020 with an 80% probability. The high difference between those two extreme values is linked to the volatility of underlying macro-fiscal variables.

an associated percentile rank of 18%, such a fiscal policy stance seems ambitious, based on European historical standards, although not unprecedented based on Belgium's fiscal track record.

All in all, having regard to the different projection scenarios, Belgium presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

Based on the sustainability gap indicator S1, a cumulated gradual improvement in Belgium's SPB of 3.8 pps. of GDP, relative to the baseline no-fiscal policy change scenario, would be required over the 5 years (until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply a very ambitious required structural primary balance (such that only 9% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that). The country is therefore at high risk according to the S1 indicator. The significant required fiscal adjustment is mainly due to the distance of the debt ratio to the 60% reference value (responsible for 3.6 pps. of GDP required fiscal adjustment), and to a lesser extent, to the projected age-related public spending (0.3 pps. of GDP), while the favourable initial budgetary position has a slightly mitigating effect (-0.1 pps. of GDP) on the required fiscal adjustment.

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Belgium is at medium risk as shown by the sizeable value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a significant required fiscal adjustment of more than 2.5 pps. of GDP to ensure sustainability of public finances over the long run. This is primarily due to the projected increase of age-related public spending, with healthcare and long term care accounting for 1.3 pps. of GDP required fiscal adjustment, and pensions for an additional 1.0 pp. required adjustment. The initial budgetary position contributes marginally (0.5

pps.) to the required adjustment. Under a more adverse scenario in the health care and long term care areas (with non-demographic drivers pushing upward costs), the S2 indicator would reach a higher value, pointing to a very ambitious required structural primary balance (such that only 9% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that).

#### 7.1.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Belgium no significant short-term risks of fiscal stress appear at the horizon, though some variables (like the level of gross financing needs and the private sector debt) point to possible short-term challenges.

Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still high stock of debt at the end of projections (2026) and the sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated macro-financial and fiscal shocks point to a probability close to 40% of a debt ratio in 2020 greater than in 2015, entailing high risks given the high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, due, in order of importance, to the high initial debt-to-GDP ratio and the projected cost of ageing.

Medium sustainability risks appear for Belgium over the long run. These are primarily related to the projected impact of age-related public spending (notably long-term care and pensions).

## 7.2. BULGARIA

### 7.2.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on Autumn 2015 Commission forecasts, the Bulgarian structural primary balance (SPB) is expected to be negative but slightly improving from -1.6% of GDP in 2015 to -1.3% in 2017. Over the same time span, real GDP growth is expected to increase from 1.7% in 2015 to 2% in 2017. As a result of the forecasted development the gross public debt, which is on an increasing path since 2011, would reach 33.6% of GDP in 2017 with almost a 2 pps. increase relative to the 2015 value (31.8%).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Bulgaria does not appear to face significant risks of fiscal stress arising from the fiscal, nor the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. Though some variables such as the primary deficit, the change in the share of short-term public debt and the net international investment position as a share of GDP may give rise to short-term risks.

While the size of the public debt stock is not critical, the analysis of the structure of public debt financing highlights potential short-term risks in terms of maturity structure, creditor base structure (residential versus non-residential) and foreign currency denomination. The share of non-performing loans in the banking sector is above the threshold and it may represent a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond the short term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Bulgaria shows that, under normal economic conditions and fiscal policy unchanged at a structural primary deficit of around 1.3% of GDP as of last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Bulgarian public debt would continue to increase

after forecasts to more than 36% of GDP in 2020 and around 42% in 2026 (last projection year). The debt ratio is well below the 60% of GDP at the end of projections in the baseline scenario. This projected increase of around 10 pps. over a 10-year horizon would depend on the Bulgarian SPB remaining constant at -1.3% of GDP (last forecast year value) till 2026. This might be a relatively low SPB to be maintained over 10 years (73% of the SPBs recorded for all EU-28 countries over 1980-2015 is greater than this) and better outcomes in terms of the debt to GDP ratio could be achieved if a higher average SPB would be maintained over the projection horizon. Indeed, if convergence of the structural balance towards the medium-term objective (MTO) was respected, in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario), the Bulgarian public debt would stay at around 33% of GDP in 2026 (9 pps less than in the baseline no-fiscal policy change scenario). This would require a significantly higher (1.4 pps. higher) average SPB over the projection horizon (at 0.1% of GDP over 2017-26) than currently forecasted for 2017. An increase of around 5 pps. by 2026 (36.4%), half of the increase compared to the baseline, could be similarly achieved by just reverting back to historical behaviour (a surplus of 0.7% in the SPB based on the last 15-year historical average, as in the SPB historical scenario).

Given the low initial stock of debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a small impact on the debt ratio. Indeed, standard negative sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of projections (2026) that is only 2 pps. higher (at almost 44% of GDP) than in the baseline. When a very large set of jointly simulated shocks to growth, interest rates and the primary balance, are considered all together as in the case of stochastic debt projections (reflecting the size and correlation of past shocks), the tendency to an increase of the debt to GDP ratio is confirmed. Indeed a probability of 55% of the Bulgarian debt ratio in 2020 being greater than in 2015 (31.8% of GDP) is

estimated. Given the low starting level, this does not entail risks in the medium-term.

All in all, having regard to the different projection scenarios and main results, Bulgaria presents a low risk in the medium term from a DSA perspective

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. The S1 indicator indicates the improvement in the SPB relative to the baseline no-fiscal policy change scenario that would be required over 5 years (starting from after forecasts till 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. Given the fact that the Bulgarian debt to GDP ratio is projected to be well below the 60% threshold, S1 is negative (-1.2 pps. of GDP) indicating that no sustainability risks is foreseen in the medium-term. Indeed when the analysis focuses on the sub-components it is evident that the debt requirement and the low ageing cost (-1.9 and -0.6 pps. of GDP respectively) more than compensate the effect of the initial budgetary position (1.5 pps. of GDP) which, coherently with the deficit in the structural primary balance, puts pressure on the medium term sustainability of the country.

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at low risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Bulgaria is, on the contrary, at medium risk due to a relatively high value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB forecasted for 2017 (-1.3% of GDP) well beyond that year. The S2 indicator, calculated under a baseline no-fiscal policy change scenario, indeed points to a positive required fiscal adjustment (2.4 pps. of GDP), to put the debt on a sustainable path over the long-term. This is primarily due to the initial budgetary position (1.9 pps.) and the health and long term component of the cost of ageing (0.3 and 0.1 pps. of GDP respectively). Despite the ageing cost

component related to pension is not putting any pressure on the long term sustainability of public finances, it is important to underline that the Bulgarian pension system is highly subsidised by the State thus impinging on the structural primary balance and hence on the initial budgetary position.<sup>(200)</sup>

#### 7.2.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Bulgaria no significant short-term risks of fiscal stress appear at the horizon, though some variables (such as the primary deficit, the change in the share of short-term public debt, the net international investment position and the share of non-performing loans) point to possible short-term challenges.

Despite the deficit in the structural primary balance and the debt to GDP ratio being on an increasing trend, no sustainability risks appear over the medium-term thanks to the very low starting level of the debt ratio. Reverting to historical values of the SPB or compliance with the preventive arm of the Stability and Growth Pact (SGP) would assure further improvement in the medium-term sustainability of public finances. This assessment is confirmed by the analysis of the sustainability gap indicator S1.

In the long-term, assuming fiscal policy remaining constant, the deficit in the structural primary balance will impinge on the sustainability of public finances. Indeed Bulgaria appears to be at medium risks because of the unfavourable initial budgetary position slightly compounded by the age-related expenditures on health care and long term care.

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<sup>(200)</sup>A recent pension reform, legislated too lately to be considered in this report, contains measures in the direction of reducing the deficit in the short-medium term and the State involvement in the pension system.

### 7.3. CZECH REPUBLIC

#### 7.3.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the Czech Republic' structural primary deficit is expected to decrease from around 0.8% of GDP in 2015 to around 0.3% in 2017. Over the same period, real GDP growth is expected to slow down from 4.3% in 2015 (it was 2.0% in 2014) to 2.7% in 2017. As a result of forecasted developments, gross public debt would reach a temporary low of under 41% of GDP in 2017 (more than 2 pps. cut relative to 2014).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), the Czech Republic does not appear to face significant risks of fiscal stress arising from either the fiscal, or the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds.

The analysis of the structure of public debt financing highlights no short-term risks in terms of maturity structure, foreign currency denomination or non-resident creditor base.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond to medium-term sustainability challenges, a debt sustainability analysis (DSA) for the Czech Republic shows that, under normal economic conditions and no fiscal policy change (baseline scenario) from the last Commission forecast year (2017), Czech public debt would remain at about 41% of GDP until 2020, to increase towards 47% of GDP in 2026 (last projection year). This projected increase of around 6 pps. over a 10-year horizon would depend on the structural primary balance (SPB) remaining constant at a deficit of 0.3% of GDP (last forecast year value) over the post-forecast horizon. The debt ratio below 60% of GDP at the end of projections (2026) under a baseline medium-term debt scenario, combined with no threats of an increasing debt trajectory from either stochastic projections or sensitivity tests (shocks to nominal growth, interest rates or primary balance) lead to

low debt sustainability risks for the Czech Republic.

If, on the other hand, the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), Czech public debt would decrease to around 37% of GDP in 2026 (10 pps. less than in the baseline no-fiscal policy change scenario). This would only require a higher (0.5 pps. difference) average SPB over the projection horizon (i.e. a surplus of 0.2% of GDP over 2017-26) than currently forecasted for 2017.

All in all, having regard to the different projection scenarios and main results, the Czech Republic presents low risks in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. The cumulated required fiscal adjustment over five years needed to reach the 60% debt-to-GDP ratio by 2030 is negative for the Czech Republic (-0.6% of GDP), which indicates fiscal space rather than a sustainability gap over the medium term. The country is therefore at low risk according to the S1 indicator. The negative S1 for the Czech Republic is mainly due to the debt ratio being far below the 60% Treaty reference value, which translates into a negative distance from the debt target (- 1.5 pps. of GDP). On the contrary, projected age-related public spending (0.7 pps. of GDP) and the slightly unfavourable initial budgetary position (0.2 pps. of GDP) push towards a higher S1 value.

Lack of challenges reflected in the S1 indicator and the DSA leads to the country being overall at low risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, the Czech Republic is at medium risk as shown by the value of the long-term

sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a required fiscal adjustment of 3.2 pps. of GDP to ensure sustainability of public finances over the long run. This is primarily due to the projected impact of age-related public spending, with healthcare and long term care accounting for 1.3 pps. of GDP required fiscal adjustment, and pensions for an additional 0.6 pps. of GDP. The unfavourable initial budgetary position also contributes (0.8 pp.) to the required adjustment.

### 7.3.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for the Czech Republic no significant short-term risks of fiscal stress arise, though some variables point to possible short-term challenges.

No risks appear in the medium term from a debt sustainability analysis perspective due to the relatively low stock of debt at the end of the projection horizon (2026) and the relative resilience to potential shocks to nominal growth, interest rates or primary balance. No medium-term risks emerge from the analysis of the sustainability gap indicator S1 either, thanks to the debt ratio being far below the 60% Treaty reference value, while the projected age-related spending and the unfavourable initial budgetary position take only a part of the available fiscal space.

Over the long run, however, medium sustainability risks appear for the Czech Republic, assuming fiscal policy constant at the structural primary deficit forecasted by the Commission services for 2017 beyond that year. These risks derive primarily from the projected impact of age-related public spending (notably healthcare and pensions), compounded by the slightly unfavourable initial budgetary position.

## 7.4. DENMARK

### 7.4.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, Denmark's structural primary balance (SPB) is projected to move from a deficit of around 0.8% of GDP in 2015 to a surplus of around 0.2% in 2017. Over the same period, real GDP growth is expected to pick up from 1.6% in 2015 (it was 1.1% in 2014) to 2.0% in 2016, and subsequently fall slightly to 1.8% in 2017. As a result of forecasted developments, gross public debt continues on a downward path going from about 40% of GDP in 2015 (it was 45% in 2014) to almost 38% of GDP in 2017 (a 7 pps. cut relative to 2014).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Denmark does not appear to face significant risks of fiscal stress arising from neither the fiscal, nor the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. Some of the financial and competitiveness variables, namely the primary deficit, the private sector debt and the change in the share of non-performing loans in the banking sector point to possible short-term challenges, but overall serious risks do not appear to emerge from the fiscal, nor the macro-financial sides of the economy.

The analysis of the structure of public debt financing highlights no short-term risks in terms of maturity structure, foreign currency denomination or non-resident creditor base.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Denmark shows that, under normal economic conditions and no fiscal policy change (baseline scenario) from the last Commission forecast year (2017), Danish public debt would steadily decrease towards 27% of GDP in 2026 (last projection year year). This projected fall of around 12 pps. over a 10-year horizon would depend on the structural

primary balance (SPB) remaining constant at a surplus of 0.2% of GDP (last forecast year value) over the post-forecast horizon. The debt ratio far below 60% of GDP at the end of projections (2026) under a baseline medium-term debt scenario, combined with no threats of an increasing debt trajectory from any of the stochastic or deterministic projections lead to low debt sustainability risks for Denmark.

All in all, having regard to the different projection scenarios and main results, Denmark presents low risks in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. The cumulated required fiscal adjustment over five years needed to reach the 60% debt-to-GDP ratio by 2030 is negative by a fairly significant margin for Denmark (-3.3% of GDP), which indicates fiscal space rather than a sustainability gap over the medium term. The country is therefore at low risk according to the S1 indicator. The negative S1 for Denmark builds on contributions from all its components, thereby reflecting a sound medium-term fiscal stance not only regarding a debt ratio far below the 60% Treaty reference value, but also regarding the initial budgetary position and decreasing age-related public spending.

Lack of challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at low risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, of Denmark is at low risk as shown by the value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a required fiscal adjustment of 1.2 pps. of GDP to ensure sustainability of public finances over the long run. This is primarily due to the initial budgetary position contributing a 1.3 pp of GDP of required adjustment, while within the category of age-related public spending the projected impact of healthcare and long term care (2.2 pps. of GDP) is

essentially cancelled out by the mitigating outlook on pensions and other ageing related costs.

#### 7.4.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Denmark no short-term risks of fiscal stress arise, though some variables (such as the primary deficit, the private sector debt and the change in the share of non-performing loans in the banking sector), point to possible short-term challenges.

No risks appear in the medium term from a debt sustainability analysis perspective due to the low stock of debt at the end of projections (2026) and resilience to potential shocks to nominal growth, interest rates or primary balance. No medium-term risks emerge from the analysis of the sustainability gap indicator S1 either, thanks to the debt ratio being far below the 60% Treaty reference value, decreasing age-related public spending and the favourable initial budgetary position.

Finally, no sustainability risks appear for Denmark over the long run, assuming fiscal policy constant at the structural primary surplus forecasted by the Commission services for 2017 beyond that year. This risk-free outlook derives primarily from a relatively limited unfavourable contribution of the initial budgetary position and from the different contributions to age-related public spending balancing each other out in the long-term.

## 7.5. GERMANY

### 7.5.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on Autumn 2015 Commission forecasts, Germany is expected to have a decrease (around 0.5 pps. of GDP) in the structural primary balance (SPB), from 2.4% of GDP in 2015 to 1.9% in 2017. Over the same time span, real GDP growth is expected to increase from 1.7% in 2015 (it was 1.6%, in 2014) to 1.9% in 2017. As a result of the forecasted development, the gross public debt, which is on a decreasing path since 2012, would continue to decrease and would reach 65.6% of GDP in 2017 with almost a 6 pps. reduction relative to the 2015 value (71.4%).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Germany does not appear to face risks of fiscal stress arising from the fiscal, or the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. The analysis of the structure of public debt financing highlights potential short-term risks in terms of maturity structure, while no short-term risks appear in terms of creditor base structure and foreign currency denomination. The share of non-performing loans in the banking sector may represent a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond the short term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Germany shows that, under normal economic conditions and fiscal policy unchanged at a structural primary balance over GDP as of last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the German public debt would continue to decrease after forecasts to less than 60% of GDP in 2020 and around 50% in 2026 (last projection year). The debt ratio is well below the 60% of GDP at the end of projections (2026) in the baseline. This projected reduction of around 20 pps. over a 10-year horizon would depend on the German SPB remaining constant at 1.9% of GDP (last forecast

year value) till 2026. This might be a relatively high SPB to be maintained over 10 years as only 26% of the SPBs recorded for all EU-28 countries over 1980-2015 is greater than this. Reverting to SPB historical trend (1.0% over a 15 year average) would result in 1 pp. higher debt to GDP ratio compared to the baseline (51.6%) by 2026.

Decreasing trends in the debt to GDP ratio have been projected under alternative scenarios. Given the relatively low initial stock of debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a small impact on the debt ratio. Standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio that is 3 pps. higher than in the baseline (i.e. a debt to GDP of about 53%) and still on a decreasing path in the last year of projections (2026). Indeed, the strong tendency towards a reduction of the debt to GDP ratio is confirmed by stochastic simulations results. When a very large set of jointly simulated shocks to growth, interest rates and the primary balance, are considered all together (reflecting the size and correlation of past shocks), the debt to GDP ratio in 2020 is larger than the one in 2015 only in 3% of the cases.

Coherently with the mentioned evidence, Germany is considered to be at low risk under medium-term debt projections from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. The S1 indicator indicates the improvement in the SPB relative to the baseline no-fiscal policy change scenario that would be required over 5 years (starting from after forecasts till 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. Given the fact that the German debt to GDP ratio is projected to be well below the 60% threshold, S1 is negative (-0.8 pps. of GDP) indicating that no sustainability risks is foreseen in the medium-term. Indeed when the analysis focuses on the sub-components it is evident that the initial budgetary position (-2.0 pps. of GDP),

given the surplus in the structural primary balance, more than compensate the pressure coming from the age-related expenditures (0.9 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at low risk in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Germany is at low risk due to a relatively low value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB forecasted for 2017 (1.9% of GDP) well beyond that year. The S2 indicator calculated under a baseline no-fiscal policy change scenario, indeed points to a positive required fiscal adjustment: 1.7 pps. of GDP. This is primarily due to the projected impact of age-related expenditure (2.5 pps. of GDP), with pensions accounting for 1.7 pps. of GDP. The pressure coming from the ageing of the population is partially counterbalanced by a favourable initial budgetary position (-0.8 pps. of GDP), which helps to put the debt on a sustainable path over the long-term. Policy measures that would improve the sustainability of the pension system would help keep a sound position of public finances in the case of a lower surplus in the SPB in the long run.

All in all, once the low debt to GDP ratio is considered, Germany is classified as being at low risk for the sustainability of its public finances in the long-term.

#### 7.5.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Germany no short-term risks of fiscal stress appear at the horizon, though some variables (such as the change in the share of non-performing loans) point to possible short-term challenges.

No sustainability risks appear over the medium run thanks to the high government structural primary balance forecasted by the Commission services for 2017 (1.9% of GDP). Despite some pressures due to the age-related expenditure, Germany would continue to be considered at low risk even in case of reverting to the historical SPB trends (which implies a reduction in the SPB of 0.9 pps. compared to the baseline). This assessment is

confirmed by the analysis of the sustainability gap indicator S1.

No sustainability risks appear over the long run as the favourable initial budgetary position would mitigate the projected increase in age-related expenditure (mainly driven by pension expenditure).

## 7.6. ESTONIA

### 7.6.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Commission 2015 autumn forecast, Estonia is expected to slightly deteriorate its structural primary surplus from 0.4% of GDP in 2015 to -0.1% in 2017. Over the same time span, real GDP growth is forecasted to pick up, from 1.9% in 2015 to 2.6% in 2016 and 2017. Given the very low level of debt and small structural surpluses (10.0% and 0.3% of GDP in 2015, respectively, according to the Commission forecast), Estonia doesn't appear to face sustainability challenges even with the structural primary balance deteriorating to slightly negative values. Indeed, the gross public debt would decrease from 10% of GDP in 2015 to 9.2% of GDP in 2017.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Estonia does not appear to face risks of fiscal stress, as highlighted by a value of the S0 indicator below the critical threshold. Overall, serious risks do not appear to emerge from the fiscal side of the economy.

Instead, the scoreboard indicates values above critical thresholds with respect to two macro-financial indicators with higher signalling power, namely the short-term debt of non-financial corporations, which represents a high percentage of GDP (around 33%) and more slightly the change in the nominal unit labour costs (ULC). The latter indicators can be read as possible signs of challenges posed by a domestic overheating. Such risk is confirmed by the growth in nominal house price being over its critical threshold.

Other short-term challenges can stem from the structure of public debt due to volatility implied by the large share of debt held by non-residents (65.1%) and from the change in the share of non-performing loans, which is higher than the upper thresholds (0.7 vs 0.3 pps.), so signalling some possible source of government's contingent liabilities.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Estonia shows that, under normal economic conditions, were fiscal policy to remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Estonian public debt would continue to decrease after forecasts to 9% of GDP in 2018 and 2019 and then would rebound up to 12% of GDP in 2026 (last projection year). This projected small rebound of around 3 pps. over a 10-year horizon would depend on the Estonian SPB remaining constant at -0.1% of GDP till 2026 and on the slightly increasing cost of ageing. The still low Estonian debt ratio at the end of projections (2026) leads to the country being at low risk under baseline medium-term debt projections.

The overall assessment of the Estonia's DSA confirms the low risk category by also looking at debt projection results under alternative scenarios (such as the historical SPB scenario, the SGP scenario, a series of negative sensitivity tests on macro-fiscal assumptions). Synthetic stochastic debt projection results are also brought into the picture to reach the overall risk assessment on a country's DSA. At the end of the projection period the debt ratio will still be on an increasing path, but remains well below the 60 per cent of GDP Treaty threshold. In addition, jointly simulated shocks to growth, interest rates and the primary balance point to a strong probability equals to 74% that the debt ratio in 2020 will be higher than in 2015, but given the low starting level it doesn't entail much risk.

All in all, having regard to the different projection scenarios and main results, Estonia presents a low sustainability risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The low Estonian debt ratio of 9.2% in 2017 confirms some fiscal space in the medium-term, as reflected in the largely negative S1 value (-4.0% of GDP), before the inter-temporal effects of age-related costs are taken completely into account.

The safe budgetary position for Estonia is mainly due to the high distance of the Estonian debt ratio from the 60% reference value (-3.8 pps. of GDP of potential fiscal stance due to this) and, to a lesser extent to the initial budgetary position (-0.4 pps. of GDP), while projected age-related public spending would have a slightly (0.2 pps. of GDP) deteriorating effect.

The large negative value for S1 is also registered for the alternative scenarios.

All in all, the lack of challenges highlighted by the S1 indicator, as well as by the DSA, leads to the country being overall at low risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

The long-term sustainability analysis shows that on the basis of the budgetary position of 2017, using the 2015 Commission Services' Autumn forecast and the projected increase in age-related expenditure (2015 Ageing Report) Estonia has a sustainability gap (S2) of 0.7% of GDP (baseline scenario). That means that Estonia needs only a limited permanent improvement in the structural primary balance to close the fiscal gap. This result reflects the projected lower rise in age-related expenditure in Estonia relatively to the EU average (0.2 vs 1.1 pps. of GDP), whereas the initial budgetary position is at the EU average (0.5 vs 0.6 pps. of GDP). The expected decline in pension expenditure by 1.1 pps. of GDP practically offset the increase of 1.3 pps. of GDP in healthcare, long-term care and other long-term expenditures.

Risks are higher when considering the AWG risk scenario associated with dynamic growth in healthcare and long-term care expenditure due to non-demographic factors. The sustainability gap (S2) in this risk scenario would amount to 2.8 pps. of GDP, more than 2.0 pps. of GDP over the baseline scenario so the evaluation of the long-term risk would move Estonia from low to medium risk.

#### 7.6.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Estonia no significant short-term risks of fiscal stress appear at the horizon, though some

variables (namely, the change in the share of non-performing loans) point to possible short-term challenges.

Risks appear, likewise, to be low in the medium term from a debt sustainability analysis perspective due to the still low stock of debt at the end of projections (2026) even when considering possible shocks to nominal growth and interest rates. This assessment is also confirmed by the analysis of the sustainability gap indicator S1.

No sustainability risks appear over the long run due to contained projected ageing costs (with in particular a decrease of pension spending thanks to the pension reforms implemented in the past) and a close to neutral initial budgetary position.

## 7.7. IRELAND

### 7.7.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, Ireland is expected to have a significant increase (around 1 pp. of GDP) in the structural primary balance (SPB), from 0.3% of GDP in 2015 to 1.3% in 2017. Real GDP growth is expected to slow down, from 6.0% in 2015 to 4.5% in 2016 and 3.5% in 2017. As a result of forecast developments, gross public debt would decrease from 99.8% of GDP in 2015 to 93.7% in 2017. Public debt would remain high, and represent a major source of vulnerability for the Irish economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Ireland does not appear to face considerable risks of fiscal stress, as highlighted by a value of the S0 indicator below the critical threshold. Some of the macro-financial variables, namely high private debt, private credit flows and the negative international investment position, do nonetheless point to possible short-term challenges.

The structure of public debt financing in terms of maturity, does not give rise to short-term risks. State guarantees (32.1% of GDP in 2014) in the government sector could be a source for short-term contingent liability risks but they are declining steadily to 13.3% at the end of 2014 (latest available data). In the banking sector, there are still short-term contingent liability risks but these are falling as the loans-to-deposit ratio and the high share of non-performing loans are declining while provisions for impaired loans remain substantial. Moreover, the pace of increasing nominal house prices has also decelerated in 2015 following the introduction of macro prudential measures by the central bank.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short-term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Ireland shows that, under normal economic conditions, were fiscal policy to

remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), public debt would slowly decline until 2023 (reaching 82.8% of GDP that year), before progressively raising again until the end of the projection period, to 85.0 % of GDP in 2026 (last projection year). This relatively high and still increasing level points to insufficient fiscal effort, under the no-fiscal policy change scenario (with a SPB unchanged at 1.3% of GDP), to compensate for increasing ageing costs, as well as unfavourable interest rate-growth rate differential (snow-ball) effect towards the end of the projection period. Therefore, Ireland can be considered at medium risk under baseline medium-term debt projections. However, this analysis does not take into consideration the government's shareholdings in the domestic banks which are likely to be divested and are valued at 6.7% of 2015 GDP.

Given the high initial debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a sizeable impact on debt ratio developments. Indeed, standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of projections (2026) over 4 pps. higher (at almost 90% of GDP) than in the baseline. All in all, a very large set of jointly simulated shocks to growth, interest rates, and primary balance, reflecting the size and correlation of past shocks under stochastic debt projections, point to a probability close to 30% of the Irish debt ratio in 2020 being greater than in 2015 (i.e. 99.8% of GDP).

If convergence of the structural balance towards the medium-term objective (MTO) were respected, in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario), the Irish public debt would decrease more substantially than in the baseline projections, to 63.4% of GDP in 2026 (21.6 pps. less than in the baseline no-fiscal policy change scenario). However, this would require a significantly higher (1.2 pps. higher) average SPB

over the projection horizon (2.5% of GDP over 2017-26) than currently forecast for 2017.

All in all, having regard to the different projection scenarios and main results, Ireland presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on the S1 indicator, a cumulated gradual improvement in the Irish SPB of 2.7 pps. of GDP, relative to the baseline no-fiscal policy change scenario, would be required over 5 years (starting from after forecasts till 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply an ambitious required structural primary balance (such that only 10% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that), which points to high risk according to the S1 indicator due to the relatively low structural primary balance forecast for 2017. The very significant required fiscal adjustment obtained for Ireland is mainly due to the distance of the debt ratio from the 60% reference value (2.6 pps. of GDP required fiscal adjustment due to this), and, to a lesser extent (to the projected age-related public spending (1.3 pps. of GDP). On the contrary the favourable initial budgetary position reduces the overall required adjustment (-1.6 pps. of GDP). Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Ireland appears to be at low risk thanks to a relatively low value of the long-term sustainability gap indicator S2. The S2 indicator, calculated under a baseline no-fiscal policy change scenario, indeed points to a relatively small required fiscal adjustment (1.0 pps. of GDP), to ensure that the debt ratio remains on a sustainable path over the long run horizon. This is primarily due the favourable initial budgetary position (-0.9 pps.), offsetting partly the projected developments on age-related spending (+1.9 pps.) driven by

projected increases in pension, health care and long term care expenditures).

#### 7.7.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Ireland no significant short-term risks of fiscal stress appear at the horizon, though some macro-financial variables (such as private sector credit flow, the share of non-performing loans and the nominal house price index) point to possible short-term challenges.

Risks appear to be high in the medium term from a debt sustainability analysis perspective due to the still high debt at the end of projections (2026) and the high sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability close to 30% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting debt level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high initial debt-to-GDP ratio and the projected costs of ageing, thus leading to overall high risks for the country in the medium term.

No significant sustainability risks appear over the long run, despite increasing costs of ageing, due a relatively favourable initial budgetary position.

## 7.8. SPAIN

### 7.8.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the autumn 2015 Commission forecasts, Spain's structural primary surplus is expected to decrease from around 0.6% of GDP in 2015 to around 0.2% in 2017. Over the same period, real GDP growth is expected to slow down from 3.1% in 2015 (it was 1.4% in 2014) to 2.4% in 2017. Gross public debt would peak in 2016 at more than 101% of GDP (a 2 pps. increase relative to 2014) with a minor decrease to about 100% of GDP in 2017. The high public debt level represents a source of vulnerability for the Spanish economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Spain does not appear to face significant risks of fiscal stress arising neither from the fiscal, nor the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. Though some variables (such as the primary deficit and gross financing needs) point to possible short-term challenges.

The analysis of the structure of public debt financing highlights potential short-term risks in terms of greater volatility of a non-resident creditor base, while no short-term risks appear in terms of maturity structure and foreign currency denomination.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Spain shows that, under normal economic conditions and no fiscal policy change (baseline scenario) from the last Commission forecast year (2017), Spanish public debt would remain at around 100% of GDP beyond forecasts until 2020, to fall to just below 92% in 2026 (last projection year). This projected reduction of around 9 pps. over a 10-year horizon would depend on the structural primary balance (SPB) remaining constant at a surplus of 0.2% of GDP (last forecast year value) over the post-forecast horizon. The debt ratio still above 90% of GDP at the end of projections (2026) based on an

assumption of unchanged fiscal policy leads to high risks for Spain under baseline medium-term debt projections. Indeed, standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio that is about 5 pps. higher than in the baseline (i.e. a debt-to-GDP ratio of about 97%) in 2026.

A very large set of jointly simulated shocks to growth, interest rates and the primary balance, reflecting the size and correlation of past shocks under stochastic debt projections, points to a probability of nearly 40% that Spain's debt ratio in 2020 would be higher than in 2015 (i.e. higher than 101% of GDP), which entails high risks given the already significant starting level.

If on the other hand the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), Spanish public debt would decrease much more substantially than in the baseline projection, to around 75% of GDP in 2026 (some 17 pps. less than in the baseline no-fiscal policy change scenario). This however would require a significantly higher (almost 2.5 pps. difference) average SPB over the projection horizon (i.e. a surplus of 2.6% of GDP over 2017-26) than currently forecasted for 2017.

All in all, considering the different projection scenarios and main results, Spain presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on S1, a 5-year (until 2022) cumulated gradual improvement in the Spanish SPB of 2.5 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required, if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply a more ambitious required structural primary

balance (such that less than a fifth of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that). The country is therefore at high risk according to the S1 indicator. The significant required fiscal adjustment is due to the distance of the debt ratio from the 60% reference value (responsible for 3.1 pps. of GDP required fiscal adjustment) and the initial budgetary position (contributing 0.5 pps. of GDP of required fiscal adjustment), while projected age-related public spending has a mitigating effect (-1.0 pp. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Spain is, contrariwise, at low risk thanks to a close to zero value of the long-term sustainability gap indicator S2. The S2 indicator, calculated under a baseline no-fiscal policy change scenario, indeed points to lack of pressure regarding fiscal adjustment (0.1 pps. of GDP), implying a sustainable path over the long run horizon. This is primarily due to favourable age-related spending projections after reforms (-0.7 pps.), a category that mitigates the contribution of the initial budgetary position (0.8 pps.) to the S2. Age-related spending reduction basically corresponds to economies on the pensions' side thanks to the recent pension reform, while negative developments in health care and long term care are fully compensated by those in other ageing related factors.

high risks given the already relatively high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high initial debt-to-GDP ratio as well as the initial budgetary position, thus leading to overall high risks for the country in the medium term.

No sustainability risks appear for Spain over the long run notably thanks to reforms containing long-term expenditure pressures, in particular pension expenditures.

### 7.8.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Spain no significant short-term risks of fiscal stress arise, though some variables (such as the primary deficit and gross financing needs) point to possible short-term challenges.

Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the stock of debt still high at the end of projections (2026). Jointly simulated shocks to growth, interest rates and the primary balance point to a probability of nearly 40% of a debt ratio in 2020 being greater than in 2015, which entails

## 7.9. FRANCE

### 7.9.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on Autumn 2015 Commission forecasts, France should experience a slight improvement in the structural primary balance (SPB), from a *deficit* of 0.7% of GDP in 2015 to a *deficit* of 0.5% of GDP in 2017. Real GDP growth is expected to pick up, from 1.1% in 2015 (after 0.2% in 2014) to 1.7% in 2017. Despite a more favourable contribution of the interest rate – growth rate differential, gross public debt would keep increasing over the forecast horizon, from 96.5% of GDP in 2015 to 97.4% of GDP in 2017, although at a more moderate pace than in the past. Thus, the high public debt level represents a substantial source of vulnerability for the French economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), France does not appear to face considerable risks of fiscal stress, as highlighted by a value of the S0 indicator (and the two sub-indexes) below the critical threshold. Some of the fiscal variables, namely primary deficit and gross financing needs (the latter representing 14.5% of GDP), do nonetheless point to possible short-term challenges, as well as the relatively high level of private sector debt.

The structure of public debt, both in terms of maturity and currency denomination, does not give rise to short-term risks. However, the share of non-performing loans in the banking sector and the bank loans-to-deposits ratio point to non-negligible short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short-term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for France shows that, under normal economic conditions, were fiscal policy to remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), public debt would be roughly stable until 2020 (reaching 97.4% of GDP that year), before

progressively raising again until the end of the projection period, to 101% of GDP in 2026 (last projection year). This high and still increasing level (4.5 pps. of GDP higher than in 2015) points to insufficient fiscal effort, under this no-fiscal policy change scenario (with an SPB unchanged at -0.5% of GDP),<sup>(201)</sup> to compensate for increasing ageing costs, as well as unfavourable snow-ball effects towards the end of the projection period. Therefore, France can be considered at high risk under baseline medium-term debt projections.

Given the high initial stock of debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a sizeable impact on the debt ratio. Indeed, standard negative sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of projections (2026) that is around 5 pps. higher (at more than 106% of GDP) than in the baseline. All in all, a very large set of jointly simulated shocks to growth, interest rates and the primary balance points to a probability of nearly 50% of the French debt ratio in 2020 being greater than in 2015, which entails high risks given the already relatively high starting level.

Were fiscal policy to revert back to historical behaviour (with the SPB gradually reverting to the last 15-year historical average, a *deficit* of 1.7% of GDP, as in the SPB historical scenario), the French debt ratio in 2026 would be as much as 10 pps. higher (at close to 111% of GDP) than under baseline no-fiscal policy change.

If, on the contrary, convergence of the structural balance towards the medium-term objective (MTO) was respected, in compliance with the corrective and the preventive arms of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario), the French public debt would decrease substantially, to less than 77% of GDP in 2026 (24 pps. less than in the baseline no-fiscal policy change scenario). However, this would

<sup>(201)</sup> This level of deficit is associated to a percentile rank of 65%, meaning that over the period 1980-2015, in 65% of the cases, EU countries were able to reach an SPB value greater than -0.5%.

require a significantly higher (2.3 pps. higher) average SPB over the projection horizon (at +1.8% of GDP over 2017-26) than currently forecasted for 2017. In this case, the debt ratio would decline over the whole projection horizon, yet remaining above the SGP threshold of 60% of GDP in 2026.

All in all, having regard to the different projection scenarios and main results, France presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The analysis of the sustainability gap indicator S1 shows that a cumulated SPB gradual improvement of 4.4 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required over 5 years (starting from after forecasts until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply an ambitious required structural primary balance (such that only 11% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that), which points to high risk according to the S1 indicator. The very significant required fiscal adjustment obtained for France is mainly due to the distance of the debt ratio from the 60% reference value (2.9 pps. of GDP required fiscal adjustment due to this), and, to a lesser extent, to the unfavourable initial budgetary position (responsible for 1.2 pps. of GDP required fiscal adjustment) and projected age-related public spending (0.3 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, France is, on the contrary, at low risk thanks to a relatively low value of the long-term sustainability gap indicator S2 (at 0.6 pps. of GDP). This is primarily due to the projected decrease of age-related spending (contribution of -1.0 pp. of GDP to S2), mitigated by the unfavourable initial budgetary position (1.5 pps. of GDP). It is in particular the projected decrease of public pension expenditure that drives down

ageing costs (-1.7 pps. of GDP),<sup>(202)</sup> given substantial reforms implemented in this area in the past. However, under a more adverse scenario in the healthcare and long-term care areas (with non-demographic drivers pushing upward costs), the S2 indicator would increase beyond the threshold pointing to medium fiscal risks in the long run. Accordingly, the required structural primary balance to ensure that public debt ratio is not on an ever-increasing path in the long run would reach a more challenging level (with an associated percentile rank of 23%).

#### 7.9.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for France no significant short-term risks of fiscal stress appear at the horizon, although some variables (such as the primary deficit, gross financing needs and the private sector debt) point to possible short-term challenges.

Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still high stock of debt at the end of projections (2026) and the high sensitivity to possible macro-fiscal shocks. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability of nearly 50% of a debt ratio in 2020 being greater than in 2015, which entails high risks given the already relatively high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again mainly due to the high initial debt-to-GDP ratio, thus leading to overall high risks for the country in the medium term.

No significant sustainability risks appear over the long run, under the no-fiscal policy change baseline scenario, notably thanks to pension reforms implemented in the past.

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<sup>(202)</sup> In the case of France, the time-profile of pension spending projections (stable until 2030, decreasing beyond that horizon) implies differentiated contributions of ageing costs to S1 and S2 indicators (positive contribution to the former and negative contribution to the latter).

## 7.10. CROATIA

### 7.10.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

According to the Commission services' 2015 autumn forecast, real GDP growth for 2015 is projected at 1.1% and should further accelerate until 2017, to 1.7%. The structural primary balance (SPB) is expected to remain broadly stable over the forecast horizon. Gross public debt is projected to continue rising, from 89.2% of GDP in 2015 to 92.9% in 2017, and represents a major source of vulnerability for the Croatian economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), the S0 indicator does not point to considerable risks and remains below the critical threshold. However, some of the fiscal and macro-financial variables, namely the primary deficit, the net international investment position and the level and the change in the share of non-performing loans point to important short-term challenges. The primary balance remains negative over the forecast period. Having peaked at close to -100% of GDP in the first quarter of 2011, the net international investment position decreased to around -90% of GDP in the course of 2013 and has remained broadly stable since then, despite the turnaround in the current account. The share of non-performing loans in total loans reached a high level of 17.3 % in June 2015.

The share of short-term debt has been decreasing, so there appears to be no major refinancing risks in the short run. Even though a large part of the public debt is denominated in non-domestic currency – mainly euros - relatively stable exchange rate due to tightly managed float of HRK to EUR by the Croatian National Bank mitigates the exposure to currency risk.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

The debt sustainability analysis (DSA) shows that, under normal economic conditions and an unchanged fiscal policy setting, public debt would increase to 96.7% of GDP by 2020 and further to 105.3 % of GDP by 2026 (last projection year). These developments are driven by the fact that the

fiscal effort underpinning this scenario (a constant SPB at -0.1% of GDP) is unlikely to be sufficient to compensate for the unfavourable snow-ball effect during the projection period. Therefore, Croatia can be considered at high risk under this baseline projection.

Given the high initial level of debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and interest rates would have a sizeable impact. Standard sensitivity tests on nominal growth and interest rates (respectively - 0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of the projection horizon around 6 to 7 pps. higher (over 110% of GDP) than in the baseline. Reflecting the size and correlation of past shocks under stochastic debt projections, there is a probability of more than 60% that the public debt ratio in 2020 would be greater than in 2015.

Under the 'SPB historical scenario', under which the SPB gradually reverts to the last 15-year historical average (a deficit of 2.2% of GDP), the debt ratio in 2026 would be 14 pps. higher than under the baseline, approaching 120% of GDP.

Overall, Croatia appears to be at high risk in the medium term based on the results of the debt sustainability analysis.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the debt sustainability analysis, allowing for an overall assessment. Based on the S1 indicator, a cumulated improvement in the SPB of 4.5 pps. of GDP, relative to the baseline would be required over 5 years starting in 2018 so as to reach the debt-to-GDP reference value of 60% by 2030. This would imply an ambitious required structural primary balance, higher than 91% of the SPBs recorded for the EU-28 countries over 1980-2015. The value of the required fiscal adjustment is driven mainly by the distance of the debt ratio to the 60% reference value (2.3 pps. of the required fiscal adjustment) and the unfavourable initial budgetary position (1.9 pps. of the required adjustment).

Challenges highlighted by the S1 indicator support the findings of the DSA and lead to the conclusion that Croatia faces a high debt sustainability risk in the medium term overall.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Croatia appears to be at low risk due to a relatively low value of the long-term sustainability gap indicator S2. The S2 indicator, calculated under the baseline scenario, suggests that a negative required fiscal adjustment (-0.8 pp. of GDP) would be consistent with the debt ratio remaining on a sustainable path over the long run. This is due to the projected decrease in age-related spending (a contribution of -2.5 pps. of GDP to the S2, driven largely by the projected decrease in pension expenditures), which offsets the unfavourable initial budgetary position.

It has to be noted that the low value for the S2 indicator comes at the cost of high risk to pension system adequacy in Croatia. The benefit ratio, i.e. the average pension benefit divided by an economy-wide average wage, is currently one of the lowest in EU, standing at 31%, and will drop further to 27 % in 2030 and 22 % in 2060.

#### 7.10.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Croatia no significant short-term risks of fiscal stress appear at the horizon, though some variables (namely the primary deficit, the net international investment position and the level and the change in the share of non-performing loans) point to important short-term challenges.

Risks appear to be high in the medium term from a debt sustainability analysis perspective, given the still high stock of debt at the end of projections (2026) and high sensitivity of the projections to shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability of more than 60% of a debt ratio in 2020 being greater than in 2015, which entails high risks given the already relatively high starting level. High medium-term risks are confirmed also by the analysis of the sustainability gap (indicator S1), again due to the high debt-to-GDP ratio and the unfavourable initial budgetary position, thus

leading to overall high risks for the country in the medium term.

In view of the projected decrease in pension spending, no sustainability risks appear in the long-run, due to decreasing ageing-related spending.

## 7.11. ITALY

### 7.11.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on Autumn 2015 Commission forecasts, Italy is expected to have a significant decrease (around 1.5 pps. of GDP) in the structural primary balance (SPB), from the recent peak of 4% of GDP in 2013 to 2.5% in 2017. Real GDP growth is expected to pick up, from 0.9% in 2015 (it was still negative, at -0.4%, in 2014) to 1.5% in 2016 and 1.4% in 2017. As a result of forecast developments, gross public debt would peak at 133% of GDP in 2015 (a 0.7 pps. increase relative to 2014), and then decrease slightly in 2016 to 132.2% of GDP, and more significantly in 2017 to 130%. Public debt would remain nonetheless very high, thus representing a major source of vulnerability for the Italian economy. The high public debt constrains the country's ability to respond to economic shocks and leaves it exposed to possible rises in sovereign yields, while the room for productive public expenditure is also limited by the considerable interest bill (4.3% of GDP in 2015).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Italy does not appear to face considerable risks of fiscal stress, as highlighted by a value of the S0 indicator below the critical threshold. Some of the fiscal variables, namely gross and net public debt and in particular gross financing needs as a percentage of GDP, do nonetheless point to possible short-term challenges.

While the size of the public debt stock is critical, the structure of public debt financing, both in terms of maturity and creditor base (residents versus non-residents), does not give rise to short-term risks. On the contrary, the share of non-performing loans in the banking sector could represent an important source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short term to medium-term sustainability challenges, a debt sustainability

analysis (DSA) for Italy shows that, under normal economic conditions, were the structural primary balance to remain unchanged at the level of the last year (no-policy change) of the Commission forecast (2017) over the post-forecast horizon, the Italian public debt would continue to decrease to below 125% of GDP in 2020 and around 110% in 2026 (last projection year). This projected reduction of around 20 pps. over a 10-year horizon would depend on the Italian SPB remaining constant at 2.5% of GDP (last forecast year value) till 2026. This might be a relatively high SPB to be maintained over 10 years (only one fifth of the SPBs recorded for all EU-28 countries over 1980-2015 is greater than this), therefore highlighting the need for strong determination in improving the fiscal stance to ensure compliance with the debt rule. The still high Italian debt ratio at the end of projections (2026), based on an assumption of unchanged fiscal policy at a relatively high SPB over an extended period of time, leads to the country being at high risk under baseline medium-term debt projections.

Given the high initial debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a sizeable impact on debt ratio developments. Indeed, standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of projections (2026) around 7 pps. higher (at 117% of GDP) than in the baseline. All in all, a very large set of jointly simulated shocks to growth, interest rates, and primary balance, reflecting the size and correlation of past shocks under stochastic debt projections, point to a 11% probability of the Italian debt ratio in 2020 being greater than in 2015 (i.e. 133% of GDP).

If convergence of the structural balance towards the medium-term objective (MTO) were respected, in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario), the Italian public debt would decrease more substantially than in baseline projections, till almost 100% of GDP in 2026 (10 pps. less than in the baseline no-fiscal policy change scenario). However, this would require a

significantly higher (1.3 pps. higher) average SPB over the projection horizon (3.8% of GDP over 2017-26) than currently forecast <sup>(203)</sup> for 2017.

All in all, having regard to the different projection scenarios and main results, Italy presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on the S1, a cumulated gradual improvement in the Italian SPB of 4.2 pps. of GDP, relative to the baseline no-fiscal policy change scenario, would be required over 5 years (starting from after forecasts till 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply an extremely ambitious required structural primary balance (such that only 1% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that), which points to high risk according to the S1 indicator due to the relatively low structural primary balance forecast for 2017. The very significant required fiscal adjustment obtained for Italy is exclusively due to the distance of the Italian debt ratio from the 60% reference value (5.1 pps. of GDP required fiscal adjustment due to this criterion), while projected age-related public spending and the initial budgetary position would have mitigating effects (-0.2 pps. and -0.7 pps. of GDP respectively).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Italy appears to be at low risk thanks to a relatively low value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB forecast for 2017 (2.5% of GDP under a no-policy change assumption) well beyond that year. The S2 indicator, calculated under a baseline no-fiscal policy change scenario,

indeed points to a negative required fiscal adjustment (-0.9 pp. of GDP), implying a sustainable path over the long run horizon. This is primarily due the favourable initial budgetary position (-0.8 pps.), and slightly positive projected developments on age-related spending (-0.1 pps., behind which are positive projected developments on pensions, given the substantial reforms implemented in this area in the past, that compensate negative developments for healthcare and long-term care).

#### 7.11.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Italy no significant short-term risks of fiscal stress appear, though some variables (gross and net debt; gross financing needs; the share and the change in the share of non-performing loans) point to possible short-term challenges.

Risks appear to be high in the medium term from a debt sustainability analysis perspective due to the still high debt at the end of projections (2026) and the high sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to an 11% probability of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting debt level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high debt-to-GDP ratio being well above the 60% Treaty reference value, thus leading to overall high risks for the country in the medium term.

No sustainability risks appear over the long run, assuming full implementation of the pension reforms adopted in the past and conditional on maintaining the government structural primary balance at a level as high as forecasted by the Commission services for 2017 (2.5% of GDP) well beyond that year.

<sup>(203)</sup> Under a no-policy change assumption.

## 7.12. LATVIA

### 7.12.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Commission 2015 autumn forecast, Latvia is expected to slightly improve its structural primary deficit from -0.8% of GDP in 2015 to -0.6% in 2017. Over the same time span, real GDP growth is foreseen to accelerate from 2.4% in 2015 to 3.3% in 2017. Given the low level of debt and small structural deficits (38.3% and 2.1% of GDP in 2015, respectively, according to the Commission forecast), Latvia doesn't appear to face sustainability challenges, conditional upon maintaining the primary balance at the level expected to be reached in 2017.

The gross public debt would decrease from 38.3% in 2015 to 37.6% of GDP in 2017 after peaking at 41.1% of GDP in 2016.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Latvia does not appear to face risks of fiscal stress, as highlighted by a value of the S0 indicator below the critical threshold. While serious risks do not appear to emerge from the fiscal side of the economy, some macro-financial indicators with higher signalling power breach the thresholds: the NIIP position, the current account as % of GDP, the net savings of households in % of GDP and the change in the nominal unit labour costs (ULC). Such flashing indicators can be read as possible signs of challenges in the short-term.

Concerning the structure of public debt, short term challenges can also stem from the larger volatility implied by the high fraction of explicit liabilities held by non-residents, which is by far over the critical threshold (80.2% against an upper threshold of 49%). Another flashing indicator, though at a lower level, is the change in share on non-performing loans held by the bank sector, which is seen as a possible source of government's contingent liabilities.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short-term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Latvia shows that, under normal economic conditions, were fiscal policy to remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Latvian public debt would continue to decrease after forecasts stabilising slightly above 33% of GDP over the last four years of projection (2023-2026). The still low Latvian debt ratio at the end of projections (2026) leads to the country being at low risk under baseline medium-term debt projections.

The overall assessment of the Latvia's DSA confirms the low risk category by also looking at debt projection results under alternative scenarios (such as the historical SPB scenario, the SGP scenario, a series of negative sensitivity tests on macro-fiscal assumptions).

Synthetic stochastic debt projection results are also brought into the picture to reach the overall risk assessment on a country's DSA, but the only flashing indicator for Latvia is the difference of 45.9 pps. of GDP between the debt ratio at the 10<sup>th</sup> and the 90<sup>th</sup> percentile in 2020, pointing to a high variance of the debt ratio projections.

All in all, having regard to the different projection scenarios and main results, Latvia presents a low risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The low Latvian debt ratio of 37.6% in 2017 confirms some fiscal space in the medium-term, as reflected in the negative S1 value (-2.1% of GDP), before the inter-temporal effects of age-related costs are taken completely into account. The safe budgetary position for Latvia is mainly due to the high distance of the Latvian debt ratio from the 60% reference value (-1.8 pps. of GDP of potential fiscal stance due to this) and, to a lesser extent, to the initial budgetary position (-0.1 pps. of GDP) and the age-related public spending (around -0.3 pps. of GDP).

The large negative value for S1 is also registered for the alternative scenarios.

All in all, the lack of challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at low risk in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

The long-term sustainability analysis shows that on the basis of the budgetary position of 2017, using the Commission 2015 autumn forecast and the projected evolution of age-related expenditure (2015 Ageing Report) Latvia has a sustainability gap (S2) of 0.9% of GDP (baseline scenario). This result reflects the initial budgetary position above the EU average (1.3 vs 0.6 pps. of GDP), whereas a long-term cost of ageing below the EU average (-0.4 vs +1.1 pps. of GDP).

Although the total age-related expenditure shows stabilisation in the long-run (-0.4 pps. of GDP), its breakdown by category reveals that the expected decline in pension expenditure, by 1.6 pps. of GDP, is offset by the increase of 1.1 pps. of GDP in the other age-related expenditures (namely, +0.4 for healthcare expenditure, +0.1 for long-term and +0.6 pps. of GDP for others).

#### 7.12.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Latvia no significant short-term risks of fiscal stress appear at the horizon, though some macro-financial indicators (such as the net international investment position and the change in the share of non-performing loans) point to possible short-term challenges.

Risks appear to be low in the medium term from a debt sustainability analysis perspective due to the low stock of debt at the end of projections (2026), even when considering possible shocks to nominal growth and interest rates. This assessment is confirmed by the analysis of the fiscal sustainability gap S1.

No sustainability risks appear over the long run thanks to the pension reforms implemented in the past.

### 7.13. LITHUANIA

#### 7.13.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Commission 2015 autumn forecast, Lithuania is expected to slightly improve its structural primary surplus from 0.4% of GDP in 2015 to 0.6% in 2017. Over the same time span, real GDP growth is set to double from 1.7% in 2015 to 3.4% in 2017. Despite the low level of debt and the limited structural deficit (42.9% and 1.2% of GDP in 2015, respectively, according to the Commission forecast), Lithuania appears to face sustainability challenges in the medium- and long-term. In particular, the long-term projections (2018-2060) show an increasing fiscal burden of the total age-related public expenditure in the first years of projections.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Lithuania does not appear to face risks of fiscal stress, as the S0 indicator is below the critical thresholds. Serious risks do not appear to emerge from both the fiscal and macro-financial side of the economy, although the negative net savings of household (-2.2% of GDP) can highlight some short term challenges.

The structure of public debt financing points to potential short-term risks in terms of greater volatility of a non-resident creditor base and in terms of the foreign currency denominated share without derivative transactions, which is still over the critical threshold (37.2% vs 29.8%). Likewise, the size of the share of non-performing loans in the banking sector could represent a source of short-term government's contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking at medium-term sustainability challenges, the debt sustainability analysis (DSA) for Lithuania shows that, under the baseline no-fiscal policy change scenario, public debt would continue to decrease to reach 40.9% of GDP in 2019. Beyond that, there is an upward trend. Debt will reach 50.1% of GDP in 2026 (last projection year), an increase of 7.0 pps. of GDP over 2015.

Risks would be higher in the event of the structural primary balance (SPB) reverting to lower levels observed in the past. Indeed, were fiscal policy to revert back to the 15-year historical average SPB (a deficit of 1.3% of GDP), the debt ratio in 2026 would be almost 20 pps. of GDP higher (about 65% of GDP) than under the baseline no-fiscal policy change projections, and still on an increasing path at the end of projections.

Overall, having regard to alternative risk scenarios (such as the historical SPB, a series of negative sensitivity test on macro-fiscal assumptions and the stochastic debt projections), the only flashing indicator for Lithuania is the peak year due to the increasing debt path at the end of the projection horizons (2026). Nevertheless, the debt ratio level would remain below the 60% of GDP threshold in all the alternative scenarios except for the historical one.

All in all, having regard to the different DSA projection scenarios and main results, Lithuania presents a low sustainability risk in the medium-term from a DSA perspective, given the relatively moderate level of public debt.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges.

Based on S1, a cumulated gradual improvement in the Lithuanian SPB of 0.5 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required over 5 years (until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This adjustment is mainly due to an unfavourable projected age-related expenditure up to 2022 (1.5% of GDP) and to a lesser extent to the initial budgetary position, which also implies a small adjustment (for 0.2% of GDP). On the other hand, there is a favourable contribution by the debt requirement (responsible for -1.1% of GDP required fiscal adjustment).

The required adjustment measured by S1 would even reach an extraordinary amount of 4.2% of

GDP if the structural primary balance was set according to the historical SPB scenario.

Despite the low risk implied by the DSA results, challenges highlighted by the S1 indicator lead to the country being at medium risk of sustainability in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Lithuania is at medium risk as shown by the value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a required fiscal adjustment of 2.9% of GDP to ensure sustainability of public finances over the long run. This is primarily due to the strong projected impact of age-related public spending; with pensions accounting for 1.2 pps. of GDP required fiscal adjustment, and health care, long term care and other factors for an additional 1.7 pps. required adjustment. The initial budgetary position also contributes (0.1 pps. of GDP) to a positive required adjustment. Projected implicit liabilities related to the cost of ageing reflect the long-term challenges faced by Lithuania in terms of an ageing population. The steep increase in projected age-related expenditure is driven in particular by pension expenditure. Healthcare and long-term care expenditures have a deteriorating effect as well. Reducing the projected age-related spending growth through reforms would improve fiscal sustainability over the long-term.

Risks would increase in alternative scenarios when non-age-related components of health care and long-term care are duly considered (such as in the AWG risk scenario) or when reverting to historical SPB, which would require even higher fiscal efforts. As a consequence, the size of the required structural balances (the sum of the initial SPB in 2017 and S2) would be unrealistically high in both alternative scenarios, confirming the medium risk evaluation for the long-term horizon.

#### 7.13.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, Lithuania presents no significant risks of fiscal stress over the short run. Nevertheless, a few macro-financial indicators (such as the share of non-performing loans) show possible challenges.

Low risks appear, likewise, in the medium term from a debt sustainability analysis perspective, given the relatively moderate level of public debt. Medium risks over the medium-term, on the contrary, emerge from the analysis of the sustainability gap indicator S1, due to the unfavourable projected cost of ageing. Such risks would substantially increase if the structural primary balance was reverting to lower levels as in the past. Hence, the country is deemed to be at medium risk in the medium-term.

Medium sustainability risks also appear for Lithuania over the long run. These risks are primarily related to the strong projected impact of age-related public spending (notably pensions and to a lesser extent healthcare and long-term care).

## 7.14. LUXEMBOURG

### 7.14.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the structural primary balance (SPB) in Luxembourg is expected to remain strong, with a surplus of 1.3% of GDP in 2017 (up from 1.1% of GDP in 2015). Real GDP is expected to keep expanding at a robust rate of around 3% each year. The ratio of gross public debt to GDP will nevertheless increase throughout the forecast period, due to substantial positive stock-flow adjustments. However, with a level of 23.5% of GDP in 2017 (against 22.3% of GDP in 2015), it will remain low by European standards.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Luxembourg does not appear to face risks of fiscal stress, as reflected by the S0 indicator and the two S0 sub-indices being below the critical thresholds. Nonetheless, some variables point to possible short-term challenges (such as the high level of private debt). However, overall, serious short-term risks do not appear to emerge from the fiscal, nor the macro-financial sides of the economy.

The structure of public debt, in terms of maturity, creditors' base and currency denomination, does not give rise to short-term risks. However, the increase in the share of non-performing loans in the banking sector could potentially trigger some contingent liabilities. Moreover, given the size of the banking sector, simulation results from SYMBOL suggest that the probability of significant contingent liabilities arising from the banking sector is currently non-negligible (above the threshold signalling medium risk).

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

With regard to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Luxembourg shows that, assuming normal economic conditions, and a fiscal stance that remains unchanged after 2017, the last year of the Commission forecast (as in the baseline no-fiscal policy change scenario), Luxembourg public debt

would decrease steadily after forecast period, to 18.7% of GDP in 2020, and on to 13.6% of GDP in 2026 (the last projection year). This projected decrease of around 10 pps. of GDP over a 10-year horizon is largely driven by the SPB, remaining constant at +1.3% of GDP (before costs of ageing) in the baseline no-fiscal policy change scenario. However, increasing ageing costs throughout the period would mitigate the projected decrease. With a projected debt ratio in 2026, well below 60% of GDP, Luxembourg can be considered at low risk based on the medium-term debt sustainability analysis.

The case for low risk classification is strengthened by considering sensitivity tests and accounting for Luxembourg's average historical fiscal stance. Indeed, in the case of negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates, or of fiscal slippages, the debt ratio would be only moderately higher in 2026. The three deterministic sensitivity tests (applying either -0.5 pps. on nominal growth, +1 pp. on interest rates on new and rolled over debt from 2016 onwards, or a negative shock to the PB equal to half of the forecasted cumulated change over 2016-2017) would entail the debt ratio to reach a level around 14-15% of GDP in 2026.

Moreover, were fiscal policy to gradually revert to its historical behaviour (with the SPB gradually reverting to the last 15-year historical average, a *surplus* of 1.8% of GDP, as in the SPB historical scenario), the debt ratio would stand at less than 10% of GDP in 2026.

All in all, having regard to the different projection scenarios and main results, Luxembourg faces a low risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

With a sustainability gap indicator S1 value of -4.4 pps. of GDP, relative to the baseline no-fiscal policy change scenario, Luxembourg would not need to consolidate over the next five-years in order to reach the reference value of 60% of GDP in 2030 (in fact, this negative value indicates that there is room for deconsolidation). This indicates a low risk to fiscal sustainability in the medium term, from an S1 perspective. This result is driven

by the favourable level of public debt at the last forecast year (contribution of -3.2 pps. of GDP of the debt requirement component), as well as the relatively robust SPB level in 2017 (implying negative contribution of the initial budgetary position component), while ageing costs contribute positively to the S1 indicator (+1.1 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as the DSA, lead to the country being overall at low risk in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Luxembourg faces a medium risk to fiscal sustainability due to the relatively sizeable value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB (before ageing costs) forecasted for 2017 (at +1.3% of GDP) well beyond that year. Indeed, the S2 value, at +4.2 pps. of GDP, points to a substantial required fiscal adjustment. This necessary budgetary improvement is entirely due to the need to meet future increases in ageing costs (contribution of 4.8 pps. of GDP to S2), while the initial budgetary position has a mitigating effect (-0.6 pps. of GDP). This projected increase of ageing-related expenditure is greatly driven by pension spending (2.9 pps. of GDP), and to a lesser extent by long-term care expenditure (1.3 pps. of GDP). Moreover, given the high level of SPB at the last forecast year (2017), the associated required structural primary balance to ensure that public debt is not on an ever-increasing long-term path, would be very ambitious (with an associated percentile rank of 3%).

Under a more adverse scenario in the healthcare and long-term care areas (with non-demographic drivers pushing upward costs), the S2 indicator would be substantially increased (to a level close to the critical threshold associated to high risk).

#### 7.14.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Luxembourg no significant short-term risks of fiscal stress appear at the horizon, although some variables (such as the high level of private debt and the increase in the share of non-performing loans) point to possible short-term challenges.

Risks appear to be low in the medium-term from a debt sustainability analysis perspective due to the low stock of debt at the end of projections (2026), including taking into account the sensitivity to possible macro-fiscal shocks. The medium-term risks captured from the analysis of the sustainability gap indicator S1 also highlight low fiscal risks, due to the level of debt being well below 60% of GDP and to the favourable initial budgetary position.

However, over the long run, Luxembourg faces medium risks to fiscal sustainability. These risks are entirely driven by the necessity to meet future increases in ageing costs (notably pension and long-term care expenditures).

## 7.15. HUNGARY

### 7.15.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the structural primary balance (SPB) in Hungary is expected to decrease from a surplus of 1.2% in 2015 to 0.9% in 2017. Over the same period, real GDP growth is expected to slow down from 2.9% in 2015 to 2.5% in 2017. Gross public debt, at almost 76% of GDP in 2015, is forecast to go down to 74.5% of GDP in 2016, and 72.6% in 2017. Despite the projected decrease, the level of the debt ratio would remain above the 60% Treaty reference value and would represent a potential source of vulnerability for the Hungarian economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Hungary does not appear to face significant risks of fiscal stress, based on the S0 indicator. Among the variables incorporated in S0, net public debt and the net international investment position as percentage of GDP point to possible short-term challenges, but, overall, short-term risks do not appear to emerge.

In terms of structure of public debt financing, the share of debt owned by non-residents, as well as the share issued in a foreign currency, could be potential sources of short-term vulnerability, especially in the presence of exchange rate volatility. Due to the conversion of almost all foreign exchange retail loans (its share declined from well over 50% to close to zero since early 2015) and the increased role of residents in sovereign financing (the foreign exchange component in public debt has been reduced from 40% to 34% since Q3 2014), the exposure to currency fluctuations has nonetheless been substantially decreased. The relatively high share of non-performing loans in the banking sector could potentially be a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

With regard to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Hungary shows that, assuming normal economic conditions, and a fiscal stance that remains unchanged after 2017, the last year of Commission forecast (as in the baseline no-fiscal policy change scenario), Hungary's public debt would continue to decrease to below 70% of GDP in 2020, but still remaining just above the Treaty reference value in 2026 (last projection year). This projected reduction of almost 13 pps. over a 10-year projection horizon would depend on the SPB remaining constant at approximately 0.9% of GDP (the last forecast year value) till 2026.

If adverse shocks to nominal growth, interest rates, or fiscal slippages were to occur (in the size of a -0.5 pps. on growth, +1 pp. on interest rates on new and rolled over debt from 2016 onwards, or a negative shock to the PB equal to half of the forecasted cumulative change over 2016-17), the debt ratio would be till 5 pps. higher (at 61-65 % of GDP, depending on the scenario under examination, thus further away from the 60% reference value), at the end of projections (in 2026).

All in all, having regard to the different projection scenarios and main results, Hungary appears to face a medium risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections, allowing for an overall conclusion on medium-term sustainability challenges. Based on S1 (a -0.6 pps. of GDP cumulated adjustment over 5 years required to reach the 60% of GDP debt target by 2030), Hungary would not appear to face risks in the medium-term. This is largely due to the positive projected developments on age-related public spending (-1 pp. of GDP), which contribute to decreasing the required fiscal adjustment, and to a smaller extent to the initial budgetary position (-0.6 pps. of GDP). On the contrary, the distance of the debt ratio from the 60% Treaty reference value contributes to increasing the required fiscal

adjustment (0.9 pps. of GDP), thus confirming DSA results.

Overall, Hungary appears to be at medium risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Hungary faces a low risk to fiscal sustainability thanks to a relatively low value of the long-term sustainability gap indicator S2 (a required fiscal adjustment of 1.5 pps. of GDP). This is mostly due to the adjustment required by the projected cost of ageing developments over the long run (a 1 pp. of GDP required adjustment, mainly determined by projected public spending on health care and long-term care).

#### 7.15.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Hungary no significant short-term risks of fiscal stress appear at the horizon, though some variables (share of debt denominated in a foreign currency; share of debt owned by foreign investors; share of non-performing loans in the banking sector) point to possible short-term challenges.

Medium risks appear, on the contrary, in the medium term from a debt sustainability analysis perspective due to the still moderately high stock of debt at the end of projections (2026), and the sensitivity to possible shocks to nominal growth, interest rates and the government primary balance. Low medium-term risks are, on the contrary, highlighted by the analysis of the sustainability gap indicator S1, largely due to positive projected developments on ageing. Overall, Hungary appears to face medium fiscal sustainability risks in the medium term.

No sustainability risks appear over the long run.

## 7.16. MALTA

### 7.16.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on Autumn 2015 Commission forecasts, Malta is expected to show an increase in the structural primary balance (SPB), from 0.6% of GDP in 2015 to 0.8% in 2017. Over the same time span, real GDP growth is expected to decrease from 4.3% in 2015 (it was 3.5%, in 2014) to 3.1% in 2017. As a result of the forecasted development the gross public debt, which in 2015 is at 65.9% of GDP, is expected to further reduce and reach 61.0% in 2017.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Malta does not appear to face significant risks of fiscal stress arising from the fiscal, nor the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. The structure of public debt financing, both in terms of maturity, creditor base (residents versus non-residents) and currency denomination, does not give rise to short-term risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond the short term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Malta shows that, under normal economic conditions and fiscal policy unchanged at a structural primary deficit of around 0.8% of GDP as of last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Maltese public debt would continue to decrease. The debt to GDP ratio is indeed projected to be below the critical threshold of 60% already in 2018 (59.2%) and around 54.9% in 2026 (last projection year). This projected reduction of around 10 pps. over a 10-year horizon would depend on the Maltese SPB remaining constant at 0.8% of GDP (last forecast year value) till 2026. Indeed, when reverting to historical SPB values (-0.6% based on a 15 years average), the debt to GDP ratio is confirmed to be on a slightly decreasing path but will remain above the 60% threshold (62%) at the end of the projection horizon.

On the contrary, further improvements may be achieved if convergence of the structural balance towards the medium-term objective (MTO) was respected, in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario). The Maltese public debt would decrease more substantially than in baseline projections, till almost 40% of GDP in 2026 (around 14 pps. less than in the baseline no-fiscal policy change scenario). This would require a significantly higher (1 pp. higher) average SPB over the projection horizon (1.8% of GDP over 2017-26) than currently forecasted for 2017.

Decreasing trends in the debt to GDP ratio have been projected under alternative scenarios. Given the initial stock of debt being close to the 60% threshold, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a small impact on the debt ratio. Standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio that is only 2 or 3 pps. higher than in the baseline (i.e. a debt to GDP of about 58%) in the last year of projections (2026). Evidence in favour of a decreasing trend of the debt to GDP ratio is also the result of the stochastic simulations calculation. When a very large set of jointly simulated shocks to growth, interest rates and the primary balance, are considered all together (reflecting the size and correlation of past shocks) the probability of getting to a debt to GDP ratio in 2020 that is higher than the value of 2015 is well below the 50% (29%).

All in all, having regard to the different projection scenarios and main results, Malta presents a low risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. The S1 indicator indicates the improvement in the SPB relative to the baseline no-fiscal policy change scenario that would be required over 5 years (starting from after

forecasts till 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. Given the fact that the Maltese debt to GDP ratio is projected to be well below the 60% threshold, S1 is negative (-0.2 pps. of GDP) indicating that no sustainability risks is foreseen in the medium-term. When the analysis focuses on the sub-components it is evident that the initial budgetary position (-1.0 pp. of GDP) more than compensate the pressure on expenditure coming from age related expenditures.

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at low risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Malta is, on the contrary, at medium risk due to a relatively high value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB forecasted for 2017 (0.8% of GDP) well beyond that year. The S2 indicator, calculated under a baseline no-fiscal policy change scenario, indeed points to a positive required fiscal adjustment (4.6 pps. of GDP), to put the debt on a sustainable path over the long-term. Projected implicit liabilities related to the cost of ageing reflect the long-term challenges faced by Malta in terms of an ageing population. The steep increase in projected age-related expenditure is related in particular to pension expenditure (1.9 pps. of GDP) and also healthcare and long-term care expenditure (1.5 pps. and 0.9 pps. respectively). Reducing the projected age-related spending increases through reforms would improve fiscal sustainability over the long-term.

#### 7.16.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Malta no significant short-term risks of fiscal stress appear at the horizon though some variables point to possible short-term challenges.

No sustainability risks appear over the medium run from a debt sustainability analysis perspective, in line with a moderate level of public debt (and decreasing over the projection horizon). This assessment is confirmed by the analysis of the sustainability gap indicator S1, although higher risks could arise if the structural primary balance

was reverting to lower values, as experienced in the past.

Medium sustainability risks appear for Malta over the long run. These risks are entirely related to the strong projected impact of age-related public spending (notably pensions, healthcare and long-term care).

## 7.17. THE NETHERLANDS

### 7.17.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Commission 2015 autumn forecast, the Netherlands is expected to slightly deteriorate its structural primary balance from +0.3% of GDP in 2015 to -0.4% in 2017. Over the same time span, real GDP growth is foreseen to pick up, from 2.0% in 2015 to 2.3% in 2017.

The debt ratio is above the 60% of GDP Treaty threshold, but it is expected on a downward path between 2015 and 2017 from 68.6% of GDP to 66.9% of GDP, mainly driven by the negative snowball effect.

Given the low level of the debt ratio, the Netherlands doesn't appear to face strong sustainability challenges even with the structural primary balance deteriorating to slightly negative values, but possible sources of risks can stem from the age-related expenditure in the long-term.

#### Short-term fiscal sustainability challenges

Over the short-term (within the year), the Netherlands does not appear to face risks of fiscal stress, as highlighted by a value of the S0 indicator and its sub-indexes below the critical thresholds. Nonetheless, on the macro-financial side, some individual variables included in the S0 composite indicator are above the critical values and can indicate risks stemming from an excessive indebtedness of the private sector, such as the private debt in % of GDP, the short-term debt of both households and non-financial corporations as % of GDP.

The analysis of the structure of public debt financing highlights potential short-term risks in terms of greater volatility of a non-resident creditor base.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short-term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for the Netherlands shows that, under normal economic conditions, were fiscal

policy to remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Netherlands' public debt would continue to decrease up to 62.5% of GDP in 2024 and then stabilize until 2026 (last projection year). This stabilisation would depend on the SPB remaining constant at -0.4% of GDP (last forecast year value) till 2026 along with a small positive cost of ageing. However, breaching the 60% of GDP at the end of projections (2026), leads to the country being at medium risk under the baseline medium-term debt projections.

The overall assessment of the Netherlands' DSA confirms the medium risk category by also looking at the debt projection results under alternative scenarios (such as the historical SPB scenario, the SGP scenario, a series of negative sensitivity tests on macro-fiscal assumptions). Synthetic stochastic debt projection results are also brought into the picture but do not reveal further risks.

All in all, having regard to the different projection scenarios and main results, the Netherlands presents a medium risk of fiscal sustainability in the medium-term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

Based on the S1 indicator, a cumulated gradual improvement in the Netherlands' SPB of 0.6% of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required over the next 5 years (until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. The country is therefore at medium risk according to the S1 indicator. The required fiscal adjustment is due to the compound effect of the distance of the debt ratio from the 60% reference value (responsible for 0.5 pps. of GDP required fiscal adjustment) and of the initial budgetary position (0.4 pps. of GDP of required adjustment), while the projected age-related public spending reduces the total required adjustment by 0.3 pps. of GDP.

All in all, the lack of significant challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at medium risk of sustainability in the medium-term.

### Long-term fiscal sustainability challenges: S2 indicator

The long-term sustainability analysis shows that on the basis of the budgetary position of 2017, using the 2015 Commission Services' Autumn forecast and the projected increase in age-related expenditure (2015 Ageing Report), the Netherlands has a sustainability gap (S2) of 4.5% of GDP (baseline scenario).

The initial budgetary position contributes to a positive required adjustment for 2.3 pps. of GDP due to the relatively low level of the initial primary balance.

Concerning the impact of age-related public spending (responsible for 2.3 pps. of GDP of required adjustment), pensions accounts for only 0.1 pps. of GDP required fiscal adjustment, while healthcare and long term care for an additional 3.4 pps. required adjustment. Projected implicit liabilities related to the cost of ageing reflect the long-term challenges faced by the Netherlands in terms of an ageing population. The steep increase in projected age-related expenditure is related in particular to the long-term care component (responsible for 2.7 pps. of GDP required adjustment), that represents an area worth of further policy reform so to improve fiscal sustainability over the long-term.

### 7.17.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for the Netherlands no significant short-term risks of fiscal stress appear at the horizon, though some indicators point to possible short-term challenges, notably stemming from an excessive indebtedness of the private sector.

Risks appear to be medium in the medium-term from a debt sustainability analysis perspective due to the still relatively high level of public debt at the end of projections (2026). This assessment is confirmed by the analysis of the sustainability gap indicator S1, which points to medium risks driven by the gap to the 60% of GDP Treaty requirement, and the relatively unfavourable initial budgetary position.

Sustainability risks appear medium also over the long run due to the projected increase of ageing-

related expenditures (notably, long-term care), and to an unfavourable initial budgetary position.

## 7.18. AUSTRIA

### 7.18.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Commission 2015 autumn forecast, Austria is expected to slightly deteriorate its structural primary surplus from 1.8% of GDP in 2015 to 1.0% in 2017. Over the same time span, real GDP growth is estimated to accelerate from 0.6% in 2015 to 1.4% in 2017.

The debt ratio is above the 60% of GDP Treaty threshold, but it is expected to be on a downward path between 2015 and 2017, going from 86.6% of GDP to 84.3% of GDP.<sup>(204)</sup>

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Austria does not appear to face risks of fiscal stress, as highlighted by the S0 indicator and its sub-indexes below the critical thresholds. There is only one relevant flashing indicator among the financial-competitiveness variables used in the S0 indicator (the short-term debt of households in percentage of GDP) but its amount is only slightly above the critical threshold (3.9% vs 3.5% of GDP).

The analysis of the structure of public debt financing highlights potential short-term challenges in terms of greater volatility of a non-resident creditor base. Likewise, the change in share of non-performing loans for the banking sector could represent a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short-term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Austria shows that, under normal economic conditions, were fiscal policy to

remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Austrian public debt would continue to decrease after forecasts by more than 10 pps. of GDP to reach 72.5% of GDP in 2026 (last projection year). The relatively high level of the debt ratio at the end of projections (2026) leads to the country being at medium risk under the baseline medium-term debt projections.

The risk of an upward debt trajectory triggered by potential shocks to nominal growth and interest rates, confirm medium risks for Austria under a series of alternative scenarios.

If, on the contrary, the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), the Austrian public debt would decrease much more substantially than in baseline projections, to around 65% of GDP in 2026 (almost 7 pps. less than in the baseline no-fiscal policy change scenario). This however would require a higher (0.7 pps. of difference) average SPB over the projection horizon (i.e. 1.7% of GDP over 2017-26) than currently forecasted for 2017.

All in all, having regard to the different projection scenarios and main results, Austria presents a medium risk in the medium-term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on S1, a cumulated gradual improvement in the Austrian SPB of 1.3 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required over the next 5 years (until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This adjustment is mainly due to an unfavourable debt requirement (responsible for 1.9 pps. of GDP required fiscal adjustment) and to a

<sup>(204)</sup> A considerable part of debt increase in recent year was due to the inclusion of financial defeasance structures into government accounts, following the application of ESA2010 methodology. It can be seen in the stock-flow adjustment (SFA) contributions to public debt changes in 2014 and 2015. This particular form of public debt is expected to reduce as corresponding impaired assets are divested. Nevertheless projections set SFA to 0 since 2016 for prudential reasons.

lesser extent to a positive age-related expenditure up to 2022 (0.5 pps. of GDP), which counteract the negative contribution by the initial budgetary position (-1.0 pp. of GDP including the cost of delay).

Potential upside risks can be seen in case the structural primary balance were to revert back to the 15-year historical average (historical scenario) or under a more costly scenario in the healthcare and long-term care (AWG risk scenario). In both cases, the amount of the required structural primary balance to stabilise the debt to GDP ratio over the long term would be so high that less than 20 per cent of the other EU countries would have a higher SPB.

Overall, challenges highlighted jointly by the S1 indicator and the DSA, lead to the country being at medium risk of sustainability in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Austria is at medium risk of sustainability as shown by the value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, indeed, points to a required fiscal adjustment of 2.7% of GDP to ensure sustainability of public finances over the long run. This is primarily due to the strong projected impact of age-related public spending (2.4 pps. of GDP), among which pensions account for only 0.5 pps. of GDP required fiscal adjustment, while health care and long-term care represent an additional 1.9 pps. of GDP required adjustment. The initial budgetary position also contributes (for 0.2 pps. of GDP) to a positive required adjustment.

Projected implicit liabilities related to the cost of ageing reflect the long-term challenges faced by Austria in terms of an ageing population. The steep increase in projected age-related expenditure is driven in particular by health and long-term care expenditures, but pension expenditure has a deteriorating effect as well. Thus, reducing the projected age-related spending would improve the Austria's fiscal sustainability over the long-term.

#### 7.18.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Austria no significant short-term risks of fiscal stress appear at the horizon though some variables (such as the change in the share of non-performing loans) point to possible short-term challenges.

Risks appear, on the contrary, medium in the medium term from a debt sustainability analysis perspective, due to the still relatively high stock of debt at the end of projections (2026). Medium risks also emerge from the analysis of the sustainability gap indicator S1, due to the gap to the 60% of GDP Treaty reference value and the unfavourable projected cost of ageing, thus leading to overall medium risk for the country in the medium-term.

Medium sustainability risks also appear for Austria over the long-run. These are primarily related to the strong projected impact of age-related public spending (mainly healthcare and long-term care, but pension spending trend is above the EU average as well).

## 7.19. POLAND

### 7.19.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the structural primary balance (SPB) in Poland is expected to slightly deteriorate, from a *deficit* of 1.2% of GDP in 2015 to a *deficit* of 1.3% of GDP in 2017. Real GDP is expected to keep expanding at a robust rate of 3.5% each year. As a result of these forecasted developments, the ratio of gross public debt to GDP will increase steadily, by about 1 pp. of GDP each year, from 2015 to 2017. In 2017, it would reach 53.5% of GDP, against 51.4% of GDP in 2015. Despite this increase, the debt ratio will remain relatively moderate compared to other EU Member states.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Poland does not appear to face considerable risks of fiscal stress, as reflected by the S0 indicator and the two S0 sub-indices being below the critical thresholds. Nonetheless, some variables point to possible short-term challenges (such as the current primary deficit, at -0.9 % of GDP, and the large negative net international investment position). However, overall, serious short-term risks do not appear to emerge from the fiscal, nor the macro-financial sides of the economy.

The structure of public debt presents some potential risks. With about half of its public debt held by non-residents and a large share issued in foreign currency, the country is exposed to changes in foreign investors' perceptions, as well as exchange rate risk. Additionally, the relatively high share of non-performing loans in the banking sector could potentially trigger some contingent liabilities. However, simulation results from SYMBOL suggest that the probability of significant contingent liabilities arising from the banking sector is currently low.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

With regard to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Poland shows that, assuming normal economic

conditions, and a fiscal stance that remains unchanged after 2017, the last year of the Commission forecast (as in the baseline no-fiscal policy change scenario), the Polish public debt would continue to increase steadily after forecast period, to 55% of GDP in 2020, and on to 62.5% of GDP in 2026 (the last projection year). This projected increase of around 11 pps. of GDP over a 10-year horizon is largely driven by the SPB, remaining constant at -1.3% of GDP (before costs of ageing) in the baseline no-fiscal policy change scenario. The contribution of increasing ageing costs is more moderate. With a projected debt ratio in 2026, standing above 60% and increasing throughout the entire projection period, Poland can be considered at medium risk based on the medium-term debt sustainability analysis.

The case for medium risk classification is strengthened by considering sensitivity tests and accounting for Poland's average historical fiscal stance. Indeed, in the case of negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates, or of fiscal slippages, the debt ratio would be even higher in 2026. The three deterministic sensitivity tests (applying either -0.5 pps. on nominal growth, +1 pp. on interest rates on new and rolled over debt from 2016 onwards, or a negative shock to the PB equal to half of the forecasted cumulated change over 2016-2017) would entail the debt ratio to reach a level in the range of 63-66% of GDP in 2026.

Moreover, were fiscal policy to gradually revert to its historical behaviour (with the SPB gradually reverting to the last 15-year historical average, a *deficit* of 1.8% of GDP, as in the SPB historical scenario), the debt ratio would stand at around 66% of GDP in 2026.

If, on the contrary, the structural balance was to converge to the medium-term objective (MTO), in compliance with the preventive arm of the Stability and Growth Pact (SGP), and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario), Poland's public debt would decrease to around 45% of GDP in 2026 (which is approximately 17 pps. of GDP below the level in the baseline no-fiscal policy change scenario). This outcome would require a steady improvement in the structural primary balance and a significantly

higher (+1.7 pps. of GDP higher) average SPB over the projection horizon (at +0.4% of GDP over 2017-26) than currently forecasted for 2017. This target, although ambitious compared to other fiscal scenarios, appears plausible based on European standards, being very close to the EU28 median SPB over the period 1980-2015.

All in all, having regard to the different projection scenarios and main results, Poland faces a medium risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

With a sustainability gap indicator S1 value of 1 pp. of GDP, Poland's current fiscal stance, as measured by the SPB in the baseline no-fiscal policy change scenario, would need to be adjusted moderately during the next 5 years in order to reach the reference value of 60% of GDP in 2030. This indicates a medium risk to fiscal sustainability in the medium term, from an S1 perspective. This moderate required fiscal adjustment is mainly driven by the unfavourable initial budgetary position (causing a need for 1.2 pps. of GDP adjustment), and to a lesser extent, to the projected increase in age-related public spending (0.2 pps. of GDP). On the contrary, with a current debt ratio lying below 60% of GDP, the debt requirement component has a mitigating effect on the required fiscal adjustment (-0.5 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as the DSA, lead to the country being overall at medium risk in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Poland faces a medium risk to fiscal sustainability due to the relatively sizeable value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB (before ageing costs) forecasted for 2017 (at -1.3% of GDP) well beyond that year. Indeed, the S2 value, at 3.5 pps. of GDP, points to a substantial required fiscal adjustment. A large proportion of the necessary budgetary improvement (2.4 pps. of GDP) is due to the need to close the initial budgetary position. An expected increase in the costs of ageing also entails 1.1 pps. of GDP

additional consolidation. This projected increase of ageing-related expenditure is entirely driven by healthcare and long-term care spending (while other ageing cost items have a mitigating effect). Moreover, under a more adverse scenario in the healthcare and long-term care areas (with non-demographic drivers pushing upward costs), the S2 indicator would be substantially increased. In this case, the required structural primary balance, to ensure that public debt is not on an ever-increasing long-term path, would be quite ambitious (with an associated percentile rank of 12%).

#### 7.19.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Poland no significant short-term risks of fiscal stress appear at the horizon, although some variables (such as the current primary balance, the share of debt held by foreign investors and the share of debt issued in foreign currency) point to possible short-term challenges.

Risks appear to be medium in the medium-term from a debt sustainability analysis perspective due to the moderately high stock of debt at the end of projections (2026) and to the sensitivity to possible macroeconomic shocks. The medium-term risks captured from the analysis of the sustainability gap indicator S1 also highlight medium fiscal risks, due, in order of importance, to the unfavourable initial budgetary position and the projected impact of age-related spending.

Over the long run, Poland faces medium risks to fiscal sustainability. These risks are largely due to an unfavourable initial budgetary position, but also to the necessity to meet future increases in ageing costs (notably healthcare and long-term care).

## 7.20. PORTUGAL

### 7.20.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on Autumn 2015 Commission forecasts, Portugal is expected to have a significant decrease (more than 1 pp. of GDP) in the structural primary balance (SPB), from 3.1% of GDP in 2015 to 1.9% in 2017<sup>(205)</sup>. Over the same time interval, real GDP growth is supposed to be stable at 1.7% both in 2015 and 2016 while a slight increase to 1.8% is expected in 2017. Despite the reduction in the structural primary surplus, the gross public debt is expected to revert its trend and decrease to 128.2% of GDP in 2015 (after the peak at 130.2 in 2014). Further improvements are then expected by 2017, with the debt to GDP ratio reaching 121.3%. The high stock of debt constrains the country's ability to respond to economic shocks and makes it more vulnerable to possible rises in sovereign yields, while the room for productive public expenditure is also limited by the considerable interest bill (4.9% of GDP in 2015).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Portugal does not appear to face considerable risks of fiscal stress, as highlighted by a value of the S0 indicator below the critical threshold. Nonetheless, some of the fiscal variables, namely gross and net public debt and gross financing needs as a percentage of GDP, and of the macro-financial variables (the net international investment position and the net household savings as a percentage of GDP) do point to possible short-term challenges. The level and the change in the share of non-performing loans in the banking sector may represent a source of short-term contingent liability risks. Overall, serious risks do not appear to emerge from the fiscal, nor the macro-financial sides of the economy.

The analysis of the structure of the public debt highlights potential short term risks due to the maturity structure and the creditor base (residential

versus non-residential) structure of the public debt financing. Both the change and the level of the share of non-performing loans in the banking sector represent an important source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Portugal shows that, under normal economic conditions, were fiscal policy to remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon, the Portuguese public debt would continue to decrease after forecasts to below 120% of GDP in 2020 and around 111% in 2026 (last projection year). This projected reduction of around 17 pps. over a 10-year horizon would depend on the Portuguese SPB remaining constant at 1.9% of GDP (last forecast year value) till 2026. This might be a relatively high target to be maintained over 10 years (only one fourth of the SPBs recorded for all EU-28 countries over 1980-2015 is greater than this), therefore highlighting the need for strong determination in avoiding slippages in the fiscal stance. Indeed, if the SPB was to revert to historical values (-1.1% based on a 15 years average), the debt to GDP ratio would show no improvement. It would reach a value of 128.3% by 2026, almost in line with the current figure.

The still high Portuguese debt ratio at the end of projections (2026), based on an assumption of unchanged fiscal policy at a relatively high SPB over an extended period of time, leads to the country being at high risk under baseline medium-term debt projections.

Given the high initial stock of debt, negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a sizeable impact on the debt ratio. Indeed, standard negative sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of projections (2026) that is almost 6 pps. higher (at almost 117% of GDP) than in the baseline. When, as in the case of stochastic simulations, shocks on the previously mentioned variables are jointly simulated (reflecting the size

<sup>(205)</sup> Due to the absence of a fully-fledged Draft Budgetary Plan for 2016 at the autumn forecast cut-off-date of 22 October 2015, the fiscal projections for both 2016 and 2017 were done on the basis of the no-policy change assumption.

and correlation of past shocks), a 28% probability of the Portuguese debt ratio in 2020 being greater than in 2015 is obtained. This confirms that a decreasing trend is likely to be projected but entails risks given the very high starting level.

If convergence of the structural balance towards the medium-term objective (MTO) was respected, in compliance with the Stability and Growth Pact (as in the SGP scenario), the Portuguese public debt would decrease more substantially than in baseline projections. It would be less than 100% of GDP in 2026 (97%, 15 pps. less than in the baseline no-fiscal policy change scenario) but to reach the result a higher SPB (1.6 pps. higher) over the projection horizon (at 3.5% of GDP over 2017-26) would be required compared to the currently forecasted for 2017.

Having regard to the different projection scenarios and main results, Portugal presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on the S1, a cumulated gradual improvement in the Portuguese SPB of 4.7 pps. of GDP, relative to the baseline no-fiscal policy change scenario, would be required over 5 years (starting from after forecasts till 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply an extremely ambitious required structural primary balance (such that only 1% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that), which points to high risk according to the S1 indicator. The very significant required fiscal adjustment is mostly due to the distance of the Portuguese debt ratio from the 60% reference value (4.4 pps. of GDP due to debt requirement). The debt requirement is just slightly compensated by the initial budgetary position (-0.5 pps. of GDP) reflecting the surplus in the SPB.

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Portugal is, on the contrary, at low risk due to a relatively low value of the long-term sustainability gap indicator S2, conditional on maintaining the SPB forecasted for 2017 (1.9% of GDP) well beyond that year. The S2 indicator indeed points to a small required fiscal adjustment (0.7 pps. of GDP), to put the debt on a sustainable path over the long-term. The adjustment depends on both the initial budgetary position (0.2 pps. of GDP) and on the cost of ageing (0.5 pps. of GDP). Health expenditure is the ageing cost component that would put some pressure on the sustainability of public finances, while recently legislated reforms in the pension sector appear successful in keeping expenditure on a sustainable path.

#### 7.20.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Portugal no significant short-term risks of fiscal stress appear at the horizon, though some variables (namely gross and net public debt, gross financing needs, the net international investment position, as well as the level and the change in the share of non-performing loans) point to possible short-term challenges.

Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still high stock of debt at the end of projections (2026) and the high sensitivity to possible shocks to nominal growth and interest rates. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability close to 30% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, again due to the high initial debt-to-GDP ratio, thus leading to overall high risks for the country in the medium term.

No sustainability risks appear over the long run thanks to the pension reforms implemented in the past and conditional on maintaining the government structural primary balance at a level as high as forecasted by the Commission services for 2017 (close to 2% of GDP) well beyond that year.

## 7.21. ROMANIA

### 7.21.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, <sup>(206)</sup> Romania's structural primary balance (SPB) is expected to move from a surplus of around 0.8% of GDP in 2015 to a deficit of around 2.3% in 2017. Over the same period, real GDP growth is expected to pick up from 3.5% in 2015 (it was 2.8% in 2014) to 4.1% in 2016, and return to 3.6% in 2017. As a result, gross public debt would continue to rise from just above 39% of GDP in 2015 to almost 43% of GDP in 2017 (a 3 pps. increase relative to 2014).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Romania does not appear to face significant risks of fiscal stress arising from either the fiscal, or the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. One of the macro-financial variables, namely the net international investment position points to possible short-term challenges.

Nevertheless, the analysis of the structure of public debt financing highlights some short-term risks in terms of foreign currency denomination and non-resident creditor base, but does not raise concerns regarding the maturity structure. Moreover, the share of non-performing loans could represent a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Romania shows that, under normal economic conditions and no fiscal policy change (baseline scenario) from the last Commission forecast year (2017), Romania's public debt would steadily increase to just above 60% of GDP in 2026 (last projection year). This projected increase of around

20 pps. over a 10-year horizon would depend on the structural primary balance (SPB) remaining constant at a deficit of 2.3% of GDP (the value in the last year (2017) in the Autumn 2015 Commission forecast) over the post-forecast horizon. The debt ratio above 60% of GDP at the end of projections (2026) under a baseline medium-term debt scenario, combined with high risks from sensitivity tests (in particular negative shocks to the primary balance) lead to high debt sustainability risks for Romania. Under all deterministic projections scenarios except the one that foresees a correction in light of the provisions of the Stability and Growth Pact (SGP), debt would still be increasing in the last year of projections (2026).

A very large set of jointly simulated shocks to growth, interest rates and the primary balance, reflecting the size and correlation of past shocks under stochastic debt projections, points to a probability greater than 70% that Romania's debt ratio in 2020 would be higher than in 2015 (i.e. higher than 39% of GDP).

If, on the other hand, the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the SGP and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), Romanian public debt would decrease to around 35% of GDP in 2026 (26 pps. less than in the baseline no-fiscal policy change scenario). This would require, however, a significantly higher (2.6 pps. difference) average SPB over the projection horizon (i.e. a surplus of 0.3% of GDP over 2017-26) than currently forecasted for 2017.

All in all, having regard to the different projection scenarios and main results, Romania presents high risks in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on S1, a 5-year (until 2022) cumulated gradual improvement in the Romanian SPB of 1.4 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond

<sup>(206)</sup> Forecasts were prepared based on the assumption of no fiscal policy change between 22 October 2015 and 2017. In reality, several measures adopted after 22 October 2015 are likely to put upward pressure on the budget deficits projected for Romania for 2016-2017.

the forecast horizon, would be required if the intention were to limit the increase in public debt so as to be at the reference value of 60% debt-to-GDP ratio by 2030. This would require a SPB that is only moderately ambitious (such that 69% of the SPBs recorded for the EU-28 countries over 1980-2015 would actually be greater than that). The country is therefore at medium risk according to the S1 indicator. The required fiscal adjustment is due essentially to the forecast unfavourable initial budgetary position (2.4 pps. of GDP) and partly to the projected age-related public spending (0.3 pps. of GDP), while the distance of the debt ratio from the 60% reference value plays a mitigating role (-1.3 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Romania is at medium risk as shown by the value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a required fiscal adjustment of 4.4 pps. of GDP to ensure sustainability of public finances over the long run. This is primarily due to the forecast unfavourable initial budgetary position (contributing 2.9 pps. to the required adjustment), but also to age-related public spending from all its components, with healthcare and long term care accounting for 1.1 pps. of GDP required fiscal adjustment, other cost of ageing components accounting for 0.3 pps. of GDP and pensions adding 0.1 pps. of GDP.

#### 7.21.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Romania no significant risks of fiscal stress arise in the short-term, though some variables (such as the net international investment position, the shares of public debt with foreign currency denomination and public debt with non-resident creditor base in overall public debt, as well as the share of non-performing loans) point to possible short-term challenges.

High risks appear, however, in the medium term. From the debt-sustainability analysis perspective

risks are high due to the increasing debt ratio to above 60% of GDP at the end of the projections (2026), combined with high risks from sensitivity tests (in particular negative shocks to the primary balance). Jointly simulated shocks to growth, interest rates and the primary balance point to a probability greater than 70% of a debt ratio in 2020 being greater than in 2015. Medium-level risks emerge from the analysis of the sustainability gap indicator S1, due mainly to the unfavourable initial budgetary position and partly to the projected age-related public spending. In sum, risks for the country are high in the medium term.

Moreover, medium sustainability risks appear for Romania over the long run. These risks derive primarily from the unfavourable initial budgetary position, compounded by age-related public spending, notably for healthcare and long-term care.

## 7.22. SLOVENIA

### 7.22.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, Slovenia's structural primary balance (SPB) is expected to decrease from a surplus of around 0.3% of GDP in 2015 to a deficit of around 0.3% in 2017<sup>(207)</sup>. Over the same period, real GDP growth is expected to slow down from 2.6% in 2015 (3% in 2014) to 2.5% in 2017. Gross public debt is projected to peak in 2015 at more than 84% of GDP (a more than 3 pps. increase relative to 2014) before decreasing to over 78% of GDP in 2017. The high public debt level represents a source of vulnerability for the Slovenian economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Slovenia does not appear to face significant risks of fiscal stress arising from either the fiscal, or the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds.

The analysis of the structure of public debt financing highlights potential short-term risks in terms of greater volatility of a non-resident creditor base, while no short-term risks appear in terms of maturity structure and foreign currency denomination. Conversely, the share of non-performing loans in the banking sector could represent a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond the short term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Slovenia shows that, under normal economic conditions and no fiscal policy change (baseline scenario) from the last Commission forecast year (2017), Slovenian public debt would pick up again slightly after

forecasts to more than 79% of GDP in 2020 and around 81% in 2026 (last projection year). This projected reduction of around 3 pps. compared to the initial level in 2015 would depend on the structural primary balance (SPB) remaining constant at a deficit of 0.3% of GDP (last forecast year value) over the post-forecast horizon. The debt ratio still above 80% of GDP at the end of projections (2026) under the baseline (no fiscal policy change) assumption, combined with the risk of an increasing debt trajectory until the end of projections, triggered by high sensitivity to potential shocks to nominal growth and interest rates, lead to high risks for Slovenia under baseline medium-term debt projections.

Indeed, standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio that is more than 4 pps. higher than in the baseline (i.e. a debt to GDP of about 85%) and still increasing in the last year of projections (2026). All in all, a very large set of jointly simulated shocks to growth, interest rates and the primary balance, reflecting the size and correlation of past shocks under stochastic debt projections, points to a probability above 30% that Slovenia's debt ratio in 2020 would be higher than in 2015 (i.e. higher than 84% of GDP), which entails risks given the already significant starting level.

Were fiscal policy to revert back to historical behaviour (with the SPB gradually reverting to the last 15-year historical average, i.e. a deficit of 1.3% of GDP, as in the SPB historical scenario), the Slovenian debt ratio in 2026 would be as much as 7 pps. higher (at more than 88% of GDP) than under baseline no-fiscal policy change projections, and still on an increasing path at the end of projections.

If, on the contrary, the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), the Slovenian public debt would decrease much more substantially than in baseline projections, to around 57% of GDP in 2026 (almost 24 pps. less than in the baseline no-fiscal policy change scenario). This would require

<sup>(207)</sup> 2017 SPB is projected based on the assumption that the temporary consolidation measures adopted by Slovenia on an annual basis in recent years would end in 2016. The deterioration in the SPB for 2017 should be read under this assumption.

however a significantly higher (more than 2 pps. difference) average SPB over the projection horizon (i.e. a surplus of 2.1% of GDP over 2017-26) than currently forecast for 2017.

All in all, having regard to the different projection scenarios and main results, Slovenia presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

Based on S1, a cumulated gradual improvement in the Slovenian SPB of 3 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required over 5 years (until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply a more ambitious required structural primary balance (such that only 19% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that). The country is therefore at high risk according to the S1 indicator. The significant required fiscal adjustment is due, by order of importance, to the distance of the debt ratio from the 60% reference value (responsible for 1.4 pps. of GDP required fiscal adjustment), the projected age-related public spending (0.7 pps. of GDP) and the unfavourable initial budgetary position (1 pp. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Slovenia is at high risk as shown by the very high value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a very substantial required fiscal adjustment of 6.8 pps. of GDP to ensure sustainability of public finances over the long run. This is primarily due to the strong projected impact of the steep increase in the age-related public spending, with pensions accounting for 3.2 pps. of GDP required fiscal adjustment, and healthcare and long term care for an additional 1.9 pps. required adjustment. The unfavourable initial budgetary position also contributes (1.3 pps.) to

the high required adjustment. Projected implicit liabilities related to the cost of ageing reflect the long-term challenges faced by Slovenia in terms of an ageing population.

#### 7.22.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Slovenia no significant short-term risks of fiscal stress emerge, though some variables (like the share of debt held by non-residents and that of non-performing loans in the banking sector) point to possible short-term challenges.

Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still relatively high stock of debt at the end of projections (2026) and the sensitivity to possible shocks to nominal growth and interest rates, potentially leading to debt still increasing at the end of projections. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability above 30% of a debt ratio in 2020 being greater than in 2015, which entails risks given the already relatively high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, due, by order of importance, to the high initial debt-to-GDP ratio, the unfavourable initial budgetary position and the projected steep increase in the cost of ageing, thus leading to overall high risks for the country in the medium term.

High sustainability risks appear for Slovenia over the long run. These are primarily related to the strong projected impact of age-related public spending (notably pensions, healthcare and long-term care), compounded by the unfavourable initial budgetary position.

## 7.23. SLOVAK REPUBLIC

### 7.23.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the Slovak Republic' structural primary deficit is expected to remain at around 0.5 % of GDP in 2015 and 2016 to decrease slightly to around 0.4 % in 2017. Over the same period, real GDP growth is expected to pick up further from 3.2 % in 2015 (it was 2.5 % in 2014) to 3.3% in 2017, after a drop to 2.9% in 2016. As a result of forecasted developments, gross public debt would continue to decline slightly from almost 53 % of GDP in 2015 to some 52 % of GDP in 2017 (a 1 pp. decline relative to 2014).

#### Short-term fiscal sustainability challenges

Over the short term (within the year), the Slovak Republic does not appear to face significant risks of fiscal stress arising from neither the fiscal, nor the macro-financial side of the economy, as shown by an S0 indicator and S0 sub-indexes below the critical thresholds. Some of the financial and competitiveness variables, such as the primary deficit, point nonetheless to possible short-term challenges.

The analysis of the structure of public debt financing highlights some short-term risks in terms of greater volatility of a non-resident creditor base, while no short-term risks appear in terms of maturity structure and foreign currency denomination.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond to medium-term sustainability challenges, a debt sustainability analysis (DSA) for the Slovak Republic shows that, under normal economic conditions and no fiscal policy change (baseline scenario) from the last Commission forecast year (2017), Slovak public debt would hover around 51% of GDP in the medium run, heading towards 52% of GDP in 2026 (last projection year). This projected overall stability over a 10-year horizon would depend on the structural primary balance (SPB) remaining constant at a deficit of 0.4% of GDP (last forecast

year value) over the post-forecast horizon. The debt ratio below 60% of GDP at the end of projections (2026) under a baseline medium-term debt scenario, combined with medium-level threats of an increasing debt trajectory from stochastic projections and low risks from sensitivity tests (shocks to nominal growth, interest rates or primary balance) lead to medium debt sustainability risks for the Slovak Republic.

If fiscal policy were to revert back to historical behaviour (with the SPB gradually reverting to the last 15-year historical average, i.e. a deficit of 2.1% of GDP, as in the SPB historical scenario), the Slovak debt ratio in 2026 would be almost 12 pps. higher (at more than 63% of GDP) than under baseline no-fiscal policy change projections, and still on an increasing path at the end of projections.

If, on the contrary, the structural balance converged towards the medium-term objective (MTO) in compliance with the preventive arm of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), Slovak public debt would decrease to around 39% of GDP in 2026 (12 pps. less than in the baseline no-fiscal policy change scenario). This would require a higher (1.2 pps. difference) average SPB over the projection horizon (i.e. a surplus of 0.8% of GDP over 2017-26) than currently forecasted for 2017.

All in all, having regard to the different projection scenarios and main results, the Slovak Republic presents low risks in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. The cumulated required fiscal adjustment over five years needed to reach the 60% debt-to-GDP ratio by 2030 is negative for the Slovak Republic (-0.7 % of GDP), which indicates fiscal space rather than a sustainability gap over the medium term. The country is therefore at low risk according to the S1 indicator. The negative S1 for the Slovak Republic is mainly due to the debt ratio being below the 60% Treaty

reference value, which translates into a negative distance from the debt target (- 0.6 pps. of GDP); the remaining S1 components - the initial budgetary position and projected age-related public spending - also indicate a sound fiscal stance.

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at low risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, the Slovak Republic is at medium risk as shown by the value of the long-term sustainability gap indicator S2. The indicator, calculated under a baseline no-fiscal policy change scenario, points to a required fiscal adjustment of 3.5 pps. of GDP to ensure sustainability of public finances over the long run. This is primarily due to the projected impact of age-related public spending, with healthcare and long term care accounting for 1.6 pps. of GDP required fiscal adjustment, and pensions for an additional 0.9 pps. of GDP required adjustment. The initial budgetary position also contributes (1.4 pps.) to the required adjustment.

pensions), compounded by the unfavourable initial budgetary position.

#### 7.23.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for the Slovak Republic no significant short-term risks of fiscal stress arise, though some variables (such as the primary deficit) point to possible short-term challenges.

No risks appear in the medium term from a debt sustainability analysis perspective due to the relatively low stock of debt at the end of the projection horizon (2026) and the relative resilience to potential shocks to nominal growth, interest rates or primary balance. No medium-term risks emerge from the analysis of the sustainability gap indicator S1 either, thanks to the debt ratio being below the 60% Treaty reference value and a sound stance of the projected age-related public spending and initial budgetary position.

Over the long run, however, medium sustainability risks appear for the Slovak Republic. These risks derive primarily from the projected impact of age-related public spending (notably healthcare and

## 7.24. FINLAND

### 7.24.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the structural primary balance (SPB) in Finland is expected to improve slightly from a deficit of 0.6% in 2015 to a deficit of 0.4% in 2017. Over the same period, real GDP growth is expected to pick up from 0.3% in 2015 to 1.1% in 2017. Gross public debt, at 62.5% of GDP in 2015, is forecast to increase to 65.7% of GDP in 2017. The level of the debt ratio would be above the 60% Treaty reference value and would represent a potential source of vulnerability for the Finnish economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Finland does not appear to face risks of fiscal stress, based on the S0 indicator. Among the variables incorporated in S0, the primary deficit and the change in non-performing loans point to possible short-term challenges. However, the absolute level of non-performing loans remains very contained (at 1.4%) and therefore, in the near term, the increase in NPLs does not entail any significant fiscal sustainability risks. Overall, short-term risks do not appear to emerge.

The analysis of the structure of public debt financing highlights some short-term risks in terms of greater volatility of a non-resident creditor base, while no short-term risks appear in terms of maturity structure and foreign currency denomination.

In addition, the relatively high loans-to-deposits ratio in the banking sector could potentially be a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

With regard to medium-term sustainability challenges, a debt sustainability analysis (DSA) for Finland shows that, assuming normal economic conditions, and a fiscal stance that remains unchanged after 2017, the last year of the Commission forecast (as in the baseline no-fiscal policy change scenario), Finland's public debt

would increase slightly until 2020 (reaching 66.5% of GDP that year), before progressively raising again until the end of the projection period, to 75.5% of GDP in 2026 (last projection year). This still increasing level (13 pps. of GDP higher than in 2015) points to insufficient fiscal effort, under this no-fiscal policy change scenario (with an SPB unchanged at -0.1% of GDP), to compensate for increasing ageing costs, as well as unfavourable interest rate-growth rate differential (snow-ball) effect towards the end of the projection period. Therefore, Finland can be considered at medium risk under baseline medium-term debt projections.

Negative shocks to growth (due to shocks to real GDP growth or inflation) and to interest rates would have a sizeable impact on the debt ratio. Indeed, standard negative sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio at the end of projections (2026) that is around 4 pps. higher (at close to 80% of GDP) than in the baseline. All in all, a very large set of jointly simulated shocks to growth, interest rates and the primary balance, reflecting the size and correlation of past shocks under stochastic debt projections, points to a 80% probability of the Finnish debt ratio in 2020 being greater than in 2015, which entails risks given that the starting level is above the 60% Treaty reference value.

If, on the contrary, convergence of the structural balance towards the medium-term objective (MTO) was respected, in compliance with the corrective and the preventive arms of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (as in the SGP scenario), the Finnish public debt would decrease substantially, to less than 56% of GDP in 2026 (20 pps. less than in the baseline no-fiscal policy change scenario). However, this would require a significantly higher (1.3 pps. higher) average SPB over the projection horizon (+0.9% of GDP over 2017-26) than currently forecasted for 2017.

All in all, having regard to the different projection scenarios and main results, Finland appears to face a high risk in the medium term from a DSA perspective.

### Medium-term fiscal sustainability challenges: S1 indicator

The sustainability gap indicator S1 complements the analysis of public debt projections allowing for an overall conclusion on medium-term sustainability challenges. Based on the S1, a cumulated gradual improvement in the Finnish SPB of 2.6 pps. of GDP, relative to the baseline no-fiscal policy change scenario, would be required over 5 years (starting from after forecasts until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply an ambitious required structural primary balance (such that only 24% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that), which points to high risk according to the S1 indicator. The significant required fiscal adjustment obtained for Finland is mainly due to projected age-related public spending (responsible for 1.6 pps. of GDP required fiscal adjustment) and, to a lesser extent, to the distance of the debt ratio from the 60% reference value (0.4 pps. of GDP) and the unfavourable initial budgetary position (0.2 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

### Long-term fiscal sustainability challenges: S2 indicator

In the long run, Finland faces a medium risk to fiscal sustainability as shown by the value of the long-term sustainability gap indicator S2 (a required fiscal adjustment of 3.9 pps. of GDP). This is mostly due to the adjustment required by the unfavourable initial budgetary position (a 2.1 pps. of GDP required adjustment) and by the projected cost of ageing developments over the long run (a 1.7 pps. of GDP required adjustment), mainly determined by projected public spending on health care and long-term care, while pension expenditure is projected to have a mitigating impact on the S2 (-0.4 pps. of GDP). The impact of the recently (November 2015) legislated pension reform, which is expected to further reduce pension expenditure, has not been included in the projections.

### 7.24.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Finland no short-term risks of fiscal stress appear at the horizon, though some variables (notably the primary deficit) point to possible short-term challenges.

High risks appear, on the contrary, in the medium term from a debt sustainability analysis perspective due to the relatively high stock of debt at the end of projections (2026), and the sensitivity to possible shocks to nominal growth, interest rates and the government primary balance. Jointly simulated shocks to growth, interest rates and the primary balance point to an 80% probability of a debt ratio in 2020 greater than in 2015. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, largely due to projected developments on ageing, thus leading to overall high risks for the country in the medium term.

Finland faces medium sustainability risks over the long run. These are primarily related to the unfavourable initial budgetary position compounded by the projected impact of age-related public spending (notably healthcare and long-term care).

## 7.25. SWEDEN

### 7.25.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Commission 2015 autumn forecast, Sweden is expected to wave around a structural primary deficit equal to 0.3% of GDP across 2015-2017. Over the same time span, real GDP growth is projected to moderate from 3.0% in 2015 to 2.7% in 2017. Given the low level of debt and a small structural deficit (44.7% and 1.0% of GDP in 2015, respectively, according to the Commission forecast), Sweden doesn't appear to face sustainability challenges. Indeed, the gross public debt would decrease from 44.7% of GDP in 2015 to 43.3% of GDP in 2017, mainly benefiting from a reduced snowball effect, rather than a tighter fiscal policy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), Sweden does not appear to face risks of fiscal stress, as highlighted by the S0 indicator and its sub-indexes below the critical thresholds.

With respect to the macro-financial side, the short-term debt of households and of non-financial corporations in percentage of GDP show values above critical thresholds, which can be read as possible signs of challenges posed by a domestic overheating. The low interest environment can partly explain the increasing private debt as well as the increase in the short-term component of the public debt over the respective critical thresholds.

While the size of the public debt stock is not critical, the analysis of the structure of public debt financing highlights potential short-term risks in terms of maturity structure, due to the significant increase in the share of short-term debt. The increase of the share of non-performing loans in the banking sector is also above the threshold and it may represent a source of short-term contingent liability risks.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

By looking beyond the short-term to medium-term sustainability challenges, a debt sustainability

analysis (DSA) for Sweden shows that, under normal economic conditions, were fiscal policy to remain unchanged to the last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the Swedish public debt would continue to decrease beyond forecasts to 41.9% of GDP in 2022 and then would slightly rebound up to 42.7% of GDP in 2026 (last projection year). This projected small rebound over a 10-year horizon would depend on the Swedish cost of ageing slightly increasing till 2026 (last forecast year value). The relatively low Swedish debt to GDP ratio at the end of projection period (2026) leads to the conclusion that the country is at low risk under the baseline medium-term debt projections.

The overall assessment of the Sweden's DSA confirms the low risk category by also looking at debt projection results under alternative scenarios (such as the historical SPB scenario, the SGP scenario, a series of negative sensitivity tests on macro-fiscal assumptions). There aren't flashing indicators for Sweden even looking at the synthetic stochastic debt projection results.

In summary, having regard to the different projection scenarios and main results, Sweden presents a low sustainability risk in the medium-term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

Sweden's low debt ratio of 43.3% in 2017 confirms some fiscal space in the medium-term, as reflected in the negative S1 value (-1.3% of GDP), before the inter-temporal effects of age-related costs are taken completely into account. The safe budgetary position for Sweden is mainly due to the high distance of the Swedish debt ratio from the 60% reference value (-1.3 pps. of GDP of potential fiscal stance is due to the debt requirement) and, to a lesser extent, to the initial budgetary position (-0.3 pps. of GDP), while projected age-related public spending would have a slightly (0.3 pps. of GDP) deteriorating effect up to 2022.

The negative value for S1 is also registered for the alternative scenarios, but some risks are highlighted when taking into account the AWG risk scenario, implying higher age related costs, especially on long-term care expenditure.

The lack of challenges highlighted by the S1 indicator, as well as by the DSA, leads to the conclusion that the country is overall at low risk of sustainability in the medium-term.

#### Long-term fiscal sustainability challenges: S2 indicator

The long-term sustainability analysis shows that on the basis of the budgetary position of 2017, using the Commission 2015 autumn forecast and the projected increase in age-related expenditure (2015 Ageing Report), Sweden has a sustainability gap (S2) of 2.3% of GDP (baseline scenario). This is equally due to both the S2 sub-components: the initial budgetary position and the cost of ageing which represent, respectively, the 1.2 pps. and 1.1 pps. of GDP required adjustment. Nevertheless, among the age-related expenditures, pensions account for -0.8 pps. of GDP, while healthcare for 0.3 pps. of GDP and long-term care represents an additional 1.3 pps. of GDP required adjustment.

The country then belongs to the medium risk category in a long-term perspective, showing the need for policies enhancing the long-term fiscal sustainability.

#### 7.25.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for Sweden no significant short-term risks of fiscal stress appear at the horizon, though some variables (such as the change in the share of short-term public debt and the change in the share of non-performing loans) point to possible short-term challenges.

Risks also appear to be low in the medium-term from a debt sustainability analysis perspective due to the relatively low stock of debt at the end of projections (2026), even when considering possible shocks to nominal growth and interest rates. This assessment is confirmed by the analysis of the sustainability gap indicator S1, which signals low risks in line with a debt ratio below the 60% of GDP Treaty reference value.

Medium sustainability risks appear over the long run due to both the relatively unfavourable initial budgetary position and the projected impact of age-related public spending (in particular, long-term care spending).

## 7.26. THE UNITED KINGDOM

### 7.26.1. FISCAL SUSTAINABILITY CHALLENGES IN DETAIL

Based on the Autumn 2015 Commission forecasts, the United Kingdom's structural primary balance (SPB) is expected to improve from a *deficit* of around 2.0% of GDP in 2015 to a *deficit* of around 0.1% in 2017. Over the same period, real GDP growth is expected to moderate from 2.5% in 2015 (it was close to 3% in 2014) to 2.2% in 2017. Gross public debt would peak in 2015 at more than 88% of GDP (close to its 2014 level) before decreasing to below 87% of GDP in 2017. The high public debt level represents a source of vulnerability for the UK economy.

#### Short-term fiscal sustainability challenges

Over the short term (within the year), the United Kingdom does not appear to face significant risks of fiscal stress, as shown by an overall S0 indicator below the critical threshold. However, the primary deficit, at -1.8% of GDP, as well as the relatively large level of private debt, point to possible short-term challenges. Besides, the value of the S0 fiscal sub-index, although decreasing since 2009, remains above, but close to, its critical threshold.

The analysis of the structure of public debt highlights no potential short-term risks in terms of maturity structure and foreign currency denomination. In fact, the long average maturity of public debt, compared to European standards, enables the UK to keep gross financing needs at a moderate level (8.8% of GDP in 2015), despite the high level of budgetary deficit and (maturing) public debt. On the contrary, the share of non-performing loans in the banking sector (at 2.7% of total loans) could represent a source of short-term contingent liability risks, as well as dynamic housing prices.

#### Medium-term fiscal sustainability challenges: debt sustainability analysis

Looking beyond the short term to medium-term sustainability challenges, a debt sustainability analysis (DSA) for the United Kingdom shows that, under normal economic conditions and fiscal policy unchanged at a structural primary *deficit* of

0.1% of GDP as of last Commission forecast year (2017) over the post-forecast horizon (as in the baseline no-fiscal policy change scenario), the UK public debt would decline to around 86% of GDP in 2020, before raising again to close to 90% of GDP in 2026 (last projection year), 1½ pps. higher compared to the initial level in 2015. The debt ratio still increasing at the end of the projection period (2026), combined with the risk of reaching a (much) higher level triggered by potential shocks to nominal growth and interest rates, as well as *fiscal fatigue*, leads to high risks for United Kingdom under baseline medium-term debt projections.

Indeed, standard sensitivity tests on nominal growth and interest rates (respectively -0.5 pps. on growth and +1 pp. on interest rates on new and rolled over debt from 2016 onwards) would entail a debt ratio that is more than around 4 pps. higher than in the baseline (i.e. a debt to GDP of about 93-94%). Moreover, a standard negative shock on primary balance (equal to 50% of the forecasted cumulated change in the two forecast years) would push public debt ratio beyond 99% of GDP. All in all, a very large set of jointly simulated shocks to growth, interest rates and the primary balance points to a probability above 40% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting level.

Were fiscal policy to revert back to historical behaviour (with the SPB gradually reverting to the last 15-year historical average, a *deficit* of 2.3% of GDP, as in the SPB historical scenario), the UK debt ratio in 2026 would be as much as 15 pps. higher (at close to 105% of GDP) than under baseline no-fiscal policy change projections.

If, on the contrary, the structural balance converged towards the medium-term objective (MTO)<sup>(208)</sup> in compliance with the corrective and preventive arms of the Stability and Growth Pact (SGP) and in line with the fiscal adjustment indicated in the Commission Communication on flexibility in the SGP (i.e. the SGP scenario), the UK public debt would decrease substantially to 76% of GDP in 2026 (almost 14 pps. less than in the baseline no-fiscal policy change scenario). This

<sup>(208)</sup>In the case of the UK, which has not set an MTO, the level assumed corresponds to the minimum MTO as calculated by Commission services.

however would require a significantly higher average SPB over the projection horizon (i.e. +0.8% of GDP over 2017-26) than currently forecasted for 2017. In this case, debt ratio would decline over the whole projection horizon, but would remain above the SGP threshold of 60% of GDP in 2026.

All in all, having regard to the different projection scenarios and main results, the UK presents a high risk in the medium term from a DSA perspective.

#### Medium-term fiscal sustainability challenges: S1 indicator

The analysis of the sustainability gap indicator S1 shows that a cumulated SPB gradual improvement of 3.3 pps. of GDP, relative to the baseline no-fiscal policy change scenario beyond the forecast horizon, would be required over 5 years (until 2022), if the objective were to reach the reference value of 60% debt-to-GDP ratio by 2030. This would imply a more ambitious required structural primary balance (such that only 16% of the SPBs recorded for the EU-28 countries over 1980-2015 would be greater than that). The country is therefore at high risk according to the S1 indicator. The significant required fiscal adjustment is mainly due to the distance of the debt ratio from the 60% reference value (responsible for 2.1 pps. of GDP required fiscal adjustment), and to a lesser extent, the projected age-related public spending (0.8 pps. of GDP) and the unfavourable initial budgetary position (0.3 pps. of GDP).

Challenges highlighted by the S1 indicator, as well as by the DSA, lead to the country being overall at high risk in the medium term.

#### Long-term fiscal sustainability challenges: S2 indicator

In the long run, the United Kingdom is at medium risk, as shown by the value of the long-term sustainability gap indicator S2. The indicator points to a required fiscal adjustment of 3.2 pps. of GDP to ensure sustainability of public finances over the long run. This sizeable level is primarily due to the projected impact of age-related public spending (contribution of 2.4 pps. to S2), with pensions accounting for 1.0 pp. of GDP required fiscal adjustment, and healthcare for an additional 1.0 pps. required adjustment. The unfavourable

initial budgetary position also contributes (0.9 pps.) to the substantial required adjustment. Under a more adverse scenario in the health care and long-term care areas (with non-demographic drivers pushing upward costs), the S2 indicator would reach a higher value, pointing to a challenging required structural primary balance (percentile rank at 14%) to ensure that public debt ratio is not on an ever-increasing path in the long-run. Projected implicit liabilities related to the cost of ageing reflect the long-term challenges faced by United Kingdom in terms of an ageing population.

#### 7.26.2. OVERALL FISCAL SUSTAINABILITY ASSESSMENT

Overall, for the United Kingdom, no significant short-term fiscal risks appear at the horizon, although some variables point to possible short-term challenges (such as the primary deficit and the private sector debt). However, the long average maturity of public debt (enabling contained gross financing needs) mitigates short-term risks of fiscal stress.

Risks appear, on the contrary, to be high in the medium term from a debt sustainability analysis perspective due to the still relatively high and increasing stock of debt at the end of projections (2026) and the sensitivity to possible macro-fiscal shocks, potentially leading to a debt that is (well) above 90% of GDP at the end of projections. Jointly simulated shocks to growth, interest rates and the primary balance point to a probability above 40% of a debt ratio in 2020 greater than in 2015, which entails risks given the high starting level. High medium-term risks emerge also from the analysis of the sustainability gap indicator S1, due, in order of importance, to the high initial debt-to-GDP ratio, the projected cost of ageing and the unfavourable initial budgetary position, thus leading to overall high risks for the country in the medium term.

Medium sustainability risks appear for the United Kingdom over the long run. These are primarily related to the relatively strong projected impact of age-related public spending (notably pensions, healthcare and to a lesser extent long-term care), compounded by the unfavourable initial budgetary position.

## ANNEX A1

### The early-detection indicator of fiscal stress risk

#### A1.1. THE METHODOLOGY FOR THE CALCULATION OF THE THRESHOLDS

For each variable used in the composite indicator S0 the optimal threshold is chosen in a way to minimise, based on historical data, the sum of the number of fiscal stress signals sent ahead of no-fiscal-stress episodes (false positive signals – type-I error) and the number of no-fiscal-stress signals sent ahead of fiscal stress episodes (false negative signals – type-II error), with different weights attached to the two components. The table below reports the four possible combinations of events.

Table A1.1: Possible cases based on type of signal sent by the variable at t-1 and state of the world at t

	Fiscal stress episode	No-fiscal stress episode
Fiscal stress signal	True Positive signal	False Positive signal (Type I error)
No-fiscal stress signal	False Negative signal (Type II error)	True Negative signal

Source: Commission services.

Formally, for each variable  $i$  the optimal threshold ( $t_i^*$ ) is such as to minimise the sum of type I and type II errors for variable  $i$  (respectively fiscal stress signals followed by no-fiscal stress episodes - False Positive signals - and no-fiscal-stress signals followed by fiscal stress episodes – False Negative signals) as from the following total misclassification error for variable  $i$  ( $TME_i$ ):<sup>(209)</sup>

$$t_i^* = \arg \min_{t_i \in T_i} (TME_i(t_i)) = \arg \min_{t_i \in T_i} \left( \frac{FN_i(t_i)}{F_s} + \frac{FP_i(t_i)}{Nfs} \right) \quad (1)$$

$$i = 1, \dots, n$$

where  $T_i$  = set of all values taken by variable  $i$  over all countries and years in the panel;  $FN_i(t_i)$  = total number of false negative signals sent by variable  $i$

(over all countries and years) based on threshold  $t_i$ ;  $FP_i(t_i)$  = total number of false positive signals sent by variable  $i$  (over all countries and years) based on threshold  $t_i$ ;  $F_s$  = total number of fiscal stress episodes recorded in the data;  $Nfs$  = total number of no-fiscal-stress episodes recorded in the data;<sup>(210)</sup>  $n$  = total number of variables used.

It is straightforward to see from (1) that in the minimisation problem False Negative signals are weighted more than False Positive signals as:

$$\frac{1}{F_s} > \frac{1}{Nfs}$$

This is due to the fact that the total number of fiscal stress episodes recorded over a (large enough) panel of countries will be typically much smaller than the total number of non-fiscal-stress episodes. This is a positive feature of the model as we might reasonably want to weigh the type II error more than the type I given the more serious consequences deriving from failing to correctly predict a fiscal stress episode relative to predicting a fiscal stress episode when there will be none.

The threshold for variable  $i$  (with  $i = 1, \dots, n$ ) obtained from (1) is common to all countries in the panel. We define it as a common *absolute* threshold (a critical value for the level of public debt to GDP, or general government balance over GDP, for instance) but it could also be defined as a common *relative* threshold (a common percentage tail of the country-specific distributions).<sup>(211)</sup> In the latter case, while the optimal percentage tail obtained from (1) is the same for all countries, the associated absolute threshold will differ across countries reflecting differences in distributions (country  $j$ 's absolute threshold for variable  $i$  will reflect the country-specific history with regard to that variable). Both the aforementioned methods were applied and a decision was made to focus exclusively on the first, given that the second one tends to produce sensitive country-specific absolute thresholds for variable  $i$  only for those

<sup>(209)</sup> Following this methodological approach the optimal threshold will be such as to balance between type I and type II errors. For variables for which values above the threshold would signal fiscal stress, a relatively low threshold would produce relatively more false positive signals and fewer false negative signals, meaning higher type I error and lower type II error; the opposite would be true if a relatively high threshold was chosen.

<sup>(210)</sup> Here we simplify on the total number of fiscal stress and non-fiscal-stress episodes as in fact also these numbers vary across variables. This is due to the fact that data availability constraints do not allow us to use the whole series of episodes for all variables.

<sup>(211)</sup> See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).

countries having a history of medium to high values for the variable concerned (or medium to low, depending on what the fiscal-stress-prone side of the distribution is), while country-specific thresholds would not be meaningful for the rest of the sample.

The TME function in equation (1) is the criterion we used to calculate the thresholds but it is not the only possible criterion used in the literature. The minimisation of the noise-to-signal ratio (*NSR*) is another possible option.<sup>(212)</sup> In this case the optimal threshold for variable *i* ( $t_i^*$ ) is obtained as:

$$t_i^* = \arg \min_{t_i \in \mathcal{I}_i} (NSR_i(t_i)) = \arg \min_{t_i \in \mathcal{I}_i} \left( \frac{FP_i(t_i)/Nfs}{TP_i(t_i)/Fs} \right) \quad (2)$$

$i = 1, \dots, n$

where  $TP_i(t_i)$  = total number of true positive signals sent by variable *i* (over all countries and years) based on threshold  $t_i$ . The TME minimisation was preferred to this alternative criterion based on the size of the total errors produced.

## A1.2. THE CALCULATION OF THE COMPOSITE INDICATOR S0

The early-detection indicator of fiscal stress (*S0*) is constructed in a similar way to what done in Baldacci et al. (2011) and Reinhart et al. (2000).<sup>(213)</sup> To a certain country *j* and year *t*, a 1 is assigned for every variable *i* that signals fiscal stress for the following year (a dummy  $d^i$  is created for each variable *i* such that  $d_{jt}^i = 1$  if a fiscal stress signal is sent by the variable and  $d_{jt}^i = 0$  otherwise, i.e. if a no-fiscal-stress signal is sent or the variable is missing). The value of the

composite indicator *S0* for country *j* and year *t* ( $S0_{jt}$ ) is then calculated as the weighted number of variables having reached their optimal thresholds with the weights given by the "signalling power" of the individual variables:

$$S0_{jt} = \sum_{i=1}^n w_i d_{jt}^i = \sum_{i=1}^n \frac{z_i}{\sum_{k=1}^n h_{jt}^k \cdot z_k} d_{jt}^i \quad (3)$$

where  $n$  = total number of variables;  $z_i = 1 - (\text{type I error} + \text{type II error})$  = signalling power of variable *i*; and  $h_{jt}^k \in \{0,1\}$  is an indicator variable taking value 1 if variable *k* is observed for country *j* at time *t* and 0 otherwise.<sup>(214)</sup> The variables are therefore assigned higher weight in the composite indicator, the higher their past forecasting accuracy.<sup>(215)</sup>

<sup>(212)</sup> See, for instance, Reinhart, Goldstein and Kaminsky (2000); Hemming, Kell and Schimmelpfennig (2003).

<sup>(213)</sup> See Berti et al. (2012). The difference with Baldacci et al. (2011) is that Berti et al. do not use a system of "double weighting" of each variable incorporated in the composite indicator based on the weight of the subgroup of variables it belongs to (fiscal and financial-competitiveness variables here) and the weight of the individual variable within the group. The difference with Reinhart et al. (2000) is in the way the individual variables' weights are computed (Reinhart et al. use as weights the inverse of the noise-to-signal ratios of the individual variables as they apply the *NSR* criterion, rather than the TME minimisation).

<sup>(214)</sup> This ensures that the sum of the weights is equal to 1 regardless of data availability (which is of course necessary to be able to analyse the evolution of the composite indicator).

<sup>(215)</sup> Moreover, as evident from (3), the weight attached to each variable is decreasing in the signalling power attached to the other variables, as well as in the number of variables available for a given country and year.

## ANNEX A2

### The medium- and long-term sustainability indicators (S1, S2) and the intertemporal net worth indicator (INW)

#### A2.1. NOTATION

$t$  : time index. Each period is one year

$t_0$  : last year before the long-term projection (e.g. 2017)

$t_0 + 1$  : first year of the long-term projection period. Start of the fiscal adjustment

$t_1$  : end of the fiscal adjustment (relevant for S1)

$t_2$  : target year for the debt ratio (e.g. 2030, relevant for S1)

$t_3$  : final year of the long-term projection period (e.g. 2060)

Notice that  $t_0 < t_1 < t_2 < t_3$ .

$D_t$  : debt-to-GDP ratio (at the end of year  $t$ ).

$PB_t$  : ratio of structural primary balance to GDP

$\Delta PB_t \equiv PB_t - PB_{t_0}$  : change in the structural primary balance relative to the base year  $t_0$ . In the absence of fiscal adjustment, it equals the change in age related expenditure ( $\Delta A_t$ ) for  $t > t_0$

$\Delta A_t \equiv A_t - A_{t_0}$  : change in age-related costs relative to the base year  $t_0$

$c$  : the annual increase in the primary structural balance during fiscal adjustment (i.e. between  $t_0 + 1$  and  $t_1$ ) (relevant for S1).

$S_1 \equiv c(t_1 - t_0)$  : the value of the S1 indicator, i.e. the total fiscal adjustment.

$r$  : differential between the nominal interest rate and the nominal GDP growth rate i.e.

$1 + r \equiv \frac{1+R}{1+G}$  : where  $R$  and  $G$  are, respectively, the nominal interest rate and the nominal growth rate.

If the interest-growth rate differential is time-varying, we define

$$\alpha_{s,v} \equiv (1 + r_{s+1})(1 + r_{s+2}) \dots (1 + r_v)$$

as the accumulation factor that transforms 1 nominal unit in period  $s$  to its period  $v$  value.

#### A2.2. DEBT DYNAMICS

By definition, the debt-to-GDP ratio evolves according to:

$$D_t = (1 + r_t)D_{t-1} - PB_t. \quad (1)$$

That is, the debt ratio at the end of year  $t$ ,  $D_t$ , is a sum of three components: the debt ratio at the end of the previous year ( $D_{t-1}$ ), interest accrued on existing debt during year  $t$  ( $rD_{t-1}$ ), and the negative of the primary balance ( $-PB_t$ ).

Repeatedly substituting for  $D_t$ , the debt ratio at the end of some future year  $T > t$  can be expressed similarly, as:

$$D_T = D_{t-1}\alpha_{t-1,T} - \sum_{i=t}^T (PB_i\alpha_{i,T}). \quad (2)$$

The path of the debt ratio is thus determined by the initial debt ratio, accrued interest (net of growth), and the path of primary balances from  $t$  through  $T$ .

#### Important warning

It should be noted that the actual calculation of the S1 and S2 indicators also accounts for property income and tax revenue on pensions, although they are not explicitly included in the derivations in order to simplify them and to facilitate the interpretation of results. Their inclusion would be trivial, implying "adding" terms to the formulas similar to that for "ageing costs"  $\Delta A_t$ .

#### A2.3. DERIVATION OF THE S1 INDICATOR

The S1 indicator is defined as the constant annual improvement in the ratio of structural primary balance to GDP, from year  $t_0 + 1$  up to year  $t_1$ , that is required to bring the debt ratio to a given level by year  $t_2$ .<sup>(216)</sup> In addition to accounting for the need to adjust the initial intertemporal budgetary position and the debt level, it incorporates financing for any additional

<sup>(216)</sup> This is in contrast to the S2 indicator, which is defined as an immediate, one-off adjustment.

expenditure until the target date arising from an ageing population.

During the S1 adjustment, the primary balance (as a percentage of GDP) increases by a constant annual amount  $c > 0$  each year starting from  $t_0 + 1$  through  $t_1$ . The adjustment is assumed to be permanent. Under the assumed consolidation schedule, the change in the structural primary balance is thus given by

$$\Delta PB_i \equiv PB_i - PB_{t_0} = c(i - t_0) - \Delta A_i \quad (3i)$$

$$\text{for } t_0 < i \leq t_1$$

$$\Delta PB_i \equiv PB_i - PB_{t_0} = \frac{c(t_1 - t_0)}{= S_1} - \Delta A_i \quad (3ii)$$

$$\text{for } t_2 \geq i > t_1$$

Using (2), the debt ratio target  $D_{t_2}$  can then be written as:

$$D_{t_2} = D_{t_0} \alpha_{t_0, t_2} - \sum_{i=t_0+1}^{t_2} (PB_i \alpha_{i, t_2}) \quad (4)$$

Replacing (3i)-(3ii) into (4) yields:

$$D_{t_2} = D_{t_0} \alpha_{t_0, t_2} - \sum_{i=t_0+1}^{t_1} (PB_{t_0} + c(i - t_0)) \alpha_{i, t_2} - \sum_{i=t_1+1}^{t_2} \left( PB_{t_0} + \frac{c(t_1 - t_0)}{= S_1} \right) \alpha_{i, t_2} + \sum_{i=t_0+1}^{t_2} (\Delta A_i \alpha_{i, t_2}) \quad (5)$$

After some straightforward manipulations,<sup>(217)</sup> we can decompose the S1 into the following main components:

$$S_1 \equiv \frac{c(t_1 - t_0)}{T}$$

$$= \frac{D_{t_0} (\alpha_{t_0, t_2} - 1)}{\sum_{i=t_0+1}^{t_2} (\alpha_{i, t_2})} - PB_{t_0} + c \frac{\sum_{i=t_0+1}^{t_1} ((t_1 - i) \alpha_{i, t_2})}{\sum_{i=t_0+1}^{t_2} (\alpha_{i, t_2})} + \frac{D_{t_0} - D_{t_2}}{\sum_{i=t_0+1}^{t_2} (\alpha_{i, t_2})} + \frac{\sum_{i=t_0+1}^{t_2} (\Delta A_i \alpha_{i, t_2})}{\sum_{i=t_0+1}^{t_2} (\alpha_{i, t_2})} \quad (6)$$

where (T) is the total adjustment (the S1 indicator by definition); (A) the strict initial budgetary position (i.e. the gap to the debt-stabilizing primary balance); (B) the cost of delaying the adjustment; (C) the required additional adjustment due to the debt target (DR); and (D) the additional required adjustment due to the costs of ageing (LTC). The total initial budgetary position (IBP) is the sum of A and B i.e. includes the cost of delaying the adjustment.

#### A2.4. DERIVATION OF THE S2 INDICATOR

##### The intertemporal budget constraint and the S2 indicator

According to a generally invoked definition, fiscal policy is sustainable in the long-term if the present value of future primary balances is equal to the current level of debt, that is, if the intertemporal government budget constraint (IBC) is met. Let us define the S2 as the immediate and permanent one-off fiscal adjustment that would ensure that the IBC is met. This indicator is appropriate for assessing long-term fiscal sustainability in the face of ageing costs.<sup>(218)</sup>

Since the S2 indicator is defined with reference to the intertemporal government budget constraint (IBC), we first discuss which conditions are required for the IBC to hold in a standard model of debt dynamics. From (2), the debt to GDP ratio at the end of any year  $t > t_0$  is given by:

<sup>(217)</sup> Add and subtract  $D_{t_0}$  on the LHS of (5). In the second term on the LHS, rewrite  $c(i - t_0) = S_1 - c(t_1 - i)$ , then exchange  $-S_1 \cdot \sum_{i=t_0+1}^{t_2} (\alpha_{i, t_2})$  on the LHS for  $D_{t_2}$  on the RHS. Finally, divide by  $\sum_{i=t_0+1}^{t_2} (\alpha_{i, t_2})$ , simplify, and group the terms as in (6).

<sup>(218)</sup> Note that the derivation of S2 does not assume that either the initial sequence of primary balances or the fixed annual increase (S2) are optimal according to some criterion. S2 should be considered as a benchmark and not as a policy recommendation or as a measure of the actual adjustment needed in any particular year.

$$D_t = D_{t_0} \alpha_{t_0,t} - \sum_{i=t_0+1}^t (PB_i \alpha_{i,t}). \quad (7)$$

Rearranging the above and discounting both sides to their time  $t_0$  values, we obtain the debt ratio on the initial period:

$$D_{t_0} = \left( \frac{D_t}{\alpha_{t_0,t}} \right) + \sum_{i=t_0+1}^t \left( \frac{PB_i}{\alpha_{t_0,i}} \right). \quad (8i)$$

Assuming an infinite time horizon ( $t \rightarrow \infty$ ) we get:

$$\begin{aligned} D_{t_0} &= \lim_{t \rightarrow \infty} \left( \frac{D_t}{\alpha_{t_0,t}} \right) + \lim_{t \rightarrow \infty} \sum_{i=t_0+1}^t \left( \frac{PB_i}{\alpha_{t_0,i}} \right) \\ &= \lim_{t \rightarrow \infty} \left( \frac{D_t}{\alpha_{t_0,t}} \right) + \sum_{i=t_0+1}^{\infty} \left( \frac{PB_i}{\alpha_{t_0,i}} \right) \end{aligned} \quad (8ii)$$

Either both of the limits on right-hand side of equation (8ii) fail to exist, or if one of them exists, so does the other.

Let us define the *no-Ponzi game condition* (also called the *transversality condition*) for debt sustainability, namely that the discounted present value of debt (in the very long-term or in the infinite horizon) will tend to zero:

$$\lim_{t \rightarrow \infty} \left( \frac{D_t}{\alpha_{t_0,t}} \right) = 0 \quad (9i)$$

Condition (9i) means that asymptotically, the debt ratio cannot grow at a rate equal or higher than the (growth-adjusted) interest rate, which is what would happen if debt and interest were systematically paid by issuing new debt (i.e. a Ponzi game).

Combining the no-Ponzi game condition (9i) with (8ii), one obtains the intertemporal budget constraint, stating that a fiscal policy is sustainable if the present discounted value of future primary balances is equal to the initial value of the debt ratio.

$$D_{t_0} = \sum_{i=t_0+1}^{\infty} \left( \frac{PB_i}{\alpha_{t_0,i}} \right) \quad (9ii)$$

On the other hand, substituting the intertemporal budget constraint (9ii) into (8ii) implies the no-Ponzi game condition. This shows that the no-Ponzi game condition (9i) and the IBC (9ii) are, in fact, equivalent.

Assuming that the intertemporal budget constraint is satisfied through a permanent, one-off fiscal adjustment whose size is given by the S2, from  $t_0 + 1$  onwards we can write:

$$\Delta PB_i \equiv PB_i - PB_{t_0} = S_2 - \Delta A_i \quad \text{for } i > t_0. \quad (10)$$

Then the intertemporal budget constraint (9ii) becomes

$$D_{t_0} = \sum_{i=t_0+1}^{\infty} \left( \frac{PB_{t_0} + S_2 - \Delta A_i}{\alpha_{t_0,i}} \right). \quad (9iii)$$

Here the ratio of structural primary balance to GDP,  $PB_t$  is re-expressed in terms of the required annual additional effort, S2, and the change in age-related costs relative to the base year  $t_0$ , combining the equation (10) with equation (9ii).

According to the theory on the convergence of series, necessary conditions for the series in equation (9ii)-(9iii) to converge are for the initial path of primary balances to be bounded and the interest rate differential in the infinite horizon to be positive.<sup>(219)</sup> The latter is equivalent to the modified golden rule, stating that the nominal interest rate exceeds the real growth rate (i.e.  $\lim_{t \rightarrow \infty} r_t > 0$ ).<sup>(220)</sup>

After some rearranging<sup>(221)</sup>, we can decompose the S2 into the following two components:

$$S_2 = \underbrace{\frac{D_{t_0}}{\sum_{i=t_0+1}^{\infty} \left( \frac{1}{\alpha_{t_0,i}} \right)}}_A - PB_{t_0} + \underbrace{\frac{\sum_{i=t_0+1}^{\infty} \left( \frac{\Delta A_i}{\alpha_{t_0,i}} \right)}{\sum_{i=t_0+1}^{\infty} \left( \frac{1}{\alpha_{t_0,i}} \right)}}_B \quad (11)$$

where (A) is the initial budgetary position i.e. the gap to the debt stabilising primary balance;<sup>(222)</sup> and (B) the additional required adjustment due to the costs of ageing.

<sup>(219)</sup> The latter is an application of the ratio test for convergence.  
<sup>(220)</sup> See Escolano (2010) for further details on the relationships among the stability of the debt ratio, the IBC and the no-Ponzi game condition.

<sup>(221)</sup> In addition, constant multiplicative terms are systematically taken out of summation signs.

<sup>(222)</sup> In practical calculations, the present value of property income is also accounted for in the initial budgetary position. Property income enters the equation in an identical manner as age-related costs  $\Delta A_t$  (i.e. term (B)), but with an opposite sign.

If the interest-growth rate differential  $r$  is constant, the accumulation factor simplifies to  $\alpha_{s;v} = (1 + r_{s+1})(1 + r_{s+2}) \dots (1 + r_v) = (1 + r)^{v-s}$ . Then equation (10) can be simplified further by noting that:

$$\sum_{i=t_0+1}^{\infty} \left( \frac{1}{\alpha_{t_0;i}} \right) = \sum_{i=t_0+1}^{\infty} \left( \frac{1}{(1+r)^{i-t_0}} \right) = \frac{1}{r} \quad (12)$$

Thus, for a constant discounting factor, (11) can be rewritten as:

$$S_2 = \frac{rD_{t_0} - PB_{t_0}}{A} + r \sum_{i=t_0+1}^{\infty} \left( \frac{\Delta A_i}{\alpha_{t_0;i}} \right) \quad (13i)$$

If the interest-growth rate differential and the structural primary balance are constant after a certain date (here  $t_3 = 2060$ ), equation (11) can be rewritten as:

$$S_2 = \frac{D_{t_0}}{\sum_{i=t_0+1}^{2059} \left( \frac{1}{\alpha_{t_0+1;i}} \right) + \frac{1}{r\alpha_{t_0+1;2059}}} - PB_{t_0} + \frac{\sum_{i=t_0+1}^{2059} \left( \frac{\Delta A_i}{\alpha_{t_0+1;i}} \right) + \frac{\Delta A_{2060}}{r\alpha_{t_0+1;2059}}}{\sum_{i=t_0+1}^{2059} \left( \frac{1}{\alpha_{t_0+1;i}} \right) + \frac{1}{r\alpha_{t_0+1;2059}}} \quad (13ii)$$

where  $r_t = r$  and  $\Delta A_t = \Delta A_{2060}$  for  $t \geq t_3 = 2060$ .

#### Derivation of the steady state debt level (at the end of the projection period) corresponding to the S2

Assuming that the intertemporal budget constraint is satisfied and that the primary balance and the interest-growth rate differential are constant at their long-run levels after the end of the projection period, then the debt ratio remains constant at the value attained at the end point of the projection period (i.e. at  $t_3 = 2060$ ).

To see this, rewrite (9ii) as:

$$D_{t_0} = \sum_{i=t_0+1}^{\infty} \left( \frac{PB_i}{\alpha_{t_0;i}} \right) = \sum_{i=t_0+1}^{t_3} \left( \frac{PB_i}{\alpha_{t_0;i}} \right) + \sum_{i=t_3+1}^{\infty} \left( \frac{PB_i}{\alpha_{t_0;i}} \right) \quad (14i)$$

Using (7) and the fact that for  $t \geq t_3$  the primary balance and interest-growth rate differential stay constant at  $PB_t = PB_{t_3}$  we can rearrange (14i) to obtain the debt ratio at  $t_3$ :

$$D_{t_3} = D_{t_0} \alpha_{t_0;t_3} - \sum_{i=t_0+1}^{t_3} (PB_i \alpha_{i;t_3}) = \sum_{i=t_3+1}^{\infty} \left( \frac{PB_i}{\alpha_{t_3;i}} \right) = \sum_{i=1}^{\infty} \left( \frac{PB_{t_3}}{(1+r_{t_3})^i} \right) = \frac{PB_{t_3}}{r_{t_3}} \quad (14ii)$$

We can generalise the above to each  $t \geq t_3$  by using (7) with the initial year changed to  $t_3$  instead of  $t_0$ , we see that for each year after  $t_3$ , the debt ratio remains unchanged at this value:

$$D_t = D_{t_3} \alpha_{t_3;t} - \sum_{i=t_3+1}^t (PB_i \alpha_{i;t}) = \frac{PB_{t_3}}{r_{t_3}} (1+r_{t_3})^{t-t_3} - PB_{t_3} \sum_{i=t_3+1}^{t-t_3} (1+r_{t_3})^{t-i-1} = \left[ \frac{(1+r_{t_3})^{t-t_3} - r_{t_3} \left( \frac{1 - (1+r_{t_3})^{t-t_3}}{1 - (1+r_{t_3})} \right)}{1} \right] \frac{PB_{t_3}}{r_{t_3}} = \frac{PB_{t_3}}{r_{t_3}} \equiv \bar{D} \quad \text{for } t \geq t_3 \quad (15)$$

where  $\bar{D}$  is the constant debt ratio reached after the end of the projection period.

Using (4), the primary balance at the end of the projection period can be calculated as:

$$PB_{t_3} = PB_{t_0} + S_2 - \Delta A_{t_3} \quad (16)$$

Replacing (16) into (15), the constant (steady-state) debt ratio ( $\bar{D}$ ) is given by:

$$\bar{D} = \frac{PB_{t_3}}{r_{t_3}} = \frac{PB_{t_0} + S_2 - \Delta A_{t_3}}{r_{t_3}} \quad \text{for } t \geq t_3 \quad (17)$$

The S2 adjustment implies that the sum of debt and the discounted present value of future changes in aged-related expenditure is (approximately) constant over time

Replacing equations (16) and (13i) into (15), and assuming a constant interest rate differential, the following equation is obtained:

$$D_t + \sum_{i=t+1}^{\infty} \left( \frac{\Delta A_i}{(1+r)^{i-t}} \right) = D_{t_0} + \sum_{i=t_0+1}^{\infty} \left( \frac{\Delta A_i}{(1+r)^{i-t_0}} \right) \quad (18)$$

Equation (18) can be interpreted as follows. Implementing a permanent annual improvement in the primary balance amounting to S2 (equation 5), which is both necessary and sufficient to secure

intertemporal solvency, implies that the sum of explicit debt (the first term in both sides) and the variation in age-related expenditure or implicit debt (the second terms in both sides) is (approximately) constant over time. Equation (17) is exact in the steady state (e.g. after 2060), holding only as an approximation during transitory phases (i.e. for time-varying interest rate differentials).<sup>(223)</sup>

#### A2.5. DERIVATION OF THE INW INDICATOR

The inter-temporal net worth (INW) indicator can be interpreted as a measure of government's net financial wealth, assuming unchanged policies and including projected/implicit future liabilities due to ageing.

INW is given by net worth ( $a_{t_0}$ ) in the base year ( $t_0$ ) minus the discounted sum of all future primary balances required to secure inter-temporal sustainability (i.e. S2). Net worth is the difference between government assets and liabilities i.e. the negative of net debt.

Accordingly, the inter-temporal net worth indicator is derived from S2 as:

$$INW_{t_0} = a_{t_0} - S_2 \sum_{i=t_0+1}^{\infty} \left( \frac{1}{\alpha_{t_0;i}} \right) \quad (19)$$

For a constant discount factor, using (12) equation (19) simplifies to:

$$INW_{t_0} = a_{t_0} - \frac{S_2}{r} \quad (20)$$

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<sup>(223)</sup> Moreover, equations (17) and (18) imply that both the debt and the variation in age-related expenditure are constant over time in the steady state.



## ANNEX A3

### The Stability and Growth Pact scenario

In the SGP scenario, it is assumed that, for countries under EDP, a structural fiscal adjustment in compliance with the Council recommendations is maintained until the excessive deficit is corrected. Thereafter, a structural consolidation effort, determined according to the preventive arm of the Pact<sup>(224)</sup> as clarified by the January 2015 European Commission Communication regarding SGP flexibility (see reference in Chapter 2 of the report), is maintained until the MTO is reached. For countries that are not under EDP, the annual fiscal adjustment required to reach the MTO is determined according to the aforementioned Communication<sup>(225)</sup> and applied as from 2017. More details are contained in Table A3.1.

Table A3.1: SGP scenario: main features

Date	Countries under EDP	Countries not under EDP (but whose SB < MTO in 2016)	Countries not under EDP (and whose SB >= MTO in 2016)
2016	fiscal consolidation (in terms of SB) fixed by Council recommendation	SB = forecast value	SB = forecast value (>= MTO)
2017 until excessive deficit (if any) corrected	fiscal consolidation (in terms of SB) fixed by Council recommendation	fiscal consolidation (in terms of SB) determined by the matrix (for cyclical conditions), investment and structural reforms' clauses (flexibility communication)	SB constant (>= MTO)
excessive deficit (if any) corrected until MTO reached	fiscal consolidation (in terms of SB) determined by the matrix (for cyclical conditions), investment and structural reforms' clauses (flexibility communication)		
MTO reached until end of projections (2026)	SB constant (>= MTO)	SB constant (>= MTO)	

Source: Commission services.

For Member States under EDP, the recommended fiscal adjustment is applied in 2016 (and 2017 in case) according to Table A3.2.

Table A3.2: Required fiscal adjustment under EDP (change in structural balance, pps. of GDP)

	2016	2017
ES	1.2	-
FR	0.8	0.9
HR	0.7	-
UK	1.1	-

Source: Commission services.

For countries not under EDP and for countries under EDP, once the excessive deficit will have been corrected, the annual fiscal adjustment required to reach the MTO is determined

<sup>(224)</sup> Regulation 1466, as clarified by the Commission Communication regarding SGP flexibility. See also the commonly agreed position on flexibility as confirmed by the ECOFIN Council of 8 December 2015 (Council document number 14345/15).

<sup>(225)</sup> See previous footnote for more details.

according to the matrix defined in the flexibility Communication (see Table A3.3). This matrix specifies the appropriate fiscal adjustment, required under the preventive arm of the SGP, taking better account of the cyclical situation of individual Member States. The level of requested fiscal effort is also modulated according to the level of the debt ratio (below or above 60% of GDP, and in case based on the presence of sustainability risks). It should be noted that the SGP scenario (that is built on the *Autumn forecasts* for the year t+1) does not take into account the possible further granting of flexibility (on top of the one granted in the European Semester 2015) to temporarily deviate from the MTO or adjustment path towards it, under the structural reform and/or investment clause (see the aforementioned flexibility Communication).

Table A3.3: Matrix specifying fiscal adjustment towards MTO (preventive arm of the SGP)

	Condition	Required annual fiscal adjustment	
		Debt below 60% of GDP and no sustainability risk	Debt above 60% of GDP or sustainability risk
Exceptionally bad times	Real growth < 0% or output gap < -4	no adjustment needed	
Very bad times	-4 <= output gap < -3	0	0.25
Bad times	-3 <= output gap < -1.5	0 if growth below potential, 0.25 if growth above potential	0.25 if growth below potential, 0.5 if growth above potential
Normal times	-1.5 <= output gap < 1.5	0.5	> 0.5
Good times	output gap >= 1.5	> 0.5 if growth below potential, >= 0.75 if growth above potential	>= 0.75 if growth below potential, >= 1 if growth above potential

Source: Commission services.

The fiscal effort required for 2017 and onwards under the SGP preventive arm, taking into account the flexibility allowed by the SGP, is incorporated in our debt projections as reported in Table A3.4. In 2017, required fiscal adjustment ranges from 0 pps. of GDP for countries that would have already (over-)reached their MTO (e. g. DE or LU) to 1.0 pp. of GDP in the case of SI. By 2022, all countries will have reached their MTO in this scenario.

Table A3.4: Required fiscal adjustment under the SGP scenario (change in structural balance, pps. of GDP)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>BE</b>	0.6	0.6	0.6	0.6	0.4	0.0	0.0	0.0	0.0	0.0
<b>BG</b>	0.5	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>CZ</b>	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>DK</b>	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>DE</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EE</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>IE</b>	0.6	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
<b>EL</b>	:	:	:	:	:	:	:	:	:	:
<b>ES</b>	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>FR</b>	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>HR</b>	0.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>IT</b>	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>CY</b>	:	:	:	:	:	:	:	:	:	:
<b>LV</b>	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>LT</b>	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>LU</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>HU</b>	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>MT</b>	0.6	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
<b>NL</b>	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>AT</b>	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>PL</b>	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
<b>PT</b>	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>RO</b>	0.5	0.5	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0
<b>SI</b>	1.0	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
<b>SK</b>	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>FI</b>	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>SE</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>UK</b>	0.6	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0

Source: Commission services.

## ANNEX A4

### Fiscal reaction functions and public debt sustainability thresholds for Member States

#### A4.1. FISCAL REACTION FUNCTIONS: RATIONALE AND ESTIMATION STRATEGY

In the context of the 2010-12 European sovereign crisis and of the general upward trend of public debt in OECD countries, the literature on fiscal reaction functions (FRF) has substantially grown over the last few years since the seminal work of Bohn (1998). Indeed, these functions, which capture the reaction of governments (via their primary balance) to increasing public debt (and to macroeconomic conditions), are a useful piece in the toolkit of debt sustainability analysis. If drawing strong conclusions about fiscal sustainability on the basis of the debt FRF coefficient is debatable,<sup>(226)</sup> such functions can be used to perform alternative debt projections to the traditional no-fiscal policy change assumption (where primary balance is simply held constant at its last forecast year value). For instance, different analytical papers exhibit (stochastic) debt projections integrating such behavioural equations (e. g. Medeiros, 2012; Burger *et al*, 2011; Celasun *et al*, 2007).<sup>(227)</sup>

If the basic specification of fiscal reaction functions is relatively straightforward (see below), a strong attention has been put in the literature on the nature of the relationship between primary balance and public debt (linear / non-linear function; time-dependent / threshold-dependent function). In particular, given the unprecedented size of public debt levels in some OECD countries since WWII, and the on-going and protracted fiscal consolidation in many EU countries since 2010, several papers on fiscal reaction functions have put into evidence a risk of *fiscal fatigue*<sup>(228)</sup> (e. g. Medeiros, 2012; Gosh *et al*, 2011).<sup>(229)</sup> However,

other authors challenged this finding, pointing, on the contrary, to an increased fiscal responsiveness to debt since the financial crisis (e.g. Baldi and Staehr, 2015; Checherita-Westphal and Zdarek, 2015).

Another important question, raised by the FRF literature, relates to whether *country-specific* fiscal reaction functions, relying on long time-series, should be preferred or, instead, whether a greater attention should be put on the *time-consistency* dimension, implying estimating a single fiscal reaction function over a panel of countries. Indeed, if country-specific fiscal reaction functions capture the country specificities inherent to fiscal behaviour, they traditionally rely on very long time-periods,<sup>(230)</sup> encompassing (very) different macroeconomic conditions. Thus, assuming a *time-invariant* fiscal behaviour (in relation to debt and other variables) may be seen as a strong hypothesis.<sup>(231)</sup> On the other hand, a single fiscal reaction function, estimated over a panel of countries and a shorter time-frame, presupposes *country-invariant* fiscal behaviour across the sample considered<sup>(232)</sup>, which may prove an even stronger assumption.

In this report, to the purpose of designing a fiscal reaction function scenario for public debt projections, country-specific FRFs have been estimated, whenever long time-series were available (this is the case for BE, DK, DE, IE, ES, FR, IT, NL, AT, PT, FI, SE and UK). For Central and Eastern European countries (CEECs including BG, CZ, EE, HR, LV, LT, HU, MT, PL, RO, SI and SK), for which data availability is more limited, a single fiscal reaction function has been estimated.<sup>(233)</sup> To overcome stationarity issues,

<sup>(226)</sup> If Bohn (1998) established that a positive and significant debt FRF coefficient was a sufficient condition for sustainability, more recent approaches (e. g. Fournier and Fall, 2015; Gosh *et al*, 2011), integrating financial markets reactions, show that the size of this coefficient must be large enough to ensure that public debt will remain on a sustainable path.

<sup>(227)</sup> Fiscal reaction functions are typically not introduced in standard DSA frameworks (as in the IMF's), but instead considered in enhanced / tailored-made DSA.

<sup>(228)</sup> Indeed, at high levels of public debt, fiscal responsiveness would weaken, and could even turn negative at very high levels.

<sup>(229)</sup> Another stream of the literature, based on empirical historical and cross-country analysis, also pointed to such a risk (e. g. Eichengreen and Panizza, 2014).

<sup>(230)</sup> FRFs are generally based on annual data (since fiscal data are considered less meaningful at a higher frequency) even if a few studies use quarterly data.

<sup>(231)</sup> However, a counter-argument, based on Reinhart and Rogoff literature, would be that there is a form of fiscal behaviour inertia, illustrated by the fact that countries found to have defaulted in the past (sometimes in the very long past) are more likely to still exhibit fiscal weaknesses in the present (in relationship with structural country-characteristics such as economic specialization or quality of political institutions).

<sup>(232)</sup> Even if country-fixed effects are traditionally taken into account.

<sup>(233)</sup> As in the rest of the report, results are not shown for EL and CY, given that these countries are under specific fiscal surveillance procedures. No FRF was estimated for LU given data limitations and specificities (which prevented grouping this country with the panel of CEECs).

country-specific fiscal reaction functions follow an ECM (error-correction model) specification, as in Schoder (2014) and Legrenzi and Milas (2013). The single fiscal reaction function for CEECs is estimated through panel data techniques, with strong attention put on endogeneity issues.

#### A4.2. DATA USED

The main database used are AMECO and the *Historical Public Finance Database* built by Mauro *et al* (2013). Those data have been pulled together in a way to ensure source-consistency across fiscal variables (see Berti *et al*, 2016). Moreover, for far back in time values of GDP growth rate and inflation, Maddison (GDP) and Reinhart and Rogoff (inflation) database have been used.

#### A4.3. MAIN ESTIMATION RESULTS

Country-specific FRFs are presented in Tables A4.1 and A4.2 below. The estimation period generally covers the period 1950 – 2013. The general form of the regressions is the following:

$$\Delta PB_t = \alpha + \rho \cdot (PB_{t-1} - a \cdot Debt_{t-2} - b \cdot Debt_{t-2} \cdot crisis) + \beta \cdot \Delta Debt_{t-1} + \gamma \cdot \Delta Debt_{t-2} + \delta \cdot GG_t + \varepsilon \cdot YG_t + \theta \cdot reff_t + \vartheta \cdot infl_t + \mu \cdot crisis_t + \epsilon_t \quad (1)$$

At each period of time  $t$ , primary balance variations ( $\Delta PB_t$ ) are explained by two components: 1) the error-correction component, capturing the fraction ( $\rho$ ) of the deviation between primary balance and its long-term debt target ( $PB_{t-1} - a \cdot Debt_{t-2} - b \cdot Debt_{t-2} \cdot crisis$ ) that is adjusted every year; 2) short-term variations of lagged public debt ( $\Delta Debt_{t-i}$ ), the expenditure gap ( $GG_t$ ), the output gap ( $YG_t$ ), the real implicit interest rate ( $reff_t$ ) and the inflation rate ( $infl_t$ ).<sup>(234)</sup> The expenditure gap is defined as the deviation between current and trend primary public expenditure. The term  $\mu \cdot crisis$  captures the negative impact of the crisis on the primary balance not captured by other variables (expenditure gap, output gap, real implicit interest rate - which imperfectly captures financial

markets' tensions).<sup>(235)</sup> Moreover, we allow for a structural break in the long-term relationship between primary balance and public debt by adding an interaction term between the lagged public debt and the crisis dummy ( $b \cdot Debt_{t-2} \cdot crisis$ ) like in Weichenrieder and Zimmer (2015).

Results show that over the whole estimation period, the highest FRF debt coefficient is estimated in FI and BE (at 0.10 - 011), meaning that based on long historical behaviours, these countries tend to significantly adjust their primary balance to changes in public debt level (see Tables A4.1 and A4.2). Compared to the existing literature, the intensity of the reaction in these two countries appears to be on the high side. Indeed, Checherita-Westphal and Zdarek (2015), who compiled a large literature review on the subject, find an FRF debt coefficient varying on average between 0.01 and 0.10 (based on panel data analysis). On the other hand, this coefficient is not significant in the case of DE, IT,<sup>(236)</sup> AT, UK and PT, and slightly negative in the case of FR. These mixed results when estimating country-specific FRFs are also confirmed by the existing literature (see again Checherita-Westphal and Zdarek, 2015). However, when interacting in addition the debt variable with the crisis dummy, the FRF debt coefficient becomes positive and significant for all countries. Thus, since the 2009 financial crisis, a substantial change in fiscal behaviour would have been registered in DE, FR, IT, AT, UK, PT and ES. In this group of countries, fiscal responsiveness to public debt would have become positive and significant (or increase). The highest level is found in IT (0.17). These results are consistent with Baldi and Staehr (2015) and Checherita-Westphal and Zdarek (2015),<sup>(237)</sup> although they have to be considered cautiously given the limited number of post-crisis observations.<sup>(238)</sup>

<sup>(235)</sup> The dummy variable *crisis* takes the value 1 over the period 2009 – 2013.

<sup>(236)</sup> In the case of IT however, a strong FRF to short-term variations of public debt is found.

<sup>(237)</sup> These two papers are based on panel data analysis.

<sup>(238)</sup> For instance, in the case of ES, the FRF debt coefficient appears quite high in the standard specification used. Therefore, an alternative specification, based on a simple regression in level, is also estimated.

<sup>(234)</sup> Those last four variables, being generally time stationary, enter the short-term part of the equation in level.

Table A4.1: Country-specific FRF: estimation results for non (ex-) programme countries (regressed variable: d(Primary balance), estimation period: 1950-2013)

VARIABLES	BE	DK	DE	FR	IT	NL	AT	FI	SE	UK
Constant	-3.053*** (0.906)	0.548*** (0.200)	0.480** (0.203)	0.514 (0.354)	-0.171 (0.131)	-1.814** (0.681)	0.119 (0.166)	-2.526*** (0.416)	-0.748 (0.587)	0.235 (0.249)
Δ Lagged debt	-	-	-	-	0.0859** (0.0411)	-0.107*** (0.0322)	-	-	-	-
Δ Lagged debt (-1)	-	-	-	0.0758** (0.0343)	-	-	0.126*** (0.0462)	-	-	-
Lagged primary balance	-0.715*** (0.102)	-0.650*** (0.0760)	-0.621*** (0.148)	-0.514*** (0.0740)	-0.145** (0.0663)	-0.901*** (0.0822)	-0.555*** (0.0666)	-0.583*** (0.0680)	-0.626*** (0.0703)	-0.480*** (0.0911)
Lagged debt (-1)	0.0743*** (0.00988)	0.0364*** (0.00612)	-	-0.0178* (0.00949)	-	0.0203** (0.00826)	-	0.0650*** (0.0119)	0.0509*** (0.0101)	-
Lagged debt (-1) x Crisis	-	-	0.00939** (0.00393)	0.0341*** (0.00407)	0.0242*** (0.00398)	-0.0179** (0.00779)	0.0146* (0.00807)	-	-	0.0495*** (0.0134)
Expenditure gap	-0.379*** (0.125)	-0.326*** (0.0708)	-0.622** (0.289)	-0.425*** (0.0915)	-0.299** (0.134)	-0.921*** (0.0902)	-0.466*** (0.150)	-0.609*** (0.0950)	-0.680*** (0.103)	-0.437*** (0.121)
Output gap	-	0.347*** (0.0527)	-	-	-	-	-	-	-	-
Inflation	-0.399*** (0.102)	-	-	-	-	0.228*** (0.0574)	-	0.322*** (0.0416)	-0.245*** (0.0536)	-
Real IIR	-0.466*** (0.0956)	-	-	-	0.0761** (0.0346)	0.259*** (0.0523)	-	0.271*** (0.0398)	-	-
Crisis	-2.841*** (0.471)	-1.638*** (0.299)	-	-3.125*** (0.399)	-2.294*** (0.383)	-	-1.479*** (0.494)	-1.363*** (0.428)	-	-5.210*** (0.533)
Dummy source PB	-	3.300*** (0.199)	-	1.212*** (0.391)	-	1.456*** (0.331)	-	-	-	3.788*** (0.354)
Dummy source Debt	1.315*** (0.487)	-	-	-3.600*** (0.293)	-1.640*** (0.295)	-2.012*** (0.340)	-	-	0.976** (0.472)	-2.418*** (0.350)
Observations	64	59	62	64	64	64	63	64	64	64
Adjusted R <sup>2</sup>	0.552	0.677	0.459	0.586	0.295	0.793	0.634	0.621	0.651	0.513
ADF t-stat (residuals)	-3.631***	-7.160***	-6.760***	-6.479***	-7.940***	-6.454***	-6.871***	-8.265***	-7.047***	-6.049***
Breusch-Godfrey LM test X <sup>2</sup> (prob.)	0.008	0.931	0.385	0.174	0.894	0.147	0.103	0.713	0.283	0.014
Standard errors in parentheses										
*** p<0.01, ** p<0.05, * p<0.1 (computed using heteroskedasticity- and autocorrelation-consistent standard errors with Newey-West lag window of size 3)										
Long-term FRF debt coefficient	BE	DK	DE	FR	IT	NL	AT	FI	SE	UK
Whole period	0.104	0.056	-	-0.035	-	0.023	-	0.111	0.081	-
Since the crisis	0.104	0.056	0.015	0.032	0.167	0.003	0.026	0.111	0.081	0.103

(1) Long-term FRF debt coefficients are derived as minus (-) the ratio between the estimated coefficient on lagged debt (-1) and the estimated error-correction term.

Source: Commission services

Table A4.2: Country-specific FRF: estimation results for ex-programme countries (regressed variable: d(Primary balance)\*, estimation period: 1950-2013)

VARIABLES	IE	PT	ES (1)	ES (2)
<b>Constant</b>	<b>-3.041***</b> (0.930)	<b>-0.961***</b> (0.337)	<b>0.768***</b> (0.146)	<b>1.455**</b> (0.620)
<b>Δ Lagged debt</b>	-	-	-	-
<b>Δ Lagged debt (-1)</b>	<b>-0.133**</b> (0.0648)	-	-	-
<b>Lagged primary balance</b>	<b>-0.823***</b> (0.145)	<b>-0.618***</b> (0.0963)	<b>-0.386***</b> (0.113)	-
<b>Lagged debt (-1)</b>	<b>0.0630***</b> (0.0141)	-	-	-
<b>Lagged debt (-1) x Crisis</b>	-	<b>0.0573***</b> (0.00396)	<b>0.0930***</b> (0.0102)	-
<b>Lagged debt</b>	-	-	-	<b>0.0419***</b> (0.0145)
<b>Lagged debt x crisis</b>	-	-	-	<b>0.0617***</b> (0.0180)
<b>Expenditure gap</b>	<b>-0.826***</b> (0.116)	<b>-0.377***</b> (0.0662)	<b>-0.196***</b> (0.0296)	<b>-0.130***</b> (0.0467)
<b>Output gap</b>	<b>-0.170**</b> (0.0837)	-	-	-
<b>Inflation</b>	<b>-0.100*</b> (0.0559)	<b>0.0560**</b> (0.0278)	<b>-0.0929***</b> (0.0249)	<b>-0.444***</b> (0.0564)
<b>Real IIR</b>	-	<b>0.0980**</b> (0.0380)	-	<b>-0.326***</b> (0.0430)
<b>Crisis</b>	<b>-4.966***</b> (1.268)	<b>-5.401***</b> (0.379)	<b>-7.140***</b> (0.463)	<b>-12.99***</b> (0.886)
<b>Dummy source PB</b>	-	-	<b>-2.642***</b> (0.228)	<b>-2.385***</b> (0.493)
<b>Dummy source Debt</b>	<b>-2.715***</b> (0.691)	-	-	-
Observations	64	64	64	64
Adjusted R <sup>2</sup>	0.817	0.596	0.526	0.810
ADF t-stat (residuals)	-5.480***	-7.134***	-7.235***	-
Breusch-Godfrey LM test X <sup>2</sup> (prob.)	0.002	0.586	0.092	0.007

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 (computed using heteroskedasticity- and autocorrelation-consistent standard errors with Newey-West lag window of size 3)  
(1) ECM specification; (2) regressed variable: PB

Long-term FRF debt coefficient	IE	PT	ES (1)	ES (2)
Whole period	0.077	-	-	0.042
Since the crisis	0.077	0.093	0.241	0.104

(1) Long-term FRF debt coefficients are derived as minus (-) the ratio between the estimated coefficient on lagged debt (-1) and the estimated error-correction term.

Source: Commission services

Table A4.3: Single FRF: estimation results for CEECs (regressed variable: Primary balance)

VARIABLES	OLS	FE	IV FE	LSDVC	AB GMM	AB GMM collapsed
<b>Lagged primary balance</b>	<b>0.467***</b> (0.0965)	<b>0.330***</b> (0.0385)	<b>0.592***</b> (0.112)	<b>0.357***</b> (0.0373)	<b>0.310***</b> (0.0543)	<b>0.321***</b> (0.0632)
<b>Lagged debt</b>	<b>0.0271***</b> (0.00583)	<b>0.0552***</b> (0.0117)	<b>0.0589***</b> (0.00627)	<b>0.0544***</b> (0.00808)	<b>0.0643***</b> (0.00917)	<b>0.0663***</b> (0.00953)
<b>Expenditure gap</b>	<b>-0.716***</b> (0.102)	<b>-0.759***</b> (0.0767)	<b>-0.696***</b> (0.0776)	<b>-0.755***</b> (0.0476)	<b>-0.730***</b> (0.0658)	<b>-0.765***</b> (0.0796)
<b>Inflation</b>	<b>0.0448***</b> (0.0105)	<b>0.0656***</b> (0.0109)	<b>0.0323**</b> (0.0128)	<b>0.0628***</b> (0.0160)	<b>0.0793***</b> (0.0289)	<b>0.0679***</b> (0.0163)
<b>Constant</b>	<b>-2.071***</b> (0.394)	<b>-3.488***</b> (0.447)	<b>-3.077***</b> (0.333)	-	<b>-3.958***</b> (0.537)	-
Observations	193	193	184	193	193	181
R-squared	0.690	0.727	-	-	-	-
Number of id	-	12	12	12	12	12

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Source: Commission services

The single fiscal reaction function estimated for CEECs is presented in Table A4.3. The panel consists of 12 countries (see above), and 20 years at the best (unbalanced panel). The econometric specification for a country  $i$  at time  $t$  used is the following:

$$PB_{it} = \alpha + \beta.PB_{it-1} + \gamma.Debt_{it-1} + \delta.GG_{it} + \varepsilon.infl_{it} + \theta_i + \epsilon_{it} \quad (2)$$

$infl_{it}$  is defined as the 3-year moving average of the inflation rate and  $\epsilon_i$  is an unobserved country fixed effect. In this specification, a structural break in the relationship between primary balance and public debt is not considered given the limited time-span of the dataset, and relatively lower exposure to the financial crisis in CEECs.

Results show that primary balance reacts positively to increasing public debt amongst CEECs, with an intensity varying from 0.03 to 0.07 depending on the estimation technique used (see Table A4.3). There is also strong evidence of persistence in the primary balance over time, with a greater balance in  $t$  leading, *ceteris paribus*, to a higher balance in the following year. Other things equal, the primary balance responds negatively to an increase in the deviation between current and trend public expenditure, and positively to the average inflation rate of the previous three years.

For debt projections, the FRF equations displayed in Tables A4.1 to A4.3 have been used (in the FRF scenario presented in Chapter 2 of the report). In the case of ES, debt projections rely on the second

specification. In debt projections, based on country-specific FRF, the crisis dummy has been kept (at 1), implying that the change observed in fiscal behaviour since the 2009 financial crisis is considered as a structural change.<sup>(239)</sup> In some cases, this could be a strong assumption (e. g. ES with a strongly increased debt coefficient, or, on the other hand, NL with signs of fiscal fatigue). For CEECs, the penultimate-column equation of Table A4.3 (based on Arellano Bond GMM estimator) has been used (best option for dealing with endogeneity issues). For these countries, imposing a fiscal behaviour, such as the one captured through a single FRF equation, may be a strong assumption in some cases (e. g. EE for which a very limited number of observations is available).

#### A4.4. STATISTICAL PROPERTIES OF THE REGRESSIONS

Statistical properties of the country-specific FRF appear overall relatively satisfactory as can be seen from the statistics displayed in Tables A4.1 and A4.2 (in terms of goodness-of-fit, absence of autocorrelation and cointegration), and performing dynamic simulations. Robustness of the single FRF estimation results has been tested, using alternative estimation techniques (as can be seen from Table A4.3), and by rerunning the preferred regression (AB GMM), eliminating one country at

<sup>(239)</sup> Indeed, it can be argued that the euro area sovereign debt crisis as well as the new fiscal surveillance framework adopted then, have permanently impacted fiscal behaviour.

Table A4.4: Country robustness checks (regression AB GMM)

VARIABLES	All 12 in	BG out	CZ out	EE out	HR out	HU out	LT out	LV out	MT out	PL out	RO out	SK out	SI out
Lagged primary balance	0.310*** (0.0543)	0.304*** (0.0521)	0.310*** (0.0516)	0.310*** (0.0544)	0.281*** (0.0520)	0.350*** (0.0379)	0.299*** (0.0577)	0.307*** (0.0507)	0.321*** (0.0613)	0.298*** (0.0584)	0.308*** (0.0584)	0.313*** (0.0641)	0.323*** (0.0557)
Lagged debt	0.0643*** (0.00917)	0.0634*** (0.0178)	0.0618*** (0.00986)	0.0643*** (0.00915)	0.0702*** (0.00848)	0.0598*** (0.00755)	0.0662*** (0.00942)	0.0658*** (0.00967)	0.0562*** (0.00956)	0.0634*** (0.0101)	0.0663*** (0.00867)	0.0630*** (0.0104)	0.0670*** (0.00970)
Expenditure gap	-0.730*** (0.0658)	-0.728*** (0.0829)	-0.754*** (0.0592)	-0.730*** (0.0660)	-0.744*** (0.0693)	-0.696*** (0.0661)	-0.730*** (0.0730)	-0.759*** (0.0767)	-0.751*** (0.0704)	-0.724*** (0.0655)	-0.708*** (0.0593)	-0.691*** (0.0863)	-0.704*** (0.0602)
Inflation	0.0793*** (0.0289)	0.0825*** (0.0259)	0.0809*** (0.0268)	0.0792*** (0.0289)	0.0832*** (0.0324)	0.0709*** (0.0292)	0.0800*** (0.0299)	0.0771*** (0.0268)	0.0876*** (0.0250)	0.0700*** (0.0321)	0.0774*** (0.0370)	0.0843*** (0.0301)	0.0620*** (0.0253)
Constant	-3.958*** (0.537)	-4.152*** (0.765)	-3.891*** (0.544)	-4.022*** (0.541)	-4.184*** (0.590)	-3.536*** (0.386)	-4.073*** (0.584)	-4.156*** (0.558)	-3.597*** (0.523)	-3.814*** (0.554)	-4.023*** (0.585)	-3.831*** (0.636)	-3.963*** (0.658)
Observations	193	176	174	189	180	174	183	175	175	174	175	174	174
Number of id	12	11	11	11	11	11	11	11	11	11	11	11	11

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Commission services

a time from the sample to see how our estimates would change. As shown in Table A4.4, our estimates appear robust to this type of test. More details can be found in Berti *et al* (2016).

#### A4.5. PUBLIC DEBT SUSTAINABILITY THRESHOLDS (SELECTED COUNTRIES)

Fiscal reaction functions can be used to derive *public debt sustainability thresholds* i.e. levels of public debt beyond which governments don't meet anymore the inter-temporal budgetary condition<sup>(240)</sup> (see European Commission, 2011). When considering in addition financial markets' reaction to raising public debt, these functions also enable computing public debt limits i. e. levels of public debt beyond which governments are theoretically at risk of losing financial markets' access (see Gosh *et al*, 2011; Fournier and Fall, 2015). Finally, going a step further, some recent papers have used these estimates to measure fiscal space (difference between public debt limit and actual public debt; see Ostry *et al*, 2015).

However, it is worth noting that these approaches have important caveats linked first, to the potential weaknesses of the econometric estimations and the high sensitivity of the results to the interest rate - growth rate assumptions. Moreover, these backward-looking approaches do not integrate future potential liabilities (for example, linked to ageing societies or the banking sector). Based on a single metric, debt thresholds' estimates do not account for other factors like the structure of

public debt (in terms of maturity, currency or creditors). Finally, theoretical measures of debt limits can prove much higher than the level at which sovereigns can actually face financial stress. Despite these caveats, tentative estimations of *public debt sustainability thresholds* are made based on the estimated country-specific FRF (thus for around half of EU Member States). As in the European Commission (2011), these thresholds ( $DT_i$ ) are derived from interacting the average estimated primary balance (from the FRFs) with the traditional solvency condition, and solving the equation for the debt-to-GDP ratio:

$$DT_i = \frac{\overline{PB}_i}{reff_i - g_i}$$

Where  $\overline{PB}_i$  is the average estimated primary balance (as a share of GDP), based on country-specific FRF over the period covered by the model for a country  $i$ ;  $reff_i$  is the average real implicit interest rate and  $g_i$  is the average real GDP growth rate for a country  $i$ .

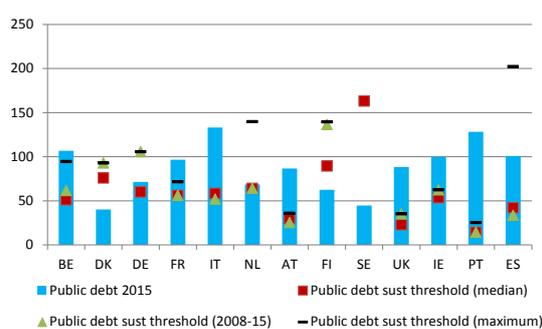
The interest-rate – growth rate differential used is calculated on historical values. Given the sensitivity of the results to different interest - growth assumptions, several periods have been considered (1950 – 2013; 1975 – 2013; 1990 – 2013; 2008 – 2013 and 2008 – 2015). Moreover, as in the European Commission (2011), to avoid excluding some countries, for negative values of the average estimated primary balance, an average calculated solely on positive values is used, implying in that case, an over-estimation of public debt thresholds. The same methodology has been used for the average interest – growth differential,

<sup>(240)</sup>In steady-state, a given stock of government debt can be considered sustainable according to this condition if it does not exceed the steady-state primary surplus relative to the steady-state interest-rate-GDP growth rate differential.

in which case, public debt thresholds are instead under-estimated.<sup>(241)</sup>

Based on these estimations, 7 countries (BE, FR, IT, AT, UK, IE and PT) would have a level of public debt ratio close or above its sustainability threshold, whatever the measure considered (median, maximum or calculated under recent macro-financial conditions).<sup>(242)</sup> On the contrary, DK and FI current public debt ratio never exceeds the ratio, while DE only exceeds it when considering the median value of debt sustainability threshold.

Graph A4.1: Gross public debt sustainability thresholds (% of GDP), based on fiscal reaction functions, by selected country



Source: Commission services.

<sup>(241)</sup> Indeed, the calculation of debt thresholds only makes economic sense when both the average primary balance and the average interest-growth differential are positive. In cases when real GDP growth exceeds systematically the real implicit interest rate, any debt-to-GDP ratio can be theoretically sustained; on the other hand, a negative steady-state primary balance would imply a negative debt threshold, which is also a trivial outcome for our purposes (see European Commission, 2011).

<sup>(242)</sup> The median public debt sustainability threshold is calculated over the different values obtained depending on the time-horizon considered for the interest - growth differential. The maximum public debt sustainability threshold is the highest level obtained over those different horizons. Finally, the public debt sustainability threshold for 2008-15 corresponds to the value obtained under macro-financial conditions over this period.



## ANNEX A5

### Stochastic projections based on the historical variance-covariance matrix approach

This Annex provides a description of the methodology used for stochastic debt projections based on the historical variance-covariance matrix approach and the data used to implement it.<sup>(243)</sup>

#### A5.1. THE METHOD TO OBTAIN (ANNUAL) STOCHASTIC SHOCKS TO MACROECONOMIC VARIABLES

Stochastic shocks are simulated for five macroeconomic variables entering the debt evolution equation: the government primary balance, nominal short-term interest rate, nominal long-term interest rate, nominal growth rate and exchange rate. First, the methodology requires transforming the time series of quarterly data for each macroeconomic variable  $x$  into series of historical quarterly shocks  $\delta_q^x$  as follows:

$$\delta_q^x = x_q - x_{q-1}$$

A Monte Carlo simulation is then run by extracting random vectors of quarterly shocks over the projection period (2016-20) from a joint normal distribution with zero mean and variance-covariance matrix identical to that of historical (quarterly) shocks. The quarterly shocks ( $\varepsilon_q$ ) obtained in this way are aggregated into annual shocks to primary balance, nominal short-term interest rate, nominal long-term interest rate, nominal growth, and exchange rate for non-EA countries, as follows:

- the shock to the primary balance  $b$  in year  $t$  is given by the sum of the quarterly shocks to the primary balance:

$$\varepsilon_t^b = \sum_{q=1}^4 \varepsilon_q^b$$

- the shock to nominal growth  $g$  in year  $t$  is given by the sum of the quarterly shocks to growth:

$$\varepsilon_t^g = \sum_{q=1}^4 \varepsilon_q^g$$

- the shock in year  $t$  to the nominal exchange rate  $e$  is given by the sum of the quarterly shocks to the exchange rate:

$$\varepsilon_t^e = \sum_{q=1}^4 \varepsilon_q^e$$

- the shock in year  $t$  to the nominal *short-term* interest rate  $i^s$  is given by the sum of the quarterly shocks to the short-term interest rate:

$$\varepsilon_t^{i^s} = \sum_{q=1}^4 \varepsilon_q^{i^s}$$

The calculation of the shock to the nominal short-term interest rate in annual terms is justified based on the fact that the short-term interest rate is defined here as the interest rate on government bonds with maturity below the year. With the equation above, we rule out persistence of short-term interest rate shocks over time, exactly as done in standard deterministic projections. In other words, unlike the case of the long-term interest rate (see below), a shock to the short-term interest rate occurring in any of the quarters of year  $t$  is not carried over beyond year  $t$ .

- the aggregation of the quarterly shocks to the nominal *long-term* interest rate  $i^l$  into annual shocks takes account of the persistence of these shocks over time. This is due to the fact that long-term debt issued/rolled over at the moment where the shock takes place will remain in the debt stock, for all years to maturity, at the interest rate conditions holding in the market at the time of issuance.<sup>(244)</sup> A shock to the long-term interest rate in year  $t$  is therefore carried over to the following years in proportion to the share of maturing debt that is progressively rolled over (Bloomberg data on weighted average maturity is used to implement this). For countries where average weighted maturity of debt  $T$  is equal or greater than the number of projection years (5 years, from 2016 to 2020), the annual shock to long-term interest rate in year  $t$  is defined as:

<sup>(243)</sup>For more details see Berti (2013).

<sup>(244)</sup>The implicit assumption is made here that long-term government bonds are issued at fixed interest rates only.

$$\varepsilon_t^{i^L} = \frac{1}{T} \sum_{q=1}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2016$$

$$\varepsilon_t^{i^L} = \frac{2}{T} \sum_{q=-4}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2017$$

$$\varepsilon_t^{i^L} = \frac{3}{T} \sum_{q=-8}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2018$$

$$\varepsilon_t^{i^L} = \frac{4}{T} \sum_{q=-12}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2019$$

$$\varepsilon_t^{i^L} = \frac{5}{T} \sum_{q=-16}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2020$$

where  $q = -4, -8, -12, -16$  respectively indicate the first quarter of years  $t-1, t-2, t-3$  and  $t-4$ . The set of equations above clearly allows for shocks to the long-term interest rate in a certain year to carry over to the following years, till when, on average, debt issued at those interest rate conditions will remain part of the stock.

For countries where the average weighted maturity of debt is smaller than the number of projection years, the equations above are adjusted accordingly to reflect a shorter carryover of past shocks. For instance, countries with average weighted maturity  $T = 3$  years will have the annual shock to the long-term interest rate defined as follows:<sup>(245)</sup>

$$\varepsilon_t^{i^L} = \frac{1}{3} \sum_{q=1}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2016$$

$$\varepsilon_t^{i^L} = \frac{2}{3} \sum_{q=-4}^4 \varepsilon_q^{i^L} \quad \text{if } t = 2017$$

$$\varepsilon_t^{i^L} = \sum_{q=-8}^4 \varepsilon_q^{i^L} \quad \text{if } t \geq 2018$$

<sup>(245)</sup> Annual shocks to the long-term interest rate for countries with weighted average maturities of 2 and 4 years will be defined in a fully analogous way.

Finally, the weighted average of annual shocks to short-term and long-term interest rates (with weights given by the shares of short-term debt,  $\alpha^S$ , and long-term debt,  $\alpha^L$ , over total) gives us the annual shock to the implicit interest rate  $i$ :

$$\varepsilon_t^i = \alpha^S \varepsilon_t^{i^S} + \alpha^L \varepsilon_t^{i^L}$$

## A5.2. APPLYING STOCHASTIC SHOCKS TO THE CENTRAL SCENARIO

All results from stochastic projections presented in this report refer to a scenario in which shocks are assumed to be temporary. In this case, annual shocks  $\varepsilon$  are applied to the baseline value of the variables (primary balance  $b$ , implicit interest rate  $i$ , nominal growth rate  $g$  and exchange rate  $e$ ) each year as follows:

$b_t = \bar{b}_t + \varepsilon_t^b$  with  $\bar{b}_t$  = baseline (from standard deterministic projections) primary balance at year  $t$

$g_t = \bar{g}_t + \varepsilon_t^g$  with  $\bar{g}_t$  = baseline (from standard deterministic projections) nominal GDP growth at year  $t$

$i_t = \bar{i}_t + \varepsilon_t^i$  with  $\bar{i}_t$  = baseline (from standard deterministic projections) implicit interest rate at year  $t$

$e_t = \bar{e}_t + \varepsilon_t^e$  with  $\bar{e}_t$  = nominal exchange rate as in DG ECFIN forecasts if  $t$  within forecast horizon; nominal exchange rate identical to last forecasted value if  $t$  beyond forecast horizon.

In other words, if the shock in year  $t$  were equal to zero, the value of the variable would be the same as in the standard deterministic baseline projections.

## A5.3. THE DEBT EVOLUTION EQUATION

Through the steps described above we obtain series, over the whole projection period, of simulated government primary balance, nominal growth rate, implicit interest rate and nominal exchange rate that can be used in the debt evolution equation to calculate debt ratios over a 5-year horizon, starting from the last historical value.

The debt evolution equation takes the following form:

$$d_t = \alpha^n d_{t-1} \frac{1+i_t}{1+g_t} + \alpha^f d_{t-1} \frac{1+i_t}{1+g_t} \frac{e_t}{e_{t-1}} - b_t + c_t + f_t$$

where  $d_t$  = debt-to-GDP ratio in year  $t$

$\alpha^n$  = share of total debt denominated in national currency<sup>(246)</sup>

$\alpha^f$  = share of total debt denominated in foreign currency

$b_t$  = primary balance over GDP in year  $t$

$c_t$  = change in age-related costs over GDP in year  $t$  relative to starting year<sup>(247)</sup>

$f_t$  = stock-flow adjustment over GDP in year  $t$

All the steps above (extraction of random vectors of quarterly shocks over the projection horizon; aggregation of quarterly shocks into annual shocks; calculation of the corresponding simulated series of primary balance, implicit interest rate, nominal growth rate and exchange rate; calculation of the corresponding path for the debt ratio) are repeated 2000 times. This allows us to obtain yearly distributions of the debt-to-GDP ratio over 2016-20, from which we extract the percentiles to construct the fan charts.

#### A5.4. THE DATA USED

For the calculation of the historical variance-covariance matrix, quarterly data on government primary balance are taken from ESTAT; nominal short-term and long-term interest rates are taken from IMF-IFS and OECD; quarterly data on nominal growth rate come from ESTAT and IMF-IFS; quarterly data on nominal exchange rate for non-EA countries come from ESTAT.

Results using the methodology described above were derived for all EU countries by using both short-term and long-term interest rates, whenever possible based on data availability, to keep in line with standard deterministic projections. This was indeed possible for the vast majority of EU countries, the only exceptions being Bulgaria, Croatia and Estonia.<sup>(248)</sup> Shocks to the primary balance were simulated for all countries but three (Croatia, Estonia and Portugal), based on availability of sufficiently long time series of quarterly primary balances.

In general, data starting from the late 90s-early 2000s till the second quarter of 2015 were used to calculate the historical variance-covariance matrix.

<sup>(246)</sup> Shares of public debt denominated in national and foreign currency are kept constant over the projection period at the latest ESTAT data (OECD data are used for those countries, Denmark and Sweden, for which ESTAT data were not available).

<sup>(247)</sup> Figures on age-related costs from the European Commission's 2015 Ageing Report were used.

<sup>(248)</sup> For Estonia and Croatia we only used the short-term interest rate as quarterly data on the long-term rate were not available; for Bulgaria we used the long-term interest rate only as data on the short-term rate were not available for most recent years.



## ANNEX A6

### Signals' approach and analysis of public debt structure, sovereign yield spreads and banking sector vulnerabilities

Table A6.1 reports results on optimal thresholds, signalling power, type I and type II errors obtained by applying the signals' approach (as explained in Annex A1) to individual variables describing the structure of public debt financing, sovereign yield spreads and variables capturing banking sector vulnerabilities. In all these cases, *optimal thresholds of fiscal stress* are determined (by relating the historical behaviour of the variables to the time series of fiscal stress events, as explained in Annex A1). These variables are used in the heat maps on public debt structure and government contingent liability risks (Chapter 5) and in the table with financial market information reported in the country fiches (Chapter 7).

Table A6.1: Thresholds, signalling power, type I and type II errors obtained by applying the signals' approach

<i>Variables</i>	<i>safety</i>	<i>threshold</i>	<i>signaling power</i>	<i>type I error</i>	<i>type II error</i>
<b><i>Public debt structure variables</i></b>					
Public debt by non-residents, % of total	<	49,02	0,35	0,30	0,35
Public debt in foreign currency, % of total	<	29,82	0,24	0,23	0,54
Change (yearly) in share of short-term public debt over total debt, p.p.	<	2,76	0,29	0,12	0,58
<b><i>Government bond yield spreads</i></b>					
Gov't bond yield spreads relative to Germany/US, 10-year benchmark, b.p.	<	231,00	0,38	0,09	0,53
Gov't bond yield spreads relative to Germany/US, 2-year benchmark, b.p.	<	276,60	0,35	0,15	0,50
<b><i>Variables of banking sector vulnerabilities</i></b>					
L1.Bank loan to deposit ratio, %	<	142,09	0,22	0,15	0,63
Non-performing loans to total gross loans, %	<	2,30	0,16	0,53	0,31
Change in non-performing loans to total gross loans, p.p.	<	0,30	0,28	0,19	0,53
L1.change (YoY growth) in nominal house price index	<	12,59	0,29	0,26	0,44

(1) variables preceded by L1 are taken with one-year lag.

Source: Commission services.



## ANNEX A7

### Estimating the potential impact of simulated bank losses on public finances based on the SYMBOL model

#### A7.1. BANK LOSSES AND THEIR POTENTIAL IMPACT ON PUBLIC FINANCES: THE SYMBOL MODEL

This annex presents the methodology used to estimate the impact of potential bank losses on public finances based on the SYMBOL (SYstemic Model of Banking Originated Losses), a model developed by a joint team of Commission services (DG JRC and DG FISMA) and academic experts. As discussed in the main text, the model has been used in many impact assessment exercises related to recent changes in banking regulation and resolution, and it is being continuously refined by the JRC team.

The model first estimates an average implied default probability of bank obligors from risk-weighted assets reported by the bank itself to the country's banking system regulator. These estimates are then used to evaluate each individual bank's unexpected losses. In turn, these determine its potential failure, under-capitalization and its need to use financial safety net tools under specific assumptions with regard to the regulatory and resolution regime in place.

The distribution of losses for the country's banking system as a whole is finally obtained by aggregating simulated individual banks' losses not covered by the safety net. All these steps are described in more detail below. More information on the methodology can be found in Benczur *et al.* (2015), European Commission (2014c) and De Lisa *et al.* (2011). The first paper specifically focusses on the use of the model in the context of public debt sustainability analysis. <sup>(249)</sup>

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<sup>(249)</sup>Relative to Benczur *et al.* (2015), the current exercise features two methodological improvements. The first is the ability to model the impact of an SRF at *country level*. The second relates to footnote 32 of Benczur *et al.* (2015): unlike there, simulations are run on the entire EU, and percentiles thus correspond to a single (EU-wide) loss distribution.

#### A7.2. EXTRACTING DEFAULT PROBABILITIES OF INDIVIDUAL BANKS' OBLIGORS

SYMBOL approximates the probability distributions of individual bank's losses using publicly available information from banks' financial statements. In particular, the model estimates an average implied default probability of the individual banks' asset/loan portfolios by inverting the Basel FIRB formula for capital requirements. The main data source on banks' financial statements is Bankscope, a commercial database produced by the private company Bureau van Dijk. <sup>(250)</sup> When needed and when possible, data were integrated with public information on banks' financial statements released by supervisory authorities and/or central banks.

Information on the sample is presented in Table A7.1. The sample coverage is expressed as total assets of banks in the sample over estimated total assets for the entire population of banks in each Member State, as from ECB statistics <sup>(251)</sup> (reference year is 2014). The sample covers roughly 70% of all EU banking assets as reported by the ECB. The table also presents some relevant balance sheet ratios for each country. At Member State level, whenever the sample ratio is low (i.e. the country-level aggregates are based on banks which represent less than 20% of the country's banking sector), or the number of banks is extremely small (less than 6), simulation results are deemed to be highly uncertain, since a minor change to any bank's data or the addition of a new bank could have large effects on results. This is indicated by red (dark) in the corresponding columns and by a double star (\*\*) near the country

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<sup>(250)</sup>The Bankscope database builds on publicly available balance sheet information. Its main value added is the collection and harmonization of balance sheet entries, allowing reliable comparisons across banks. Institutions are listed in Bankscope under various categories according to their main activities. There are both unconsolidated (bank-level) and consolidated (group-level) balance sheets listed. To the purpose of our analysis, the focus is restricted to commercial, cooperative and savings banks (unconsolidated data). The database and the procedure for the imputation of missing values are fully documented in Pagano, Cariboni and Petracco (2012).

<sup>(251)</sup>For countries' aggregates on total assets of credit institutions and monetary financial institutions, information from the ECB data warehouse was used (see <http://www.ecb.int/stats/money/aggregates/bsheets/html/index.en.html>; and <http://www.ecb.int/stats/money/consolidated/html/index.en.html>).

Table A7.1: Coverage and descriptive statistics of samples used for SYMBOL simulations

	Number of Banks	Total assets	Capital	RWA	CoveDep	Population TA	Sample Ratio	RWA/TA	K/RWA	TA/GDP
BE	21	476.56	27.16	172.87	126.83	854.08	56%	0.36	0.16	2.12
BG	14	34.52	4.17	22.24	18.59	44.17	78%	<b>0.64</b>	0.19	1.06
CZ	13	140.14	10.61	64.55	51.31	176.63	79%	0.46	0.16	1.14
DK	65	710.26	46.13	255.64	100.20	1033.75	69%	0.36	0.18	4.03
DE	1161	4600.77	265.57	1821.07	1088.53	7552.02	61%	0.40	0.15	2.60
EE**	2	5.09	0.71	3.34	1.63	15.73	32%	<b>0.66</b>	0.21	0.80
IE**	5	267.85	32.17	173.63	65.30	981.71	27%	<b>0.65</b>	0.19	<b>5.34</b>
ES	73	1782.64	138.58	1181.83	412.85	2863.67	62%	<b>0.66</b>	<b>0.12</b>	2.71
FR	157	5843.42	281.94	2145.43	889.26	8029.30	73%	0.37	<b>0.13</b>	3.76
HR	21	47.36	5.70	29.45	18.38	57.79	82%	<b>0.62</b>	0.19	1.35
IT	408	2254.45	191.12	1069.43	488.55	3762.85	60%	0.47	0.18	2.32
LV	17	26.17	2.81	14.69	7.27	26.92	97%	0.56	0.19	1.12
LT*	7	19.10	2.03	10.46	10.33	20.43	93%	0.55	0.19	0.56
LU	34	333.85	19.75	114.05	15.15	820.86	41%	0.34	0.17	<b>17.34</b>
HU*	8	33.56	2.83	16.67	8.70	106.99	31%	0.50	0.17	1.05
MT*	7	16.50	1.13	8.35	3.85	52.71	31%	0.51	0.14	<b>6.66</b>
NL	17	1636.76	111.26	696.16	330.98	2363.77	69%	0.43	0.16	3.63
AT*	99	219.73	15.00	99.97	57.38	865.72	25%	0.45	0.15	2.63
PL	25	265.54	25.64	190.28	115.19	371.52	71%	<b>0.72</b>	<b>0.13</b>	0.90
PT	63	219.37	13.39	126.81	65.74	438.41	50%	0.58	<b>0.11</b>	2.51
RO	13	54.60	4.77	32.75	18.27	82.52	66%	0.60	0.15	0.55
SI	14	31.13	3.17	18.68	14.52	42.47	73%	0.60	0.17	1.14
SK*	10	50.87	4.34	28.62	20.85	55.34	92%	0.56	0.15	0.73
FI	16	440.18	13.34	92.93	50.45	546.75	81%	0.21	0.14	2.69
SE	69	648.33	35.74	170.23	132.53	1134.33	57%	0.26	0.21	2.64
UK	69	6308.24	369.33	2513.66	1068.45	5950.66	106%	0.40	0.15	2.67
EU	2420	26786.73	1655.43	11258.20	5288.91	38725.75	69%	0.42	0.15	2.78

(1). 2014 Data, unconsolidated. Values in billion euros (where applicable). Red (dark) refers to a very low number of banks (less than 6) or a sample ratio less than 20%. These call for extreme caution. Orange (light grey) refers to a number of banks between 6 and 10, or a sample ratio between 20% and 30%. Asterisks denote countries with sample representativeness issues. (\*) denotes mild problems, (\*\*) denotes severe problems. Total assets to compute the sample coverage ratio come from the ECB, as per footnote 250. Cells in bold and italics in the last three columns indicate extreme values within the sample.

Source: Commission services.

name. Overall, there are two countries where results should be interpreted with extreme caution (Estonia and Ireland). Similarly, there is a set of countries (indicated by orange/light grey and single star) where some caution is warranted (Austria, Hungary, Lithuania, Malta and Slovakia), either because of a low number of banks (6-10) or a low sample ratio (20-30%).

The Basel regulatory framework imposes minimum capital requirements for credit risk, allowing banks to absorb all unexpected losses with an ex-ante *theoretical probability* of 99.9%. Unexpected losses can be simulated according to the Basel Foundation Internal Ratings Based (FIRB) formula, which is a standard statistical model of credit risk run by each bank (not public) to assess the default probability of each loan class. <sup>(252)</sup>

<sup>(252)</sup> The FIRB formula is a calibrated version of the Vasicek model for portfolio losses, explained in more detail in Vasicek (2002). The Basel FIRB approach is discussed in Basel Committee on Banking Supervision (2005).

The model adopted in the regulation is public, as are all relevant parameters used for its computation, the only exception being the default probabilities of banks' obligors assessed by the banks themselves and validated by the regulators. Using publicly available data on capital requirements <sup>(253)</sup> and the regulatory values for the other parameters of the credit risk model, <sup>(254)</sup> SYMBOL estimates the underlying average default probability of individual banks' obligors, *based on the assumption that banks' assets entirely consist of loans.* <sup>(255)</sup> The average probability of

<sup>(253)</sup> As capital requirements are often missing in banks' financial statements reported in Bankscope, missing values were imputed relying on the strong observed correlation between capital requirements and common equity (see Pagano, Cariboni and Petracco, 2012).

<sup>(254)</sup> These are: the Loss Given Default (LGD), the correlation between banks' assets, maturity and other correction parameters.

<sup>(255)</sup> This means that all capital requirements considered in the model are as if they were for credit risk. But in fact, banks' assets are not entirely made up of loans, and there are also capital requirements for market risk, counterparty risk, operational risk, etc. These are not explicitly accounted for in the model. However, except for very large banks with extensive and complex trading agreements, the simplifying assumption that banks' assets are made up of loans and,

default of the credit portfolio of each bank is therefore estimated consistently with minimum capital requirements for credit risk.

### A7.3. COMPUTATION OF AGGREGATE BANKING LOSSES AND ESTIMATED IMPACT ON PUBLIC FINANCES

Starting from the estimated average probability of default of each individual bank's obligors, SYMBOL generates realizations for each individual bank's credit losses via Monte Carlo simulation using the Basel FIRB loss distribution function and assuming a correlation between simulated shocks hitting different banks in the system.<sup>(256)</sup>

Individual bank losses are then transformed into excess losses and recapitalization needs to be covered and finally aggregated at country and system level. Based on the bank-level balance sheet data and losses simulation, the model can then implement the loss allocation cascade (e.g. capital, bail-in, RF interventions...), distinguishing between excess losses and recapitalization needs. Excess losses are losses in excess of available total capital of a bank, while recapitalization needs are the funds necessary to restore the bank's minimum level of capitalization given by the regulatory scenario under consideration.

This computation is done by comparing each bank's simulated losses with loss provisions (assumed to cover all losses up to the expected value of the loss distribution) and the bank's total capital:<sup>(257)</sup> whenever unexpected losses (i.e. losses above the expected value) are greater than total capital, the difference is recorded as excess losses. If unexpected losses bring the bank below the minimum level of required capital for the regulatory scenario under examination, the bank is considered to be in need of recapitalization. Banks are divided into two groups: those assumed to be systemic which in case of distress go into resolution and thus are recapitalized, and those

assumed to be non-systemic which can be liquidated and for which only losses in excess of capital are considered. Banks in the sample are assigned to the first group as follows:

1. Banks in the Banking Union falling under ECB supervision are assumed to be systemic and go into resolution.<sup>(258)</sup> These are selected using the list of significant banks published by the ECB.
2. Banks headquartered outside the Banking Union are deemed systemic using criteria similar to those applied by the ECB (Art. 6(4) of SSM Regulation). While no data is available on cross border activity or the banks' conformity with direct public finance assistance, only the three remaining criteria are applied at the highest consolidation level: *i)* size TA > 30 billion €, *ii)* economic importance TA > 20% of GDP and TA > 5 billion € and *iii)* the three largest banks in each Member State in terms of TA.<sup>(259)</sup>

All remaining banks are assumed not to be systemic and to be liquidated in case of distress.

Throughout the cascade of safety net intervention, it can then be traced how much of these two types of financing needs are picked up by the different tools. If a bank is failing or if it is left undercapitalized with respect to the minimum level established in the scenarios, the bail-in tool is applied at individual bank level up to 8% of its total assets. Where an RF is available, it is then assumed to intervene up to 5% of the total assets of each bank. Given that the sample coverage in terms of the number and total assets of banks in the sample is not complete, the RF is equipped with an ex-ante fund equal to the appropriate percentage of covered deposits of the banks in the sample.

Any leftover losses or recapitalization needs not covered after all available tools have intervened are finally assumed to be covered by the government, taking into account the ratio between the sample and the population TA of all banks.

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as a consequence, that capital requirements only derive from these, is likely to be reasonable.

<sup>(256)</sup> The correlation is assumed to be 0.5 for all banks in the current simulation. All EU banks are simulated together.

<sup>(257)</sup> Total capital can be higher than the minimum capital requirement, the difference being labelled as excess capital.

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<sup>(258)</sup> See <https://www.ecb.europa.eu/pub/pdf/other/ssm-listofsupervisedentities1409en.pdf>

<sup>(259)</sup> To test the robustness of this approach, we applied these criteria also to the banks in the Banking Union. This approach would have selected around 70% of the banks selected according to the ECB list.

The results give an estimate of the implicit contingent liabilities - banking losses and recapitalization needs - that would be faced in case of a financial crisis similar to the one started in 2008. <sup>(260)</sup> For the EU as a whole, a loss of similar magnitude would correspond to the 99.95<sup>th</sup> percentile of the distribution of aggregate losses including recapitalization needs based on 2009 data and regulatory framework, so this exercise focuses on this percentile of the distribution. It is important to highlight that focussing on the 99.95<sup>th</sup> percentile does not mean that the event happens with a probability of at most 0.05 percent. SYMBOL probabilities are more appropriately seen as "theoretical probabilities" which cannot be taken literally as frequencies: their magnitudes, however, inform on the relative risks among banks or countries. <sup>(261)</sup>

#### A7.4. CALIBRATING THE HEAT MAP

The model allows estimating the probability distribution of the amount of public funds needed to cover losses after exhausting the protection provided by the financial safety net. To obtain the input for the heat map on government's implicit contingent liability risks, a minimum size of government's contingent liabilities is fixed, and the theoretical probability of the materialization of the event is assessed.

The heat map illustrates the relative riskiness of countries in terms of public finances being hit by at least 3% of GDP. The colour coding reflects the relative magnitude of the theoretical probabilities of such an event. The allocation of the colours is based on a procedure that was fixed in 2014 (as reported in European Commission, (2014c)), based on simulations using 2012 bank balance sheet data. The procedure is as follows:

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<sup>(260)</sup> Bank losses and recapitalization needs triggered by the last crisis are proxied by state aid data, in particular the total recapitalization and asset relief provided to banks over 2008-12 (around 615 bn euro), see European Commission's DG Competition State Aid Scoreboard, European Commission (2014b) and Benczur et al. (2015).

<sup>(261)</sup> According to Basel II an institution would suffer losses exceeding its capital once in a thousand years on average (99.9% confidence level). (See Basel Committee on Banking Supervision, (2005)). While Laeven and Valencia (2013) identify 17 systemic banking crisis episodes during 2008-2011 worldwide and 147 episodes since 1970, the Basel model seems to under-predict the actual frequency of bank failures, affecting also SYMBOL estimates.

1. The excess losses and recapitalization needs (at 8%) are analysed under a 2012 scenario, which does not have any element of the safety net other than QIS-adjusted Basel II capital requirements. <sup>(262)</sup>
2. Three distinct groups are identified according to the theoretical probabilities: if the probability is less than 0.05%, the country is in the green zone; if the probability is more than 0.2%, then in the red zone; and otherwise in the yellow zone. From the 25 countries for which the analysis was done for 2012, 6 were in the red, 8 in the yellow and 11 in the green zone.
3. Viewing the cut-offs calculated based on 2012 data as prudent boundaries (the phasing in of the safety net can only reduce probabilities and lower the boundaries), the cut-offs are used unchanged in this exercise based on 2014 data. Given that banks have been becoming less risky and better capitalized and that the safety net is being put into place, countries are gradually shifting towards the green zone.

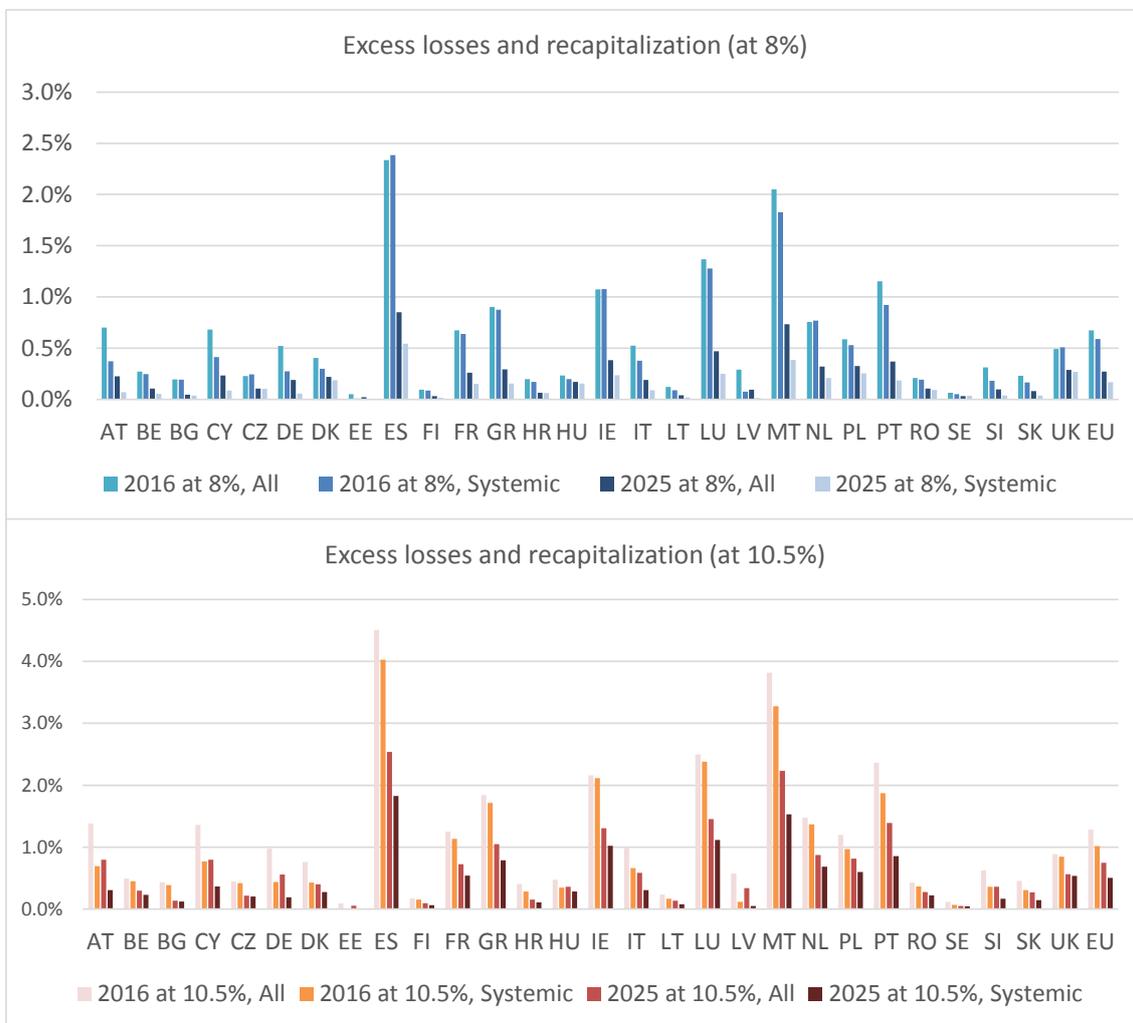
#### A7.5. RESULTS IN CASE ALL BANKS ARE TO BE RECAPITALIZED

Graph A7.1 presents the comparison of excess losses and recapitalization needs between our baseline assumption and the case when all banks are required to be recapitalized. The first panel shows the 8% recapitalization case, for the 2016 and the 2025 regulatory scenario; while the second panel refers to the 10.5% case.

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<sup>(262)</sup> This additional scenario, which is not part of the present exercise, aimed to assess the regulatory setting before the introduction of bail-in, RF and the phase-in of CRDIV, thus depicting a situation similar to the crisis.

Graph A7.1: Implicit continent liabilities under different sets of banks to be recapitalized (all vs. systemic), two regulatory scenarios and two levels of recapitalization



(1) "All" refers to the case when all banks are mandated to be recapitalized to the appropriate level. "Systemic" refers to the case when only selected (systemic) banks are resolved and thus recapitalized.

Source: Commission services.



## ANNEX A8

### Property income projections

In the context of this report, property income received by Member States is considered to be the sum of returns from three categories of general government financial and non-financial assets: *i*) interest from debt securities – bonds, *ii*) dividends from equity securities – shares and *iii*) rents from tangible non-produced non-financial assets such as land and subsoil assets (i.e. natural resources water, mineral and fossil fuels).<sup>(263)</sup>

Property income is projected up to 2060, affecting both the medium and long term fiscal sustainability assessment in the form of S1 and S2 indicators.<sup>(264)</sup> Property income projections are separate from and additional to present property income accounted for in the actual balances reported every year by Member States under the SCP scenario, as well as to property income reflected in the two-year forecast horizon.

In calculating the sustainability gaps, property income received by governments is explicitly modelled in a way that is different from government revenues in general. Government revenues in general are a function of the tax bases and the rates chosen by the government. Property income differs from this generalised assumption in that it is determined by market conditions rather than policy settings.

However, since the future stocks of assets and the expected rate of return on these assets that generate income for Member States' governments in the future are not always known, to render projections manageable, a number of simplifying assumptions are made.

In order to model the evolution of property income, the key assumption is that there is no stock-flow adjustment, meaning that government debt is only driven by the general government

balance and there is no net sale or purchase of assets in the future. As such, projections for the three categories of property income rely on the general assumption that the stock of financial and non-financial assets generating this income remains constant over time<sup>(265)</sup> at the level of latest available data, i.e. at the values posted in T-1. This assumption implies that there is no future sale or redemption of government assets, that when short-term assets (such as bonds) mature, they are implicitly assumed to be replaced with other bonds of the same nominal value, and that property income flows received by a government from the current stock of assets are used to reimburse debt through its contribution to the general government balance, rather than to purchase other assets.

Consequently, future property income is assumed to be generated only from the upcoming returns on the assets stock and property income projections are modelled by just using further assumptions on the future evolution of the rate of return on assets.

In this sense, returns for equity and non-financial assets (rents) are generally considered to occur in line with GDP projections, whereas returns on bonds are underpinned by the additional assumptions described below.

All data for property income projections comes from Eurostat (general government property income subcategories bonds D41, equity D42 and rents D45).

#### A8.1. BOND RETURNS PROJECTION

These projections are based on an agreement reached in 2009 by the Economic Policy Committee's Working Group on Ageing Populations and Sustainability (AWG) and later supported in 2012 and 2015, as well as on some ad-hoc assumptions.

Returns on bonds (D.41) have been considered to be as follows:

- In the short run (between T and T+10): country-specific yields on 10y government bonds apply as starting point in present year T

<sup>(263)</sup> This definition is somewhat narrower than the one used in national accounts, where property income (D.4) is as well the income from financial assets and non-produced non-financial assets, but sub-categories considered for these assets are more comprehensive. In national accounts the financial instruments giving rise to interest are, in addition to debt securities, monetary gold / SDRs, deposits, loans and other accounts. The use of produced non-financial assets such as buildings is a fee (P.11 / P.131).

<sup>(264)</sup> In the calculation of sustainability indicators (S1 and S2), the projected path of property income is conventionally included in the sub-indicator "initial budgetary position" (IBP).

<sup>(265)</sup> Exception are natural resources for Denmark and the Netherlands, see below.

to gradually converge to a 5% yield applied in T+10.

- In the medium to long run (as of T+10): a constant 5% yield applies; this horizon and value are in line with the horizon used for government debt projections.

Due to the current low level of government bond yields, an additional assumption was made that the starting point of convergence to a 5% yield in T+10 should not be the current (T) level of the 10-y government bond yield that year, but an average of 10-y government bond yields going backward until 2009 (incl.), i.e. an average over 2009 – (T-1).

The assumptions regarding the starting yield value and the duration of convergence to a 5% yield intend to compress the yield gap to be bridged and to stretch the timespan available for convergence, thus limiting distortionary impacts on S1 and S2 for countries with high property income.

## A8.2. EQUITY RETURNS PROJECTION

These projections are based on a method agreed by the AWG in 2007.

Using income from equity - D.42 which reports distributed returns - country-specific shares of paid dividends in GDP are calculated for the last year of available data, T-1; for each country it is considered this share remains constant over the projection horizon, thereby implicitly assuming continuing valuation effects in line with nominal GDP growth.

## A8.3. RENTS PROJECTION

These projections are based on a method agreed by the AWG in 2007.

The share of rents (D45) to GDP is calculated for the last year of available data for each country, T-1. <sup>(266)</sup> This share is assumed to remain constant

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<sup>(266)</sup> This is a simplification. Rents projections should combine the size of reserves, the timing of exploitation and the eur value of the commodity (assumption).

over the projection horizon for all countries except Denmark and the Netherlands. For these two countries rich in fossil fuels the stock of subsoil assets is assumed to deplete by 2060, so that the share of rents to GDP in these countries would decline linearly to reach the EU average <sup>(267)</sup> by 2060.

Returns on real estate (rentals on buildings etc.) are not included in property income in the National Accounts since they are produced and often consumed by the general government.

In sum, considering these hypotheses, the projected path of property income ultimately depends on the stock of bonds held at the start of the projection period (the higher the bonds stock, the steeper the decline in property income over time) given that the return on these bonds is assumed to converge to a 5% yield in the medium-long term.

Since both elements can affect property income projections markedly, mitigating assumptions on the starting point and length of bond returns convergence aim to avoid unrealistic boosts to property income projections (and thereby too large of a required SPB adjustment), in particular in countries with significant property income shares.

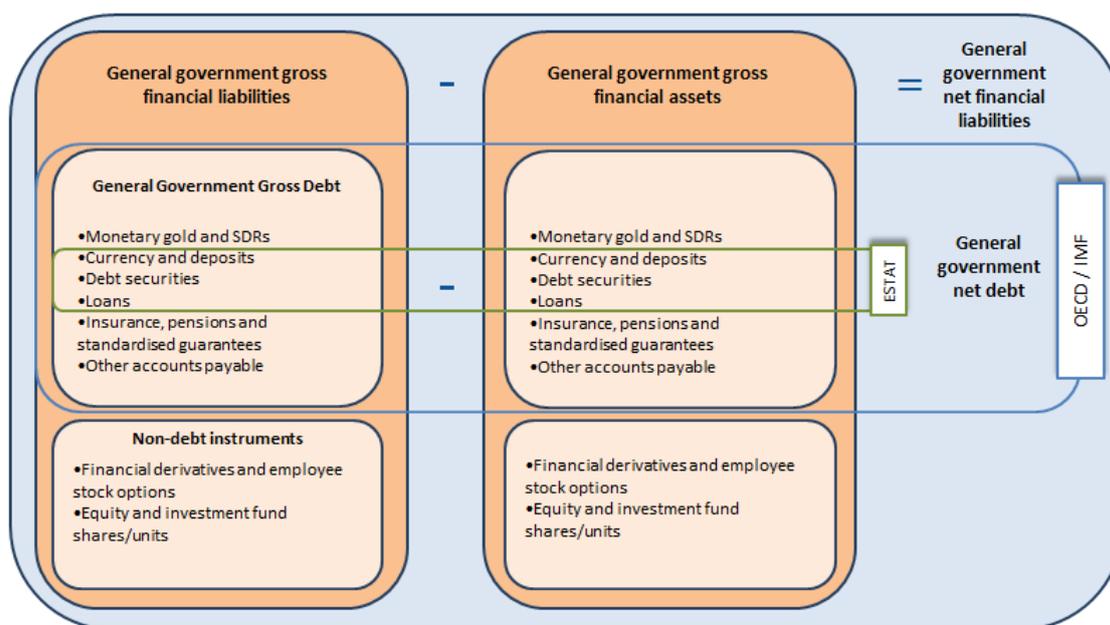
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<sup>(267)</sup> This average excludes Denmark and the Netherlands.

## ANNEX A9

### Net versus gross debt

Graph A9.1: Comparative definitions of government net debt: Eurostat and IMF/WEO



(1) Diagram display inspired by the work of the OECD, (2015).  
**Source:** Eurostat and IMF/WEO.

#### Internationally agreed (PSDSG) definition of government net debt

The "Public Sector Debt Statistics: Guide for Compilers and Users" (PSDSG) <sup>(268)</sup> offers an internationally agreed definition of government net debt i.e. "gross debt minus financial assets corresponding to debt instruments", where gross debt corresponds to all liabilities that are debt instruments, notably special drawing rights (SDRs), currency and deposits, debt securities, loans, insurance, pensions and standardised guarantee schemes and other accounts payable.

Similarly to gross debt, net debt excludes liabilities and assets in shares and other equity and in financial derivatives. PSDSG definition matches liabilities with their corresponding assets and leaves open valuation, at least in practice.

Different organisations use various definitions of net debt. This annex presents a comparison of Eurostat's and IMF/WEO's definitions used in Chapter 5 of this report.

<sup>(268)</sup> PSDSG is the joint product of the Task Force on Finance Statistics including inter alia the BIS, Eurostat, IMF, OECD, ECB, UNCTAD and the World Bank. PSDSG is a guide that focuses on public sector in general, not on general government.

Table A9.1: Government debt concepts - Eurostat vs IMF/WEO

Institution	Gross Debt		Net Debt		Observations
	Composition	Valuation method	Composition	Valuation method	
<b>EUROSTAT</b>	<p><b>Maastricht (EDP) debt</b> [1], i.e. gross financial liabilities outstanding at the end of the year.</p> <p><b>Includes liabilities in:</b></p> <ul style="list-style-type: none"> <li>· Currency and deposits (debt)</li> <li>· Securities other than shares (debt)</li> <li>· Loans (debt)</li> </ul> <p><b>Excludes liabilities in:</b></p> <ul style="list-style-type: none"> <li>· SDR allocations</li> <li>· Pension liabilities insurance technical reserves (debt)</li> <li>· Other accounts payable like trade credits and advances (debt)</li> </ul> <p><b>Does not cover liabilities in non-debt instruments:</b></p> <ul style="list-style-type: none"> <li>· Financial derivatives (non-debt)</li> <li>· Shares and other equity (not debt)</li> </ul>	Liabilities at nominal (face) value	<p>Maastricht (EDP) debt, i.e. gross financial liabilities, reduced by gross financial assets on three categories of debt instruments:</p> <ul style="list-style-type: none"> <li>· Currency and deposits</li> <li>· Securities other than shares</li> <li>· Loans</li> </ul>	<p>Liabilities at face value [2]</p> <p>Assets at market value</p>	Harmonised across EU countries, reporting is subject to validation by Eurostat
<b>IMF (WEO)</b>	All liabilities that require payment(s) of interest and/or principal by the debtor to the creditor at a date or dates in the future. This includes debt liabilities in the form of SDRs, currency and deposits, debt securities, loans, insurance, pensions and standardized guarantee schemes, and other accounts payable. Thus, all liabilities in the GFSM 2001 system are debt, except for equity and investment fund shares and financial derivatives and employee stock options.	Liabilities at market, nominal, or face value	(in its broadest definition): Gross debt minus financial assets corresponding to debt instruments. These financial assets are: monetary gold and SDRs, currency and deposits, debt securities, loans, insurance, pension, and standardised guarantee schemes, and other accounts receivable.	Mainly nominal or face value [3] for both assets and liabilities except traded debt securities which can be taken at market value	Not fully harmonised across countries (e.g. US method [4] is similar to Eurostat)

(1) Eurostat also uses two additional concepts: i) ESA 2010 Debt, a gross debt concept with a wider definition than EDP debt and including all financial liabilities measured at market value. As for pension liabilities, most of what is usually understood as such (like PAYG pensions) is not included. ii) Net financial worth, which is a national accounts balancing item, including all financial assets and liabilities at market value. Reporting of net worth – also a national accounts concept is under development.

(2) Face (as opposed to nominal) value excludes accrued and not yet paid interest from the liability.

(3) Face value can replace nominal but should be specified when so.

(4) Debt securities such as municipal bonds, US treasuries and agencies, corporate bonds as well as money market mutual funds are at book / nominal value. Equities, mutual funds (excluding bond mutual funds), ETFs, real estate assets, REITs and rest of the world debt securities are reported at market value (the asset level includes market revaluations). By book value is meant the cost or purchase price of the asset which excludes any market revaluations.

**Source:** Commission services compilation based on Eurostat and IMF/WEO sources.

## ANNEX A10

### Forecast accuracy analysis

As explained in previous sections, European Commission's forecasts are used in deterministic public debt projections (with the only exception of the SCP and DBP scenarios), as well as stochastic debt projections. It is therefore important to accompany DSA results with a brief assessment of Commission's forecast accuracy with regard to the main macro-fiscal variables that determine public debt dynamics. This analysis is meant to show whether forecasts on the aforementioned variables, for the country under examination, are systematically biased in one direction or the other, in a sign of persistent optimism or pessimism.

In order to assess the Commission's forecast accuracy, the size of forecast errors is analysed for three main macro-fiscal variables that determine public debt dynamics (GDP growth rate, inflation and general government balance). Three main indicators are used: the *mean error* (ME, i.e. the average difference between the forecast and the outturn value of a given variable), the *mean absolute error* (MAE, i.e. the average absolute difference between the forecast and the outturn) and the *root mean squared error* (RMSE, i.e. the root of the average squared difference between the forecast and the outturn.<sup>(269)</sup>

As expected, forecast errors are higher for the three variables considered (GDP growth, inflation and general government balance) for the year ahead (see Table A10.2) than for the current year (see Table A10.1). Moreover, large differences are present across countries for the three indicators, especially for the GDP growth rate and the general government balance. Looking at the mean error, there is no evidence of a systemic bias in the forecast for the EU and EA aggregates (close to 0 for the three variables considered) *for the current year*<sup>(270)</sup>. Nevertheless, *for the year ahead*, these results suggest an overall slight over-estimation of GDP growth rate.<sup>(271)</sup>

Regarding GDP growth rate forecasts, the largest forecast errors are found for LV, EE, FI, IE, LT and SI. As explained in Gonzalez Cabanillas and

Terzi (2012), while there are many reasons for forecast errors that go beyond the ability of the forecaster (ranging from data availability and quality of the realism of the external assumptions adopted), the volatility of GDP appears to be of particular relevance in some small open economies like the ones mentioned above. The more volatile GDP is, the more difficult it is to predict future developments, generally leading to greater forecast errors. Regarding inflation rate forecasts, the largest forecast errors are found for LV, BG, LT, RO, SK, MT and SI. However, cross-country differences in terms of forecast error are less marked for this variable than for the GDP growth rate and the general government balance. On the general government balance, greater forecast errors are reported for IE, PL, ES, EE, DK, LV and SI. For IE and ES, the high forecast error on general government balance is driven to a large extent by the effect of the financial crisis (measures over an extended period of time show much lower values).

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<sup>(269)</sup> For more details, see Gonzalez Cabanillas L. and A. Terzi (2012), "The accuracy of the European Commission's forecasts re-examined", European Economy Economic Paper 476.

<sup>(270)</sup> Bias' tests also show that *overall* there is no systemic bias for the three variables considered for the current year.

<sup>(271)</sup> This is confirmed by bias' tests.

Table A10.1: Statistics on European Commission's forecast accuracy on GDP growth, inflation rate and general government balance, by country - for the current year

	GDP			Inflation			Government balance		
	2004-2014			2004-2014			2004-2014		
	ME	MAE	RMSE	ME	MAE	RMSE	ME	MAE	RMSE
BE	-0.08	0.54	0.60	-0.21	0.39	0.50	0.12	0.60	0.73
BG	0.47	0.67	1.27	-0.07	1.70	2.31	0.43	1.21	1.55
CZ	-0.10	1.03	1.18	0.22	0.60	0.65	-0.71	1.31	1.57
DK	0.59	0.83	1.09	0.09	0.36	0.46	-1.13	1.39	1.70
DE	-0.34	0.47	0.82	-0.01	0.26	0.38	-0.67	0.69	0.86
EE	0.01	2.52	2.98	-0.27	0.79	0.97	-0.80	1.57	1.81
IE	-0.13	1.42	1.94	0.21	0.76	0.98	2.22	3.70	6.69
EL	:	:	:	:	:	:	:	:	:
ES	-0.11	0.40	0.49	-0.20	0.48	0.60	1.04	1.66	2.19
FR	0.08	0.50	0.57	0.30	0.37	0.47	0.02	0.42	0.52
HR	:	:	:	:	:	:	:	:	:
IT	0.52	0.72	0.82	0.14	0.33	0.40	0.23	0.44	0.52
CY	:	:	:	:	:	:	:	:	:
LV	-0.34	3.02	3.69	-1.62	1.99	2.52	-0.57	1.22	1.46
LT	0.00	1.41	1.81	-0.28	0.91	1.13	-0.03	1.10	1.46
LU	0.01	1.35	1.79	-0.11	0.51	0.71	-0.91	0.98	1.22
HU	0.11	0.91	1.01	0.05	0.59	0.64	-0.11	1.11	1.42
MT	-0.49	0.93	1.14	0.38	0.84	0.93	-0.01	0.76	1.09
NL	0.02	0.37	0.43	0.16	0.34	0.60	-0.48	1.06	1.18
AT	-0.09	0.48	0.59	-0.20	0.33	0.39	-0.49	0.52	0.60
PL	-0.50	0.93	1.23	-0.01	0.53	0.66	0.75	1.71	2.88
PT	-0.12	0.64	0.79	0.03	0.50	0.64	0.22	1.08	1.30
RO	0.31	1.34	1.60	0.29	1.19	1.45	0.37	1.21	1.60
SI	0.09	1.38	1.79	0.01	0.82	1.03	0.72	1.29	2.90
SK	-0.50	1.03	1.30	0.11	0.62	0.76	0.13	0.75	0.98
FI	0.36	1.45	1.61	0.07	0.34	0.37	-0.10	0.91	1.01
SE	-0.06	1.10	1.51	-0.10	0.31	0.43	-0.68	0.89	1.21
UK	0.21	0.58	0.72	-0.26	0.50	0.71	0.02	0.67	0.92
EU	0.07	0.41	0.50	0.01	0.22	0.29	0.02	0.44	0.54
EA	0.02	0.35	0.47	0.06	0.22	0.29	0.03	0.43	0.54

(1) The forecast error for variable X in year t is defined as the difference between the forecasted value of variable X in year t, according to the Autumn vintage of year t-1, and the historical value taken by variable X in year t, according to the Autumn vintage of year t+1.

(2) ME: mean error; MAE: mean absolute error; RMSE: root mean squared error.

Source: Commission services.

Table A10.2: Statistics on European Commission's forecast accuracy on GDP growth, inflation rate and general government balance, by country - for the year-ahead

	GDP			Inflation			Government balance		
	2004-2014			2004-2014			2004-2014		
	ME	MAE	RMSE	ME	MAE	RMSE	ME	MAE	RMSE
BE	0.41	1.09	1.30	-0.24	1.02	1.26	0.34	1.27	1.75
BG	1.56	1.94	3.48	0.16	2.74	3.25	1.40	1.95	2.94
CZ	0.53	2.15	2.88	0.46	0.75	1.07	-0.77	1.71	2.10
DK	1.01	1.39	2.00	0.01	0.47	0.57	-1.14	1.82	2.17
DE	0.15	1.30	1.83	0.14	0.55	0.80	-0.54	1.06	1.37
EE	1.14	4.36	5.59	-0.11	1.98	2.48	-1.16	2.00	2.41
IE	0.82	2.13	3.06	0.75	1.30	2.13	2.21	4.15	6.16
EL	:	:	:	:	:	:	:	:	:
ES	0.67	1.28	1.68	-0.25	0.98	1.14	1.57	2.46	3.47
FR	0.61	0.82	1.09	0.12	0.66	0.92	0.15	0.86	1.37
HR	:	:	:	:	:	:	:	:	:
IT	1.39	1.63	2.14	0.12	0.78	0.99	0.38	0.82	1.07
CY	:	:	:	:	:	:	:	:	:
LV	0.72	4.49	6.34	-1.90	2.81	3.22	-0.77	2.57	3.02
LT	0.55	3.21	5.10	-0.26	1.58	1.82	-0.27	1.66	2.21
LU	0.32	1.90	2.42	0.17	0.86	1.07	-1.45	1.81	2.07
HU	0.77	1.79	2.63	-0.01	1.06	1.29	-0.57	1.88	3.07
MT	-0.09	1.49	1.87	0.43	1.04	1.24	-0.15	0.92	1.20
NL	0.51	1.26	1.67	0.36	0.73	1.20	-0.07	1.42	2.13
AT	0.40	1.24	1.70	-0.08	0.74	1.10	-0.25	0.83	1.00
PL	-0.18	1.29	1.43	0.15	1.28	1.43	0.81	1.79	2.90
PT	0.69	1.11	1.45	0.31	0.89	1.55	0.91	1.51	2.29
RO	1.73	2.17	4.30	-0.26	1.52	2.24	0.77	1.12	1.83
SI	1.07	2.46	3.77	0.60	1.27	1.61	0.86	2.38	3.74
SK	0.03	2.23	3.37	0.36	1.36	1.61	0.30	1.16	1.88
FI	1.07	2.31	3.31	0.04	0.88	1.07	0.05	1.63	2.25
SE	0.29	1.63	2.29	0.40	0.53	0.57	-0.57	1.33	1.59
UK	0.47	1.04	1.46	-0.43	0.70	1.05	0.21	1.49	2.15
EU	0.44	1.24	1.66	0.01	0.63	0.85	0.20	0.86	1.50
EA	0.52	1.21	1.62	0.07	0.66	0.91	0.23	0.89	1.51

(1) The forecast error for variable X in year t is defined as the difference between the forecasted value of variable X in year t, according to the Autumn vintage of year t-1, and the historical value taken by variable X in year t, according to the Autumn vintage of year t+1.

(2) ME: mean error; MAE: mean absolute error; RMSE: root mean squared error.

Source: Commission services.



## ANNEX A11

### Assessment of fiscal sustainability challenges: criteria used

#### A11.1. THE OVERALL LOGIC FOLLOWED IN FISCAL SUSTAINABILITY ASSESSMENTS

The logic followed in fiscal sustainability assessments presented in this report differs from that used in the previous edition of the Fiscal Sustainability Report (2012) in that the debt sustainability analysis (DSA) has now been fully integrated in the approach used to analyse medium-term sustainability challenges. An overview of the overall logic followed in the new approach and the elements that feature in it is provided in Graph A11.1 (where elements that are newly employed, relative to the Fiscal Sustainability Report 2012, are indicated in italics).

In the remaining of this annex, the renewed approach to reach an overall assessment of medium-term sustainability challenges is described in more detail. A summary overview of the thresholds used in fiscal sustainability assessment (and in particular in the summary heat map in Chapter 6) is provided in Section A11.3.

#### A11.2. THE APPROACH USED IN THE ASSESSMENT OF MEDIUM-TERM SUSTAINABILITY CHALLENGES

The assessment of medium-term sustainability challenges is now based on S1 (under the baseline no-fiscal policy change scenario) *and* an overall conclusion on the country's DSA. A country is assessed to be at potential high (medium) risk if either the baseline S1 indicator *or* the DSA or both are highlighted in red (yellow) (see Graph A11.2).

The overall assessment of the country's DSA is reached by looking at debt projection results under three different scenarios (baseline no-fiscal policy change scenario; historical SPB scenario; SGP scenario) and a series of negative sensitivity tests (on nominal growth, interest rates and primary balance) around the baseline no-fiscal policy change projections.<sup>(272)</sup> Synthetic stochastic debt projection results are also brought into the picture to reach the overall risk assessment on DSA.

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<sup>(272)</sup> Positive sensitivity tests are neglected in the overall assessment as the idea is rather to stress test baseline debt projections against upward risks.

The decision tree that is followed in this respect can be visualised in Graph A11.3. Practically, a country's DSA is deemed to highlight potential high risks if the baseline no-fiscal policy change debt projections are assessed to entail high risks, or if they are deemed to entail medium risks, but high risks are still highlighted by alternative scenarios (the historical SPB scenario or at least one of the sensitivity tests on macro-fiscal assumptions) or by stochastic projections. The high-risk assessment based on the latter criterion is meant to prudentially capture significant upward risks around a baseline that is already considered at medium risk.<sup>(273)</sup>

Finally, at the lowest level of granularity, the risk assessment for each debt projection scenario/sensitivity test and for stochastic projections, on which the overall DSA assessment relies, follows an economic rationale that is explained in Graph A11.4. The variables used to summarise deterministic debt projection results are the following (as indicated in Chapter 6):

- The level of the debt ratio at the end of projections (2026);
- The year in which the debt ratio peaks over the 10-year projection horizon (providing a synthetic indication of debt dynamics);
- The percentile rank of the average SPB assumed over the projection horizon in the specific scenario (giving a sense of how common/uncommon the fiscal stance assumed in the projections is, relative to the SPB distribution for all EU countries over 1980-2014).<sup>(274)</sup>

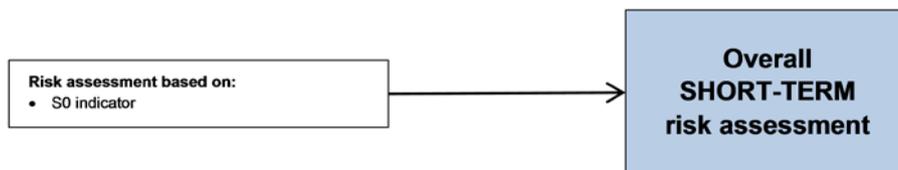
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<sup>(273)</sup> A prudential approach is what guides this choice. In particular, adopting a high level of prudence has been considered as particularly important in the case of countries being already considered at medium risk under the baseline no-fiscal policy change scenario. In this case, an historical SPB scenario (where fiscal policy is assumed to revert to historical behaviour) in red would be sufficient to lead to a high risk assessment, as indicated in Graph A11.3. This high level of prudence has not been deemed necessary for a country that is, on the contrary, deemed to be at low risk (thus far from vulnerable) under the baseline scenario (in this case a medium or high risk assessment under the historical SPB scenario does not lead in itself to a medium risk assessment).

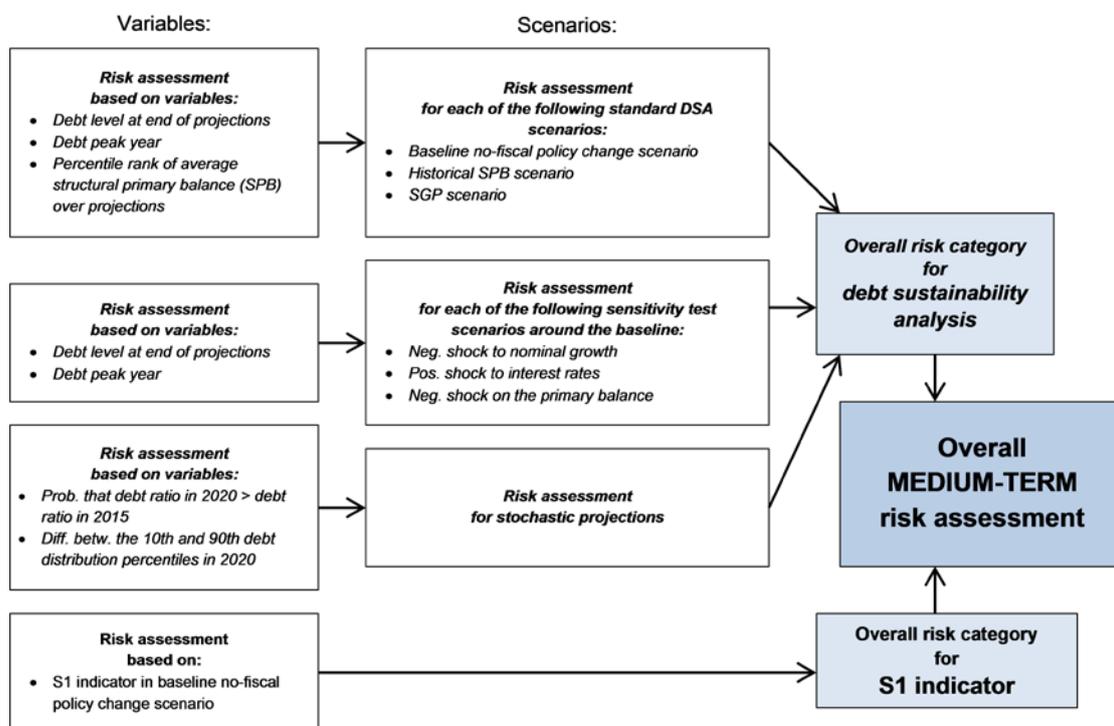
<sup>(274)</sup> For the individual sensitivity test scenarios, the percentile rank of the average SPB over the projection horizon is not

Graph A11.1: The logic followed in the multi-dimensional approach to the assessment of fiscal sustainability challenges

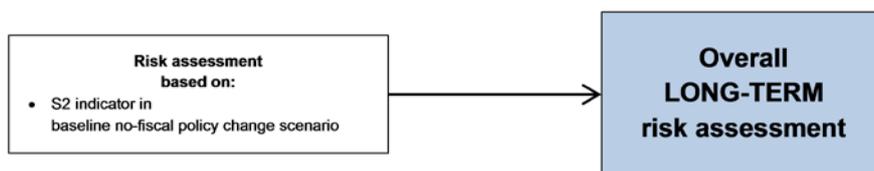
### Short-term risk assessment



### Medium-term risk assessment



### Long-term risk assessment



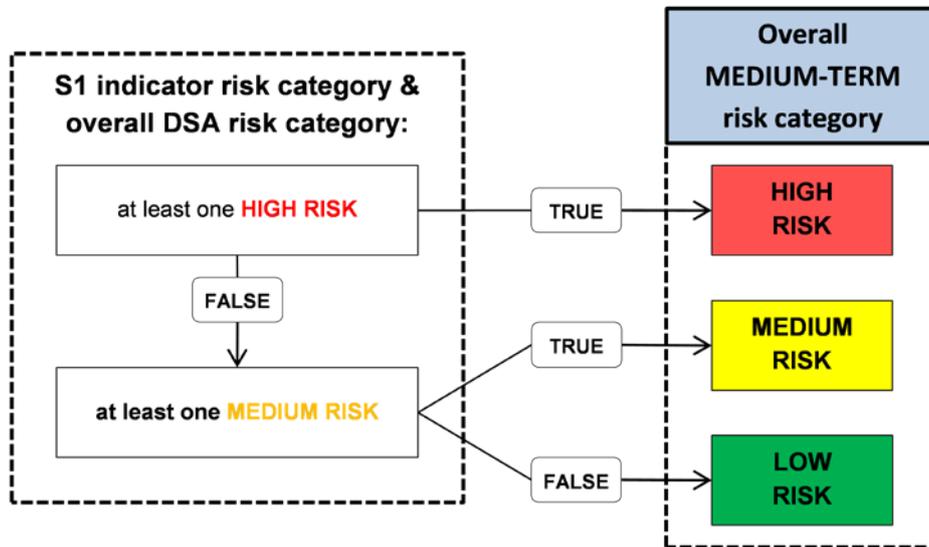
Source: Commission services.

Stochastic debt projections are summarized using the following two indicators (as indicated in Chapter 6):

- The probability of a debt ratio at the end of the 5-year stochastic projection horizon (2020) greater than the initial (2015) debt ratio (capturing the probability of a higher debt ratio due to the joint effects of macroeconomic and fiscal shocks);

used for the scenarios' risk assessment (see Graph A11.4). The reason is that these sensitivity tests are all run around the baseline no-fiscal policy change scenario, for which the variable percentile rank of the average SPB is already used in the assessment.

Graph A11.2: Decision tree for the renewed approach to the assessment of medium-term sustainability challenges



Source: Commission services.

- The difference between the 10<sup>th</sup> and the 90<sup>th</sup> debt distribution percentiles (measuring the width of the stochastic projection cone, i.e. the estimated degree of uncertainty surrounding baseline projections).

As indicated in Graph A11.4, a DSA scenario is highlighted as high risk in case the debt ratio at the end of projections is considered at high risk (above 90% of GDP – see Table A11.1 for thresholds on all DSA variables) or if the debt peak year and the SPB percentile rank are both assessed as high risk, which means that the debt ratio is on a longer (at least up to T+7) increasing path, even with projections that are based on a relatively ambitious SPB (see again Table A11.1 for precise thresholds).<sup>(275)</sup>

A sensitivity test (on growth, interest rate or the primary balance) is highlighted as high risk if it leads to a debt ratio at the end of projections above 90% (red), or if the end-of-projection debt ratio is between 70% and 90% (thus already significantly

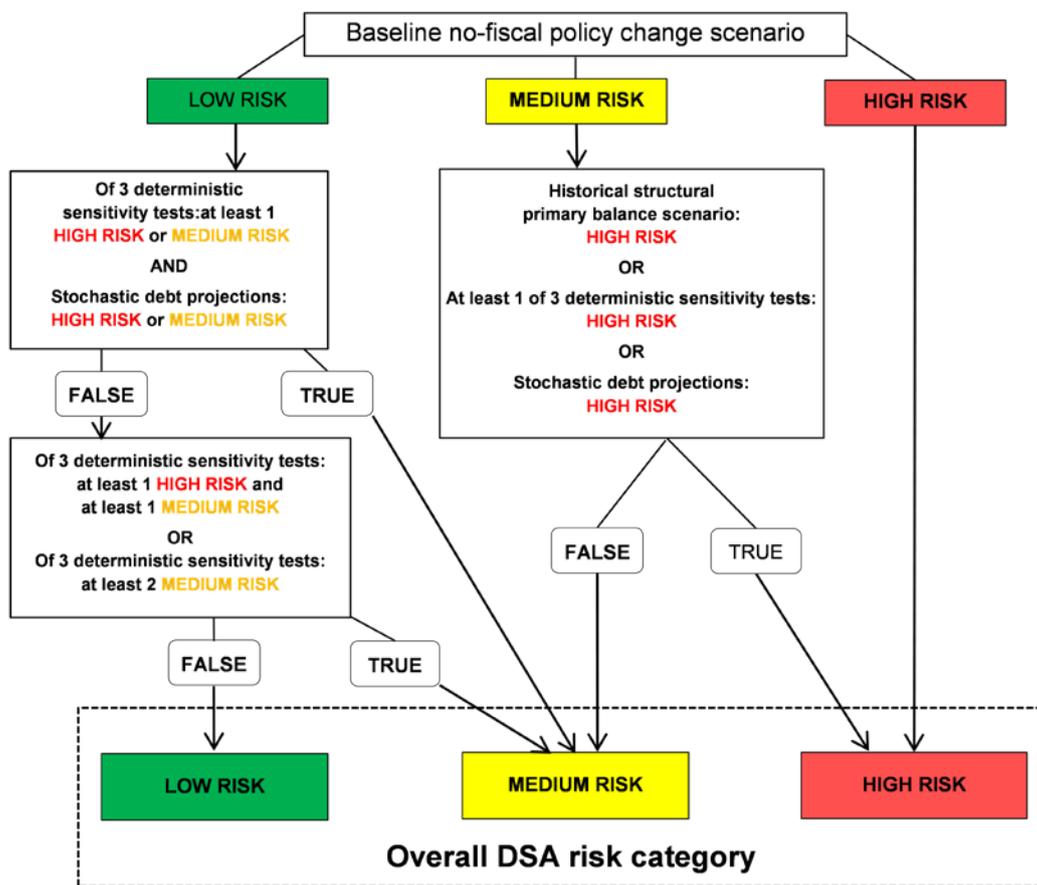
above the 60% Treaty reference value) and the debt peak year is highlighted in red, thereby indicating that the debt ratio is still on an increasing path towards the end of projections (up to T+7 at least).

Finally stochastic debt projections are summarised in red if the probability of a debt ratio at the end of the 5 years of projections greater than the initial debt level is assessed as high risk (with different thresholds being set in this case for different groups of countries with different initial debt ratios – see Table A11.1). On the contrary, the fact of having a high level of estimated uncertainty around baseline projections is in itself considered as a sufficient condition for a high-risk assessment but leads to a medium-risk assessment (this high volatility can be associated with very low or relatively low debt levels, in which case it cannot be meaningfully considered as high risk).

As already explained, the overall assessment reached for the country's DSA is then integrated with the assessment reached using the traditional S1 indicator (under the baseline no-fiscal policy change scenario) as indicated in Graph A11.2.

<sup>(275)</sup> As indicated in Table A11.1, the SPB percentile ranks used as upper and lower thresholds are 15% and 30%. The 15% percentile rank corresponds to the 85<sup>th</sup> distribution percentile in the SPB distribution (over all EU countries for 1980-14), which corresponds to an SPB of 3.3% of GDP, while the 30% percentile rank corresponds to the 70<sup>th</sup> distribution percentile, which is an SPB of 1.6% of GDP.

Graph A11.3: Decision tree for country risk assessment based on debt sustainability analysis



Source: Commission services.

### A11.3. A SUMMARY OVERVIEW OF THRESHOLDS USED IN FISCAL SUSTAINABILITY ASSESSMENT

In this section we provide a summary overview of thresholds used to identify fiscal sustainability challenges (with the only exception of thresholds used for DSA variables that have already been discussed and reported in the previous section – see Table A11.1).

For the indicators/variables discussed in this section, the thresholds themselves, as well as the methodologies used to derive them, have already been described in more detail in other sections of

the report (Chapter 1, Annexes A1 and A6). Here the purpose is to provide a quick reference for the identification of fiscal sustainability challenges reported in the summary heat map of Chapter 6.

As explained in Chapter 1, the thresholds of risk for S0 and the two S0 sub-indexes (fiscal and financial-competitiveness) have been calculated using the signals' approach (see Annex A1 for details), and are reported in Table A11.2.

Graph A11.4: Assessment criteria used for debt projection scenarios, sensitivity tests and stochastic debt projections

DSA scenarios (Baseline, HSPB)			Deterministic sensitivity tests			Stochastic debt projections		
Debt ratio at end of projections (t+11)	Debt peak year and Structural primary balance percentile rank	RISK CATEGORY	Debt ratio at end of projections (t+11)	Debt peak year	RISK CATEGORY	Prob. of debt ratio at 2020 greater than 2015	Debt distribution: Diff. b/w 10th and 90th percentiles	RISK CATEGORY
HIGH RISK	ANY	HIGH RISK	HIGH RISK	ANY	HIGH RISK	HIGH RISK	ANY	HIGH RISK
ANY	Both HIGH RISK	HIGH RISK	MEDIUM RISK & ≥ 70%	HIGH RISK	HIGH RISK	HIGH RISK	ANY	HIGH RISK
MEDIUM RISK	ANY but both HIGH RISK	MEDIUM RISK	MEDIUM RISK & < 70%	HIGH RISK	MEDIUM RISK	MEDIUM RISK	HIGH RISK	MEDIUM RISK
LOW RISK or MEDIUM RISK	one HIGH RISK, one MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	MEDIUM RISK	LOW RISK	HIGH RISK	MEDIUM RISK
	Both MEDIUM RISK	MEDIUM RISK		LOW RISK	LOW RISK	MEDIUM RISK	LOW RISK	LOW RISK
	one HIGH RISK, one LOW RISK	LOW RISK	LOW RISK	ANY	LOW RISK	LOW RISK	MEDIUM RISK	LOW RISK
	one MEDIUM RISK, one LOW RISK	LOW RISK				LOW RISK	LOW RISK	LOW RISK
	Both LOW RISK	LOW RISK					LOW RISK	LOW RISK

Source: Commission services.

Table A11.1: Thresholds used for DSA variables

Variable	Threshold
Debt ratio at the end of projections (2026)	<b>Red:</b> above 90% <b>Yellow:</b> between 60% and 90% <b>Green:</b> below 60%
Debt peak year	<b>Red:</b> peak year btw. T+7 and end projections (2022-26), or still increasing at end projections <b>Yellow:</b> peak year between end of forecasts (T+3) and T+6 (2018-21) <b>Green:</b> peak year within forecast horizon (2015-17)
Percentile rank of average SPB over projection period (2017-26)	<b>Red:</b> if smaller than (or equal to) 15% <b>Yellow:</b> between 15% and 30% <b>Green:</b> greater than 30%
Probability of debt ratio at the end of 5-year stochastic projection horizon (2020) greater than initial (2015) debt ratio	Initial (2015) debt ratio at or above 90%: <b>Red:</b> if probability above 30% <b>Yellow:</b> if probability strictly positive and at or below 30% <b>Green:</b> if zero probability
	Initial (2015) debt ratio at or above 55% and below 90%: <b>Red:</b> if probability above 60% <b>Yellow:</b> if probability between 30% and 60% <b>Green:</b> if probability below 30%
	Initial (2015) debt ratio below 55%: <b>Yellow:</b> if probability above 70% <b>Green:</b> if probability at or below 70%
Difference between 10 <sup>th</sup> and 90 <sup>th</sup> debt distribution percentiles from stochastic projections	<b>Red:</b> the third of the countries with highest dispersion <b>Yellow:</b> the third of the countries with intermediate dispersion <b>Green:</b> the third of the countries with lowest dispersion

Source: Commission services.

Table A11.2: Thresholds used in fiscal sustainability assessment

	<i>Safety</i>	<i>Upper threshold</i>	<i>Lower threshold</i>
<b>SHORT-TERM RISKS</b>			
<b>S0 overall index</b>	<	0.43	:
S0 fiscal sub-index	<	0.35	:
S0 financial-competitiveness sub-index	<	0.45	:
<b>Fiscal risks from fiscal context</b>			
Primary balance (% of GDP)	>	0.00	0.00
Change in gross debt (% of GDP)	<	6.50	5.00
Change in share of short-term public debt (p.p.)	<	2.76	2.20
Gross financing needs (% of GDP)	<	16.83	13.00
<b>Fiscal risks from macro-financial context</b>			
Private debt (% of GDP)	<	209.20	133.00
Private credit flow (% of GDP)	<	10.90	9.00
Net international investment position (% of GDP)	>	-50.10	-35.00
Change in share of non-performing loans (p.p.)	<	0.30	0.20
<b>Fiscal risks from financial market developments</b>			
Sovereign yield spreads(bp) - 10 year	<	231.00	185.00
<b>MEDIUM-TERM RISKS</b>			
<b>S1 indicator (baseline, historical SPB, AWG risk scenarios)</b>	<	2.5	0.0
Cost of ageing sub-component	<	0.3	:
RSPB related to S1 - Percentile rank	>	15%	30%
<b>LONG-TERM RISKS</b>			
<b>S2 indicator (baseline, historical SPB, AWG risk scenarios)</b>	<	6.0	2.0
Pensions sub-component	<	0.3	:
Health care sub-component	<	0.7	:
Long-term care sub-component	<	0.8	:
RSPB related to S2 - Percentile rank	>	15%	30%

Source: Commission services.

For all other variables used to identify short-term risks (see Tables 6.1-6.2, Chapter 6), the upper thresholds of risk (above which values are highlighted in red) have also been derived using the signals' approach (see Chapter 1 and Annex A6), while lower thresholds of risk (above which values are highlighted in yellow, till when they remain below the upper threshold of risk) have generally been set at around 80% of the original signals' approach thresholds, for prudential reasons (see Table A11.2).<sup>(276)</sup>

<sup>(276)</sup> The only exceptions to this are the variables private debt and net international investment position (common to the scoreboard used in the Macroeconomic Imbalances Procedure), for which the scoreboard thresholds are used as lower thresholds of risk.

For the S1-S2 indicators and respective ageing sub-components (used in the assessment of medium- and long-term sustainability challenges respectively), upper and lower thresholds are reported in Table A11.2. These thresholds have been kept as in the Fiscal Sustainability Report 2012 (as explained in Chapter 1).

For S1 and S2 ageing sub-components (cost of ageing sub-component for S1; pensions, healthcare and long-term care sub-components for S2), thresholds (above which values are highlighted in red) correspond to the EU average (see Table A11.2). Finally, for the percentile rank of the required structural primary balance (RSPB) associated with S1 and S2 respectively, the same upper and lower thresholds are used as for the percentile rank of the average structural primary balance in DSA scenarios (see Table A11.1).

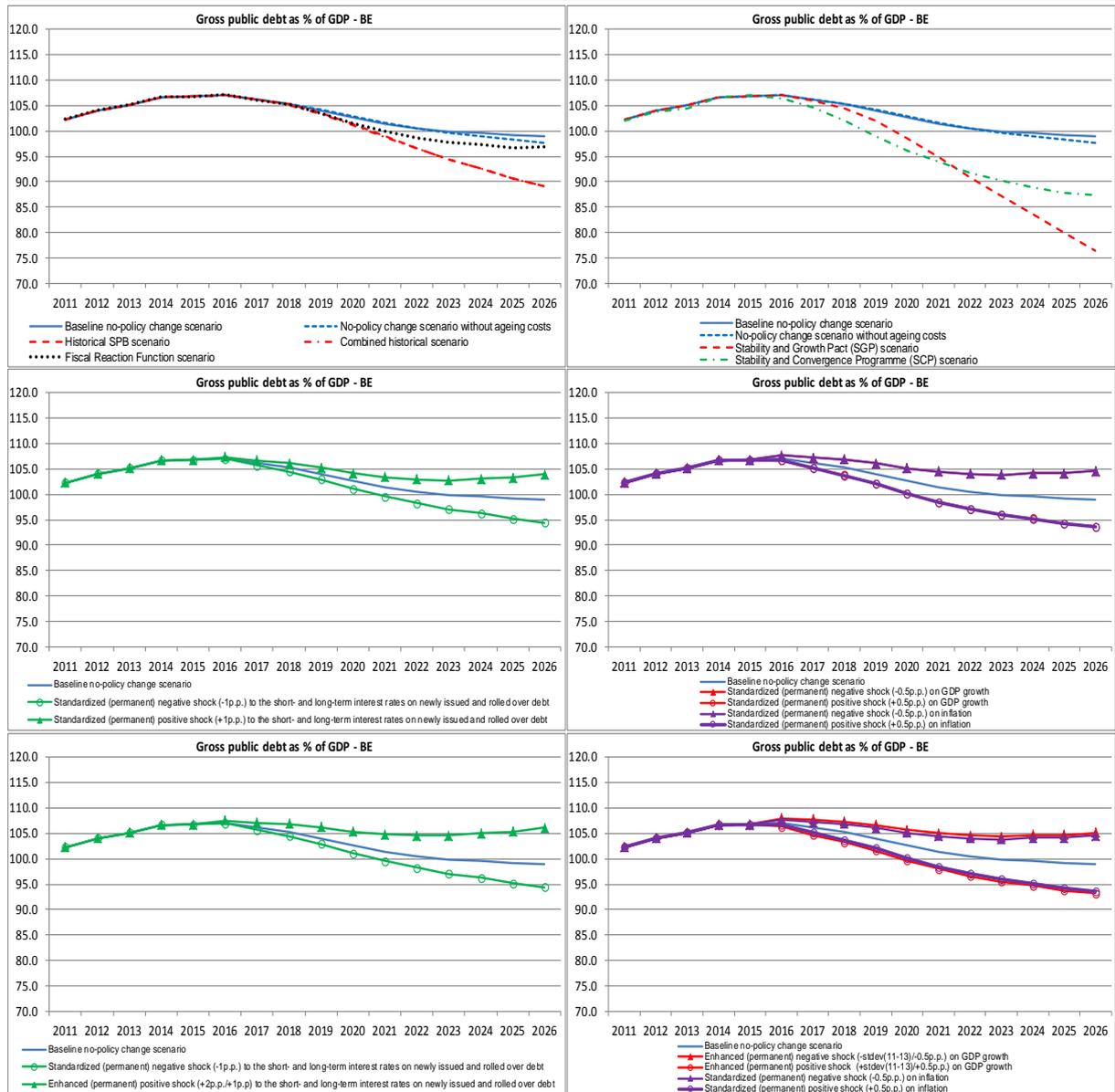
## ANNEX A12

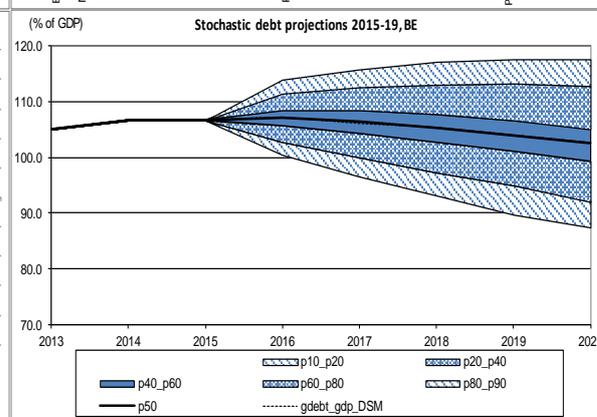
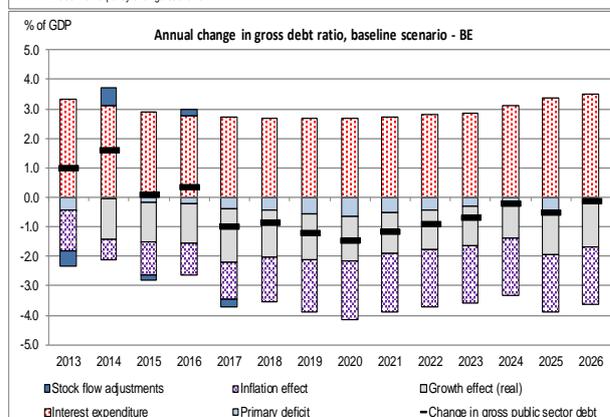
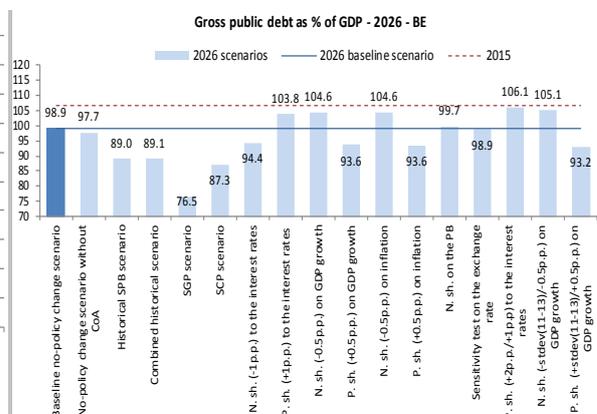
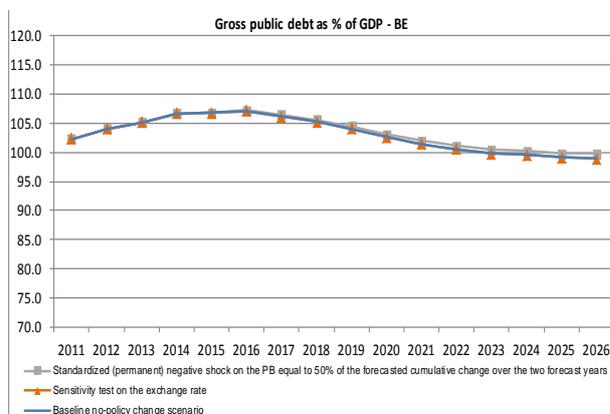
### Statistical annex

# 1. Belgium

Public debt projections under baseline and alternative scenarios and sensitivity tests

BE - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>105.1</b>	<b>106.7</b>	<b>106.7</b>	<b>107.1</b>	<b>106.1</b>	<b>105.3</b>	<b>104.1</b>	<b>102.6</b>	<b>101.4</b>	<b>100.5</b>	<b>99.8</b>	<b>99.6</b>	<b>99.0</b>	<b>98.9</b>
Changes in the ratio (-1+2+3) of which	1.0	1.6	0.1	0.4	-1.0	-0.9	-1.2	-1.5	-1.2	-0.9	-0.7	-0.2	-0.5	-0.7
(1) Primary balance (1.1+1.2+1.3)	0.4	0.0	0.2	0.2	0.4	0.4	0.6	0.6	0.5	0.4	0.3	0.1	0.4	0.1
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.6	0.3	0.4	0.7	0.5	0.6	0.6	0.6	0.5	0.4	0.3	0.1	0.4	0.1
(1.1.1) Structural Primary Balance (before CoA)	0.6	0.3	0.4	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
(1.1.2) Cost of ageing						0.0	-0.1	-0.1	0.1	0.2	0.3	0.5	0.2	0.5
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
(1.2) Cyclical component	-0.8	-0.6	-0.6	-0.5	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.6	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	1.9	1.1	0.5	0.3	-0.4	-0.4	-0.6	-0.8	-0.6	-0.5	-0.4	-0.1	-0.1	0.1
(2.1) Interest expenditure	3.3	3.1	2.9	2.8	2.7	2.7	2.7	2.7	2.7	2.8	2.9	3.1	3.4	3.5
(2.2) Growth effect	0.0	-1.4	-1.3	-1.4	-1.8	-1.6	-1.5	-1.5	-1.4	-1.3	-1.3	-1.3	-1.5	-1.5
(2.3) Inflation effect	-1.4	-0.7	-1.1	-1.1	-1.3	-1.5	-1.8	-2.0	-2.0	-2.0	-1.9	-1.9	-1.9	-1.9
(3) Stock flow adjustments	-0.5	0.6	-0.2	0.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-2.7	-2.8	-2.5	-2.1	-2.2	-2.1	-2.1	-2.1	-2.2	-2.4	-2.6	-3.0	-3.0	-3.4





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	27.5	27.7	27.7	27.6	27.6	27.5	27.5	27.5	27.8	28.2
Revenues from pensions taxation	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6
Property incomes	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>				
<b>Overall index</b>		<b>0.40</b>		<b>0.10</b>		<b>0.43</b>				
Fiscal sub-index		0.70		0.16		0.35				
Financial competitiveness sub-index		0.27		0.07		0.45				
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
<b>Overall index</b>	<b>3.8</b>	<b>3.7</b>	<b>4.0</b>	<b>2.9</b>	<b>6.2</b>					
of which Initial Budgetary position	-0.7	-1.9	-0.7	-2.5	0.6					
Cost of delaying adjustment**	0.6	0.8	0.6	0.5	1.0					
Debt requirement***	3.6	4.3	3.6	3.6	2.4					
Ageing costs	0.3	0.5	0.5	1.3	2.1					
<b>Required structural primary balance related to S1</b>	<b>4.4</b>	<b>5.7</b>	<b>4.6</b>	<b>4.8</b>	<b>6.5</b>					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
<b>Overall index</b>	<b>2.5</b>	<b>1.1</b>	<b>3.6</b>	<b>2.9</b>	<b>7.4</b>					
of which Initial Budgetary position	0.5	-1.0	0.5	-0.8	1.0					
Long term component	2.1	2.1	3.1	3.8	6.4					
of which Pensions	1.0	0.8	1.0	2.2	3.9					
Health care	0.1	0.2	0.5	0.2	2.2					
Long-term care	1.1	1.1	1.9	1.2	0.0					
Others	-0.1	0.0	-0.1	0.2	0.4					
<b>Required structural primary balance related to S2</b>	<b>3.1</b>	<b>3.1</b>	<b>4.1</b>	<b>4.8</b>	<b>7.7</b>					

**Risks related to the structure of public debt financing**

<b>Public debt structure - BE (2014):</b>	Change in share of short-term public debt (p.p.): 0.6	Share of public debt by non-residents (%): 49.9 (2013)	Share of public debt in foreign currency (%): 0
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			
		BE	EU
State guarantees (% GDP) (2013)		13.3	10.5
of which One-off guarantees		13.3	10.2
Standardised guarantees		.	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	9.38	3.07
	Securities issued under liquidity schemes	0.00	0.45
	Special purpose entity	0.00	0.91
	Total	9.38	4.43

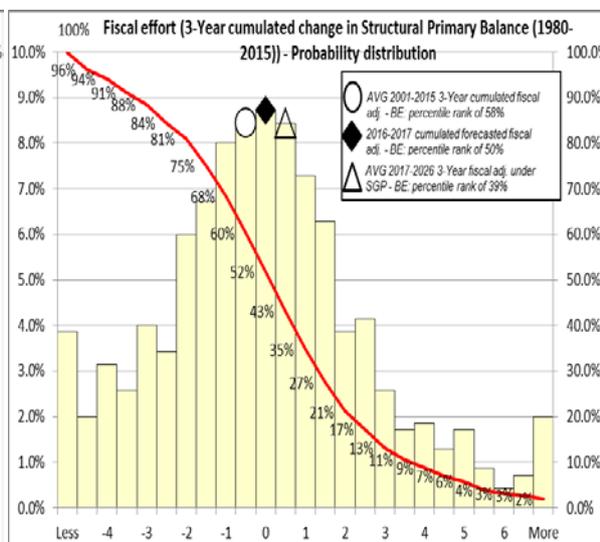
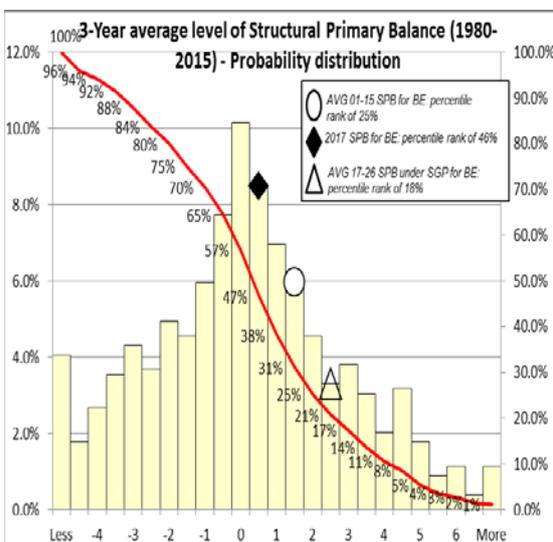
<b>Government's contingent liability risks from banking sector - BE (2014):</b>	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
	1	62.1	3.3	-1.9	-0.5	bank recap. at 8% 0.00%	bank recap. at 10.5% 0.01%

**Financial market information**

Sovereign Ratings as of Nov 30 2015, BE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa3	P-1	Aa3	
S&P	AAu	A-1+u	AAu	A-1+u
Fitch	AA		AA	F1+

Financial market information as of November 2015, BE		
Sovereign yield spreads(bp)*	2-year	7.6
	10-year	30
CDS (bp)	5-year	39.0

**Realism of baseline assumptions**



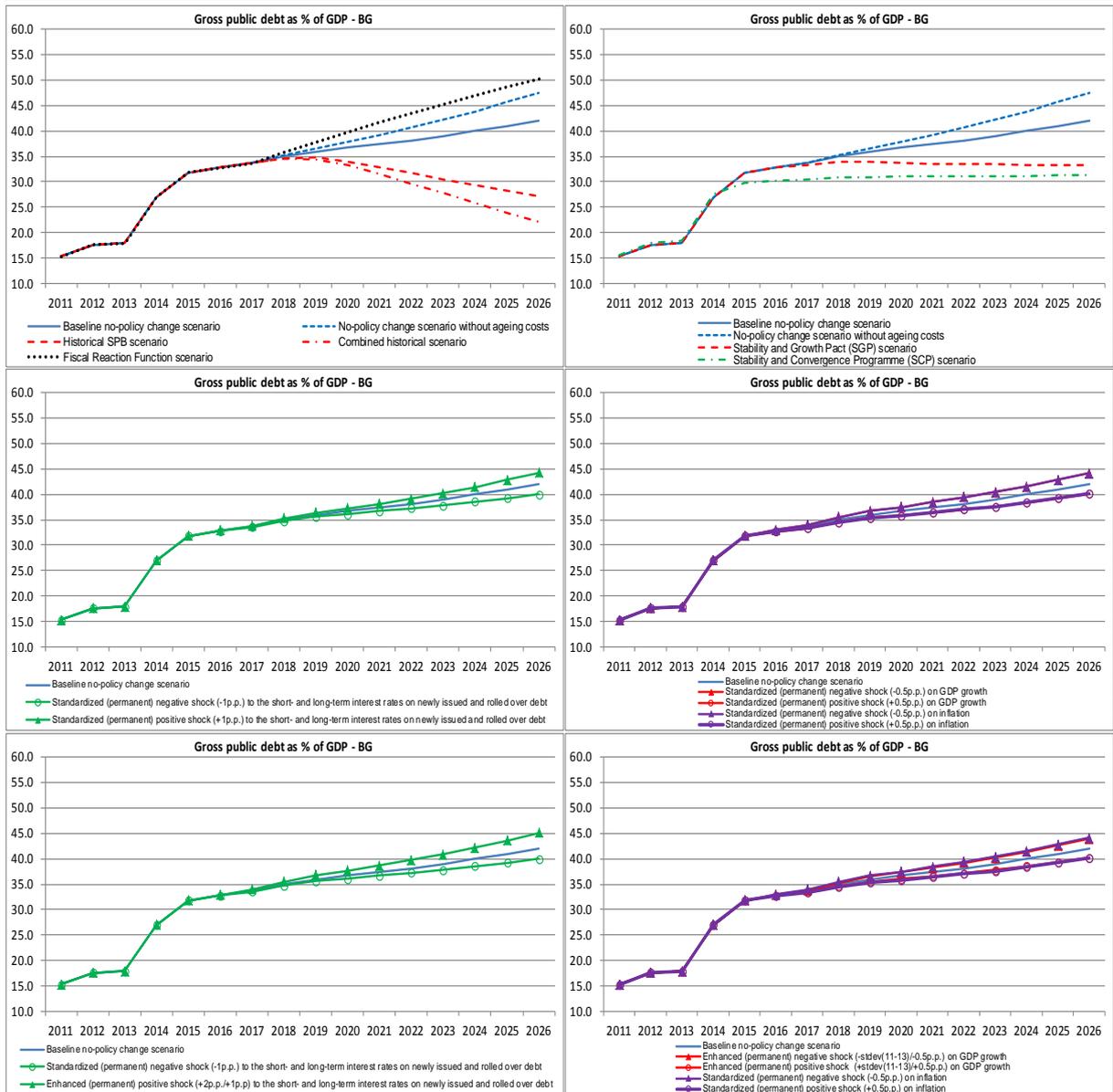
## Underlying macro-fiscal assumptions

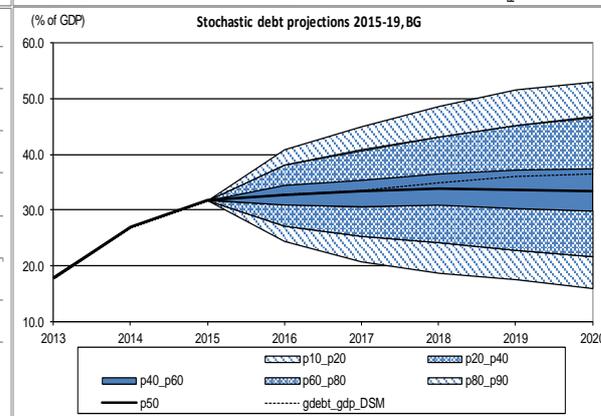
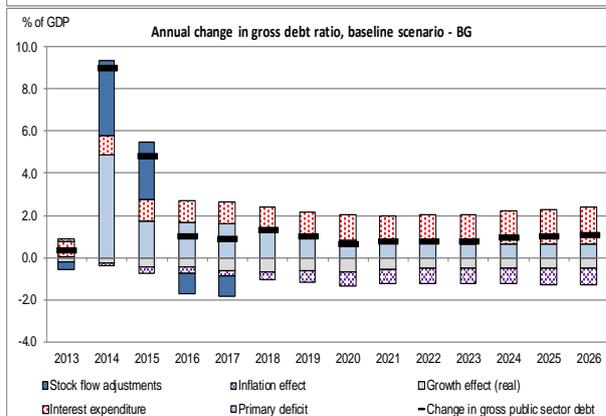
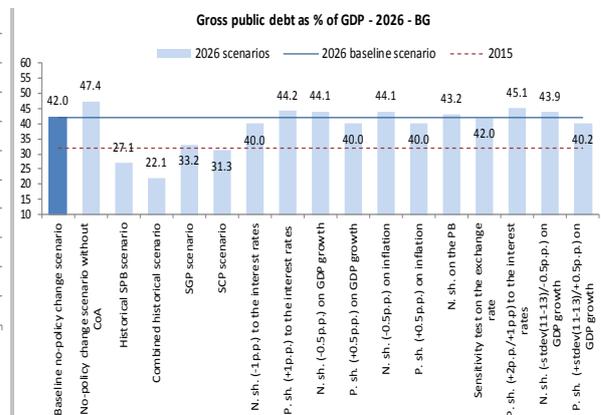
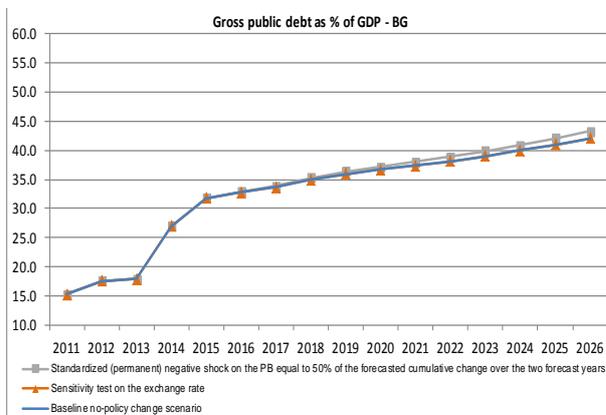
Macro-fiscal assumptions, Belgium													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.2	0.2	0.4	0.4	0.6	0.6	0.5	0.4	0.3	0.1	0.4	0.1
Structural primary balance (before CoA)	0.3	0.4	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	1.3	1.3	1.3	1.7	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.6	1.6
Potential GDP growth	1.0	1.2	1.2	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.6	1.6
Inflation rate	0.7	1.1	1.0	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	2.8	2.7	2.6	2.6	2.6	2.7	2.8	2.9	3.0	3.2	3.5	3.7
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.2	0.2	0.4	0.9	1.0	1.0	1.0	0.8	0.5	0.3	0.1	-0.1
Structural primary balance (before CoA)	0.3	0.4	0.7	0.5	1.0	1.0	0.9	1.0	0.9	0.8	0.8	0.2	0.3
Real GDP growth	1.3	1.3	1.3	1.7	1.1	1.5	1.6	1.3	1.4	1.4	1.3	2.0	1.6
Potential GDP growth	1.0	1.2	1.2	1.2	1.0	1.4	1.5	1.3	1.4	1.4	1.3	2.0	1.6
Inflation rate	0.7	1.1	1.0	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	2.8	2.7	2.6	2.6	2.6	2.7	2.8	2.9	3.0	3.2	3.5	3.7
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.2	0.2	1.1	1.7	2.3	3.0	3.4	3.4	3.3	3.4	3.5	3.5
Structural primary balance (before CoA)	0.3	0.4	0.7	1.2	1.8	2.4	3.0	3.4	3.4	3.3	3.4	3.5	3.5
Real GDP growth	1.3	1.3	1.3	1.2	1.1	1.1	1.1	1.1	1.4	1.4	1.3	1.5	1.6
Potential GDP growth	1.0	1.2	1.2	0.7	1.0	0.9	1.0	1.1	1.4	1.4	1.3	1.5	1.6
Inflation rate	0.7	1.1	1.0	1.2	1.5	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	2.8	2.7	2.6	2.6	2.7	2.7	2.8	2.9	2.9	3.2	3.4	3.6
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.3	0.7	1.2	1.9	1.8	1.6	1.4	1.2	1.0	0.7	0.5	0.2
Structural primary balance (before CoA)	0.3	0.6	0.9	1.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	1.0	1.2	1.5	1.6	1.7	1.4	1.2	1.1	1.1	1.0	1.0	1.2	1.3
Potential GDP growth	1.0	1.1	1.2	1.3	1.3	1.2	1.2	1.1	1.1	1.0	1.0	1.2	1.3
Inflation rate	0.8	1.0	0.9	1.2	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	2.7	2.4	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.7	2.9
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.2	0.2	0.4	0.8	1.3	1.7	2.0	1.9	1.8	1.6	1.9	1.6
Structural primary balance (before CoA)	0.3	0.4	0.7	0.5	0.9	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0
Real GDP growth	1.3	1.3	1.3	1.7	1.2	1.2	1.2	1.1	1.4	1.4	1.3	1.6	1.6
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.2	0.2	0.4	0.8	1.3	1.7	2.0	1.9	1.8	1.6	1.9	1.6
Structural primary balance (before CoA)	0.3	0.4	0.7	0.5	0.9	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0
Real GDP growth	1.3	1.3	1.3	1.7	1.4	1.4	1.3	1.3	1.6	1.6	1.6	1.6	1.6
Implicit interest rate (nominal)	3.0	2.8	2.7	2.6	2.7	2.7	2.8	2.9	3.1	3.2	3.4	3.5	3.7
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.0	2.8	2.8	2.9	2.9	3.0	3.1	3.2	3.4	3.5	3.8	4.2	4.4
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.0	2.8	2.5	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.7	2.9	3.0
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.0	2.8	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.7	4.0	4.3	4.5
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.3	1.3	1.8	2.2	2.0	2.0	2.0	1.9	1.9	1.9	1.8	2.1	2.1
Potential GDP growth	1.0	1.2	1.7	1.7	1.9	1.9	1.9	1.9	1.9	1.9	1.8	2.1	2.1
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.3	1.3	0.8	1.2	1.0	1.0	1.0	0.9	0.9	0.9	0.8	1.1	1.1
Potential GDP growth	1.0	1.2	0.7	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.8	1.1	1.1
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.3	1.3	2.1	2.5	2.0	2.0	2.0	1.9	1.9	1.9	1.8	2.1	2.1
Potential GDP growth	1.0	1.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	2.1	2.1
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.3	1.3	0.6	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.8	1.1	1.1
Potential GDP growth	1.0	1.2	0.5	0.5	0.9	0.9	0.9	0.9	0.9	0.9	0.8	1.1	1.1
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.7	1.1	1.5	1.7	2.0	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.7	1.1	0.5	0.7	1.0	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.2	0.0	0.3	0.4	0.5	0.6	0.5	0.4	0.2	0.0	0.3	0.1
Structural primary balance (before CoA)	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	1.3	1.3	1.5	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.3	1.6	1.6
Potential GDP growth	1.0	1.2	1.4	1.1	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.6	1.6
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	3.0	2.8	2.7	2.6	2.6	2.6	2.7	2.8	2.9	3.0	3.2	3.5	3.7

## 2. Bulgaria

Public debt projections under baseline and alternative scenarios and sensitivity tests

BG - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	18.0	27.0	31.8	32.8	33.6	35.0	36.0	36.6	37.4	38.2	39.0	39.9	40.9	42.0
Changes in the ratio (-1+2+3) of which	0.3	9.0	4.8	1.0	0.9	1.3	1.0	0.7	0.7	0.8	0.8	1.0	1.0	1.1
(1) Primary balance (1.1+1.2+1.3)	0.0	-4.9	-1.8	-1.7	-1.6	-1.3	-1.0	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.0	-1.6	-1.6	-1.4	-1.3	-1.1	-1.0	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7
(1.1.1) Structural Primary Balance (before CoA)	0.0	-1.6	-1.6	-1.4	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
(1.1.2) Cost of ageing						-0.2	-0.4	-0.5	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	0.0	-0.1	-0.1	-0.3	-0.3	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	-3.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	0.7	0.5	0.3	0.3	0.2	0.0	0.0	-0.2	0.0	0.1	0.1	0.3	0.4	0.4
(2.1) Interest expenditure	0.7	0.9	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.3	1.4	1.5	1.6	1.7
(2.2) Growth effect	-0.2	-0.3	-0.5	-0.5	-0.6	-0.7	-0.6	-0.7	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
(2.3) Inflation effect	0.1	-0.1	-0.3	-0.3	-0.2	-0.4	-0.5	-0.7	-0.7	-0.7	-0.7	-0.8	-0.8	-0.8
(3) Stock flow adjustments	-0.4	3.6	2.8	-1.0	-0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-0.8	-2.5	-2.6	-2.4	-2.4	-2.2	-2.1	-2.0	-2.0	-2.0	-2.0	-2.2	-2.3	-2.4





### Sustainability indicators summary table

Long-term projections																
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030						
<b>Budgetary projections</b>																
Total cost of ageing (gross)	17.8	17.8	17.5	17.2	16.9	16.7	16.5	16.4	16.2	16.2						
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Property incomes	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0						
<b>Sustainability indicators</b>																
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>										
<b>Overall index</b>		<b>0.63</b>		<b>0.21</b>		<b>0.43</b>										
Fiscal sub-index		0.33		0.17		0.35										
Financial competitiveness sub-index		0.74		0.23		0.45										
<b>S1 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							<b>-1.2</b>		<b>-5.3</b>		<b>-0.8</b>		<b>-2.7</b>		<b>-1.5</b>	
of which Initial Budgetary position							1.5		-0.5		1.6		0.4		0.2	
Cost of delaying adjustment**							-0.2		-1.2		-0.1		-0.5		-0.3	
Debt requirement***							-1.9		-2.9		-1.9		-2.3		-2.3	
Ageing costs							-0.6		-0.7		-0.3		-0.4		0.8	
<b>Required structural primary balance related to S1</b>							<b>-2.5</b>		<b>-4.6</b>		<b>-2.1</b>		<b>-2.9</b>		<b>-1.2</b>	
<b>S2 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							<b>2.4</b>		<b>0.3</b>		<b>4.4</b>		<b>1.0</b>		<b>2.8</b>	
of which Initial Budgetary position							1.9		-0.9		1.9		0.3		0.5	
Long term component							0.5		1.2		2.4		0.7		2.3	
of which Pensions							0.0		0.7		0.0		0.3		1.6	
Health care							0.3		0.2		0.8		0.2		0.6	
Long-term care							0.1		0.1		1.5		0.1		0.0	
Others							0.1		0.2		0.1		0.1		0.2	
<b>Required structural primary balance related to S2</b>							<b>1.1</b>		<b>0.9</b>		<b>3.0</b>		<b>0.8</b>		<b>3.1</b>	

**Risks related to the structure of public debt financing**

Public debt structure - BG (2014):	Change in share of short-term public debt (p.p.): 19.2	Share of public debt by non-residents (%): 43.9 (2013)	Share of public debt in foreign currency (%): 81.6
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			BG	EU
State guarantees (% GDP) (2013)			0.8	10.5
of which One-off guarantees			0.7	10.2
Standardised guarantees			0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.00	3.07
	Securities issued under liquidity schemes		0.00	0.45
	Special purpose entity		0.00	0.91
	Total		0.00	4.43

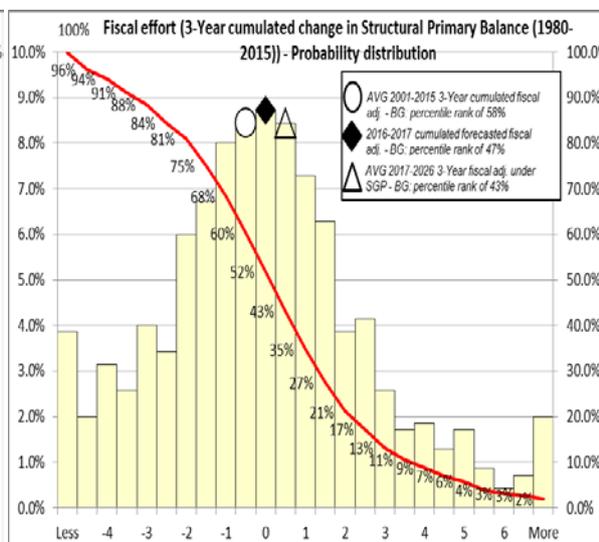
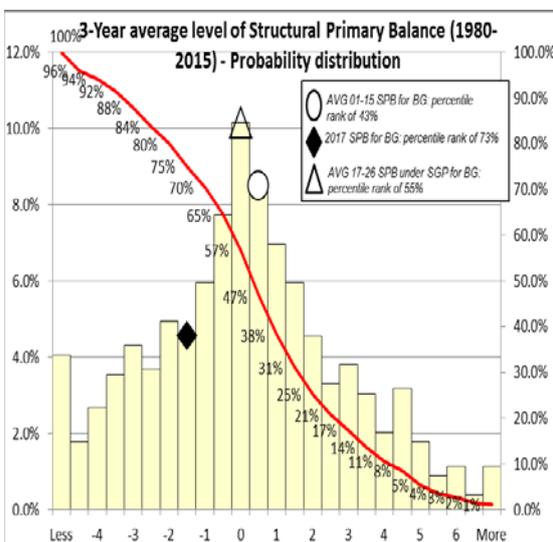
Government's contingent liability risks from banking sector - BG (2014):	Private sector credit flow (% GDP): -0.3	Bank loans-to-deposits ratio (%): n.a. ()	Share of non-performing loans (%): 18.4	Change in share of non-performing loans (p.p.): -0.2	Change in nominal house price index: 1.4	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, BG	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa2		Baa2	
S&P	BB+	B	BB+	B
Fitch	BBB		BBB-	F3

Financial market information as of November 2015, BG		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	200.6
CDS (bp)	5-year	170.0

**Realism of baseline assumptions**



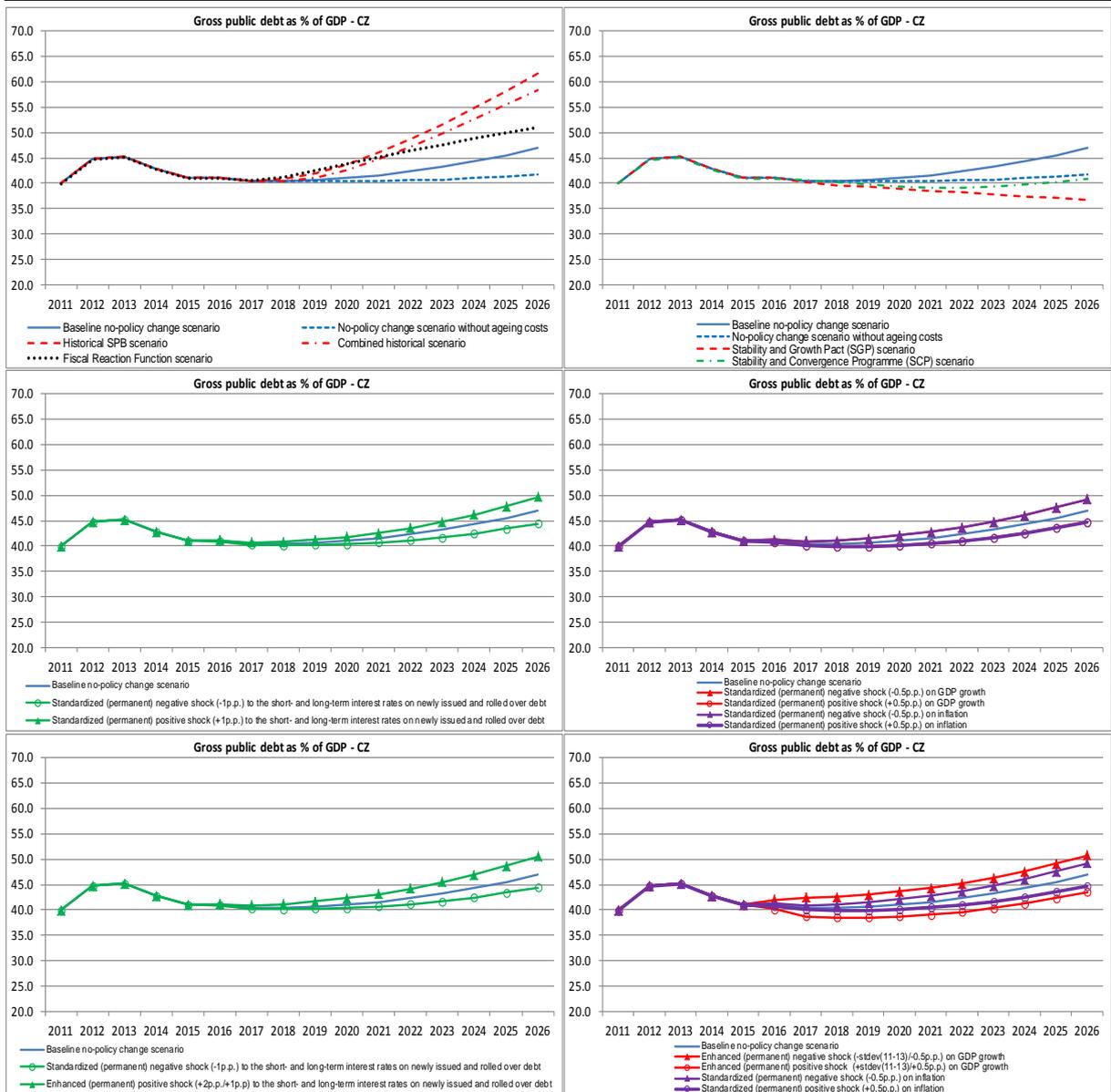
### Underlying macro-fiscal assumptions

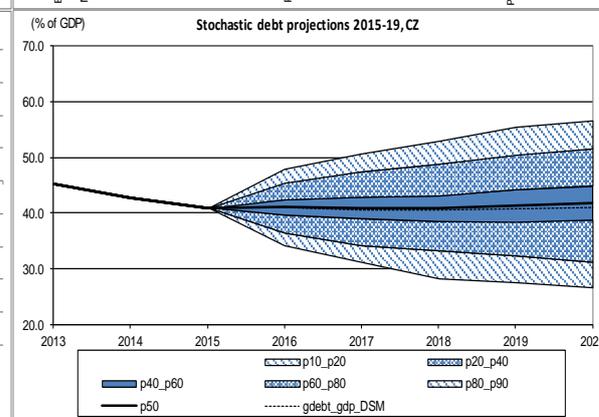
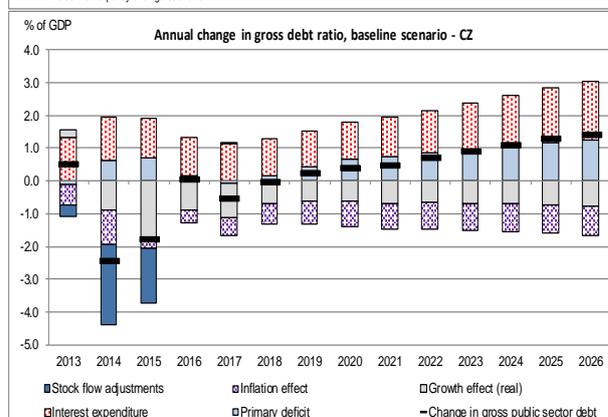
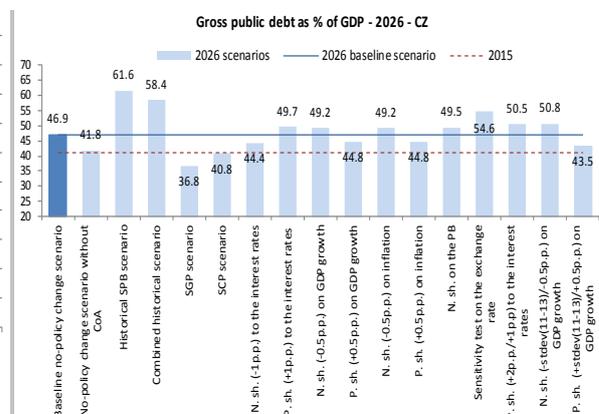
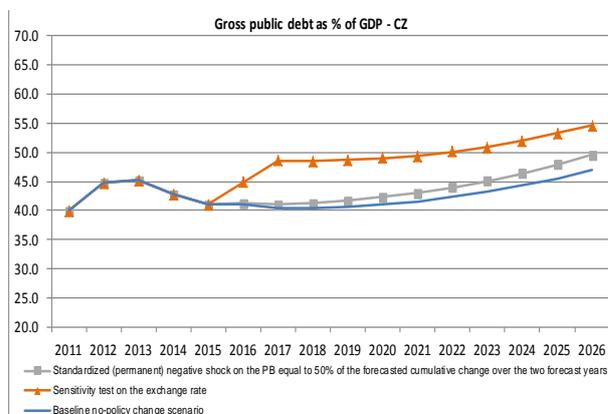
Macro-fiscal assumptions, Bulgaria													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-4.9	-1.8	-1.7	-1.6	-1.3	-1.0	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7
Structural primary balance (before CoA)	-1.6	-1.6	-1.4	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	1.5	1.7	1.5	2.0	2.1	1.9	1.9	1.5	1.4	1.4	1.3	1.3	1.3
Potential GDP growth	1.7	1.9	1.9	2.0	1.8	1.6	1.7	1.5	1.4	1.4	1.3	1.3	1.3
Inflation rate	0.4	1.0	0.8	0.7	1.1	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.9	3.8	3.3	3.3	3.3	3.4	3.4	3.5	3.6	3.8	4.1	4.2	4.3
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-4.9	-1.8	-1.7	-1.6	-2.2	-2.3	-2.1	-1.9	-1.7	-1.5	-1.4	-1.2	-1.0
Structural primary balance (before CoA)	-1.6	-1.6	-1.4	-1.3	-2.3	-2.6	-2.6	-2.5	-2.3	-2.2	-2.0	-1.9	-1.7
Real GDP growth	1.5	1.7	1.5	2.0	2.8	2.1	2.0	1.4	1.3	1.3	1.1	1.1	1.2
Potential GDP growth	1.7	1.9	1.9	2.0	2.5	1.8	1.7	1.4	1.3	1.3	1.1	1.1	1.2
Inflation rate	0.4	1.0	0.8	0.7	1.1	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.9	3.8	3.3	3.3	3.3	3.4	3.5	3.5	3.7	3.8	4.1	4.2	4.3
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-4.9	-1.8	-1.7	-1.1	-0.5	0.0	0.1	0.1	0.2	0.2	0.3	0.4	0.4
Structural primary balance (before CoA)	-1.6	-1.6	-1.4	-0.9	-0.4	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.4
Real GDP growth	1.5	1.7	1.5	1.6	1.7	1.5	1.9	1.5	1.4	1.3	1.2	1.2	1.3
Potential GDP growth	1.7	1.9	1.9	1.6	1.4	1.3	1.6	1.5	1.4	1.3	1.2	1.2	1.3
Inflation rate	0.4	1.0	0.8	0.7	1.1	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.9	3.8	3.3	3.3	3.3	3.4	3.4	3.5	3.7	3.8	4.1	4.3	4.3
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-1.8	-1.4	-0.6	-0.2	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.2
Structural primary balance (before CoA)	-1.8	-1.5	-1.1	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Real GDP growth	1.7	1.4	1.7	2.3	2.1	2.0	1.4	1.3	1.3	1.2	1.2	1.3	1.3
Potential GDP growth	1.8	1.9	2.0	2.1	2.2	1.5	1.4	1.3	1.3	1.2	1.2	1.3	1.3
Inflation rate	0.6	0.3	1.2	1.4	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	3.7	3.2	3.7	3.8	3.9	3.9	4.0	4.0	4.2	4.2	4.5	4.6
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-4.9	-1.8	-1.7	-1.6	-0.8	0.0	0.7	1.2	1.3	1.4	1.3	1.3	1.3
Structural primary balance (before CoA)	-1.6	-1.6	-1.4	-1.3	-0.8	-0.3	0.2	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	1.5	1.7	1.5	2.0	1.7	1.5	1.6	1.1	1.4	1.4	1.3	1.3	1.3
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-4.9	-1.8	-1.7	-1.6	-0.8	0.0	0.7	1.2	1.3	1.4	1.3	1.3	1.3
Structural primary balance (before CoA)	-1.6	-1.6	-1.4	-1.3	-0.8	-0.3	0.2	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	1.5	1.7	1.5	2.0	1.9	2.3	2.6	2.9	3.3	3.3	3.3	3.3	3.3
Implicit interest rate (nominal)	4.9	3.8	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.2	3.2	3.2
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.9	3.8	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.4	4.8	5.0	5.1
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.9	3.8	3.2	3.0	3.0	3.0	3.0	3.0	3.1	3.2	3.4	3.5	3.5
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.9	3.8	3.6	3.9	4.1	4.1	4.2	4.2	4.4	4.6	4.9	5.1	5.2
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.5	1.7	2.0	2.5	2.6	2.4	2.4	2.0	1.9	1.9	1.8	1.8	1.8
Potential GDP growth	1.7	1.9	2.4	2.5	2.3	2.1	2.2	2.0	1.9	1.9	1.8	1.8	1.8
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.5	1.7	1.0	1.5	1.6	1.4	1.4	1.0	0.9	0.9	0.8	0.8	0.8
Potential GDP growth	1.7	1.9	1.4	1.5	1.3	1.1	1.2	1.0	0.9	0.9	0.8	0.8	0.8
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.5	1.7	1.7	2.2	2.6	2.4	2.4	2.0	1.9	1.9	1.8	1.8	1.8
Potential GDP growth	1.7	1.9	2.1	2.2	2.3	2.1	2.2	2.0	1.9	1.9	1.8	1.8	1.8
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.5	1.7	1.3	1.8	1.6	1.4	1.4	1.0	0.9	0.9	0.8	0.8	0.8
Potential GDP growth	1.7	1.9	1.7	1.7	1.3	1.1	1.2	1.0	0.9	0.9	0.8	0.8	0.8
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.4	1.0	1.3	1.2	1.6	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.4	1.0	0.3	0.2	0.6	1.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-4.9	-1.8	-1.8	-1.7	-1.4	-1.2	-1.0	-0.9	-0.8	-0.8	-0.8	-0.8	-0.8
Structural primary balance (before CoA)	-1.6	-1.6	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Real GDP growth	1.5	1.7	1.6	2.0	2.1	1.9	1.9	1.5	1.4	1.4	1.3	1.3	1.3
Potential GDP growth	1.7	1.9	2.0	2.0	1.8	1.6	1.7	1.5	1.4	1.4	1.3	1.3	1.3
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.8	3.3	3.3	3.3	3.4	3.4	3.5	3.6	3.8	4.1	4.2	4.3

### 3. Czech Republic

Public debt projections under baseline and alternative scenarios and sensitivity tests

CZ - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	45.2	42.7	41.0	41.0	40.5	40.5	40.7	41.1	41.6	42.3	43.2	44.3	45.5	46.9
Changes in the ratio (-1+2+3) of which	0.5	-2.4	-1.8	0.1	-0.5	0.0	0.2	0.4	0.5	0.7	0.9	1.1	1.3	1.4
(1) Primary balance (1.1+1.2+1.3)	0.1	-0.6	-0.7	-0.2	0.1	-0.2	-0.4	-0.7	-0.8	-0.9	-1.0	-1.1	-1.2	-1.2
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	1.4	0.5	-0.8	-0.2	-0.3	-0.4	-0.5	-0.7	-0.8	-0.9	-1.0	-1.1	-1.2	-1.2
(1.1.1) Structural Primary Balance (before CoA)	1.4	0.5	-0.8	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
(1.1.2) Cost of ageing						0.1	0.2	0.4	0.5	0.6	0.7	0.8	0.9	0.9
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	-1.2	-0.9	0.0	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	-0.1	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	1.0	-0.6	-0.8	-0.1	-0.5	-0.2	-0.2	-0.3	-0.3	-0.2	-0.1	0.0	0.1	0.2
(2.1) Interest expenditure	1.3	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.5	1.7	1.8
(2.2) Growth effect	0.2	-0.9	-1.8	-0.9	-1.1	-0.7	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.8
(2.3) Inflation effect	-0.6	-1.1	-0.3	-0.4	-0.6	-0.6	-0.7	-0.8	-0.8	-0.8	-0.8	-0.8	-0.9	-0.9
(3) Stock flow adjustments	-0.4	-2.4	-1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	0.1	-0.8	-2.0	-1.4	-1.4	-1.5	-1.7	-1.8	-2.0	-2.2	-2.4	-2.6	-2.9	-3.1





### Sustainability indicators summary table

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	19.1	19.1	19.1	19.1	19.2	19.3	19.5	19.6	20.1	20.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	2009		2015		Critical threshold					
Overall index	0.32		0.11		0.43					
Fiscal sub-index	0.61		0.18		0.35					
Financial competitiveness sub-index	0.20		0.08		0.45					
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	-0.6	2.5	-0.1	-1.6	1.3					
of which Initial Budgetary position	0.3	2.5	0.3	-0.4	1.1					
Cost of delaying adjustment**	-0.1	0.6	0.0	-0.3	0.2					
Debt requirement***	-1.5	-1.5	-1.5	-1.6	-0.7					
Ageing costs	0.7	0.9	1.1	0.6	0.7					
Required structural primary balance related to S1	-0.9	0.1	-0.4	-1.2	0.4					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	3.2	5.5	7.0	2.7	5.5					
of which Initial Budgetary position	0.8	3.5	0.8	0.4	1.7					
Long term component	2.4	2.0	6.2	2.3	3.8					
of which Pensions	0.6	0.5	0.6	0.6	2.0					
Health care	0.8	0.7	1.4	0.8	1.6					
Long-term care	0.5	0.4	3.7	0.5	0.0					
Others	0.5	0.3	0.5	0.4	0.3					
Required structural primary balance related to S2	2.9	3.2	6.7	3.1	4.6					

**Risks related to the structure of public debt financing**

<b>Public debt structure - CZ (2014):</b>	Change in share of short-term public debt (p.p.): -0.5	Share of public debt by non-residents (%): 13.6 (2012)	Share of public debt in foreign currency (%): 14.3
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014		
	CZ	EU
State guarantees (% GDP) (2013)	1.2	10.5
of which One-off guarantees	1.2	10.2
Standardised guarantees	0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	: 3.07
	Securities issued under liquidity schemes	: 0.45
	Special purpose entity	: 0.91
	Total	0.00 4.43

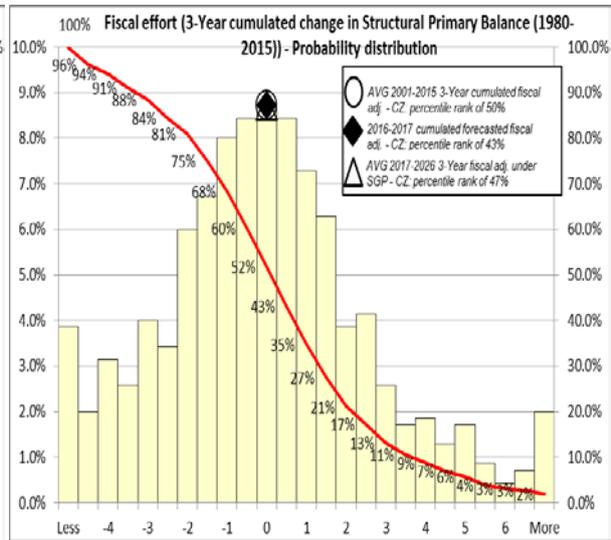
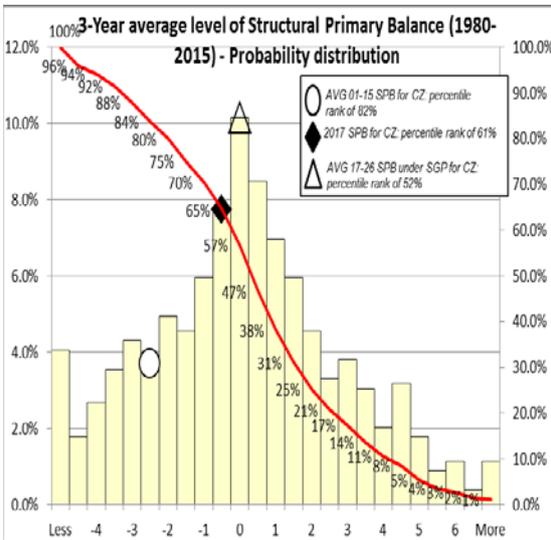
<b>Government's contingent liability risks from banking sector - CZ (2014):</b>	Private sector credit flow (% GDP): 1.8	Bank loans-to-deposits ratio (%): n.a. ()	Share of non-performing loans (%): 5.6	Change in share of non-performing loans (p.p.): 0.4	Change in nominal house price index: 2.4	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00% bank recap. at 10.5% 0.00%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, CZ	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A1		A1	P-1
S&P	AA	A-1+	AA-	A-1+
Fitch	AA-		A+	F1

Financial market information as of November 2015, CZ		
Sovereign yield spreads(bp)*	2-year	9.2
	10-year	-1
CDS (bp)	5-year	47.4

**Realism of baseline assumptions**



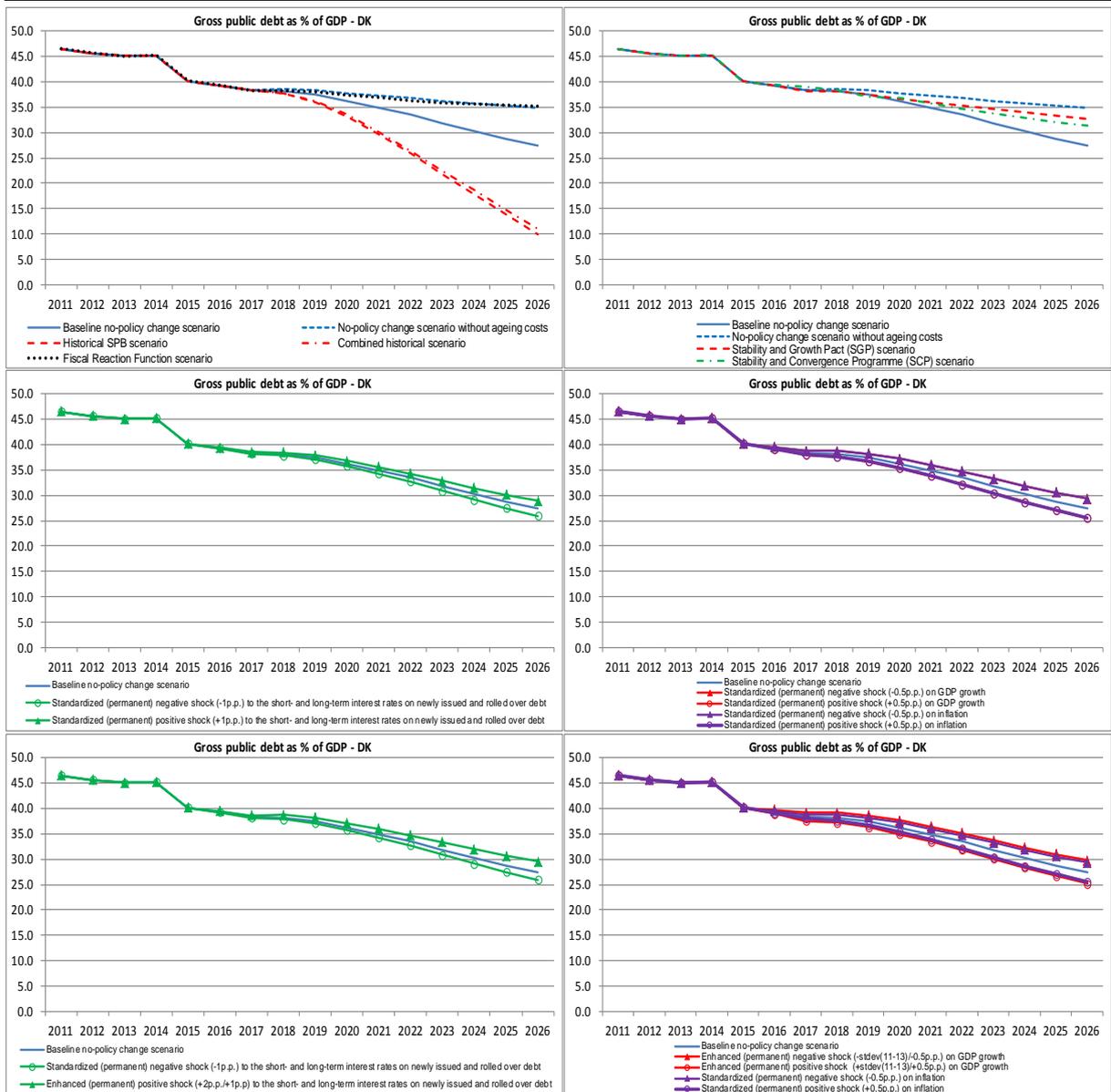
## Underlying macro-fiscal assumptions

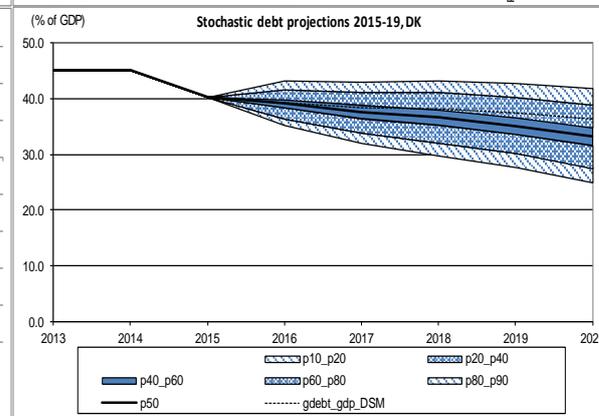
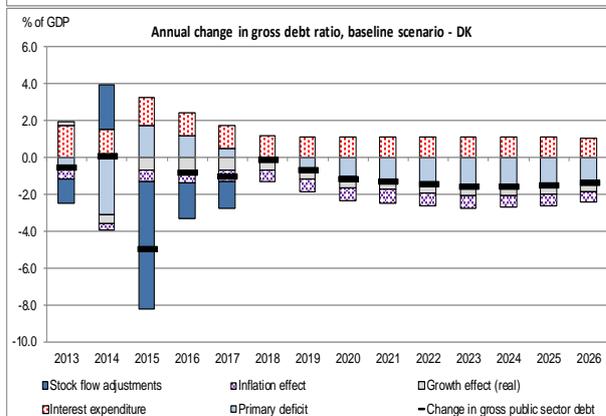
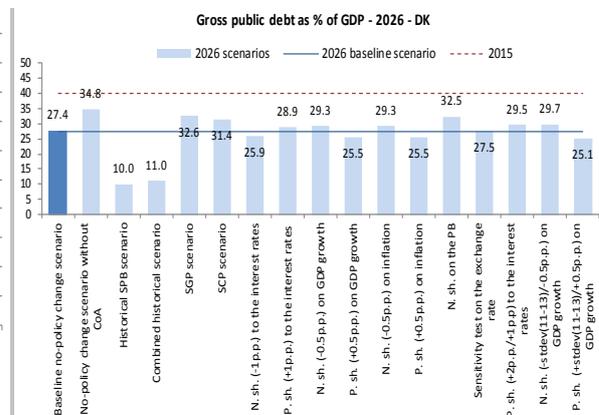
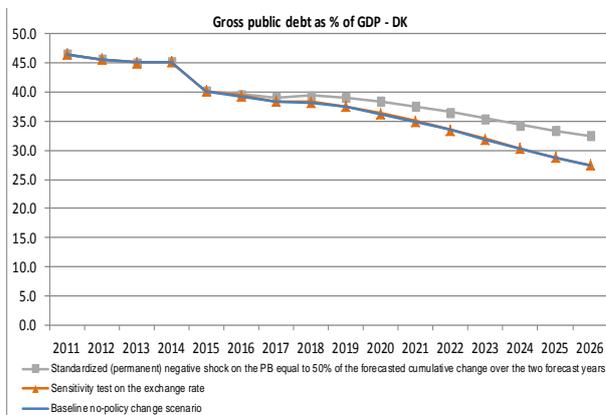
Macro-fiscal assumptions, Czech Republic													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.6	-0.7	-0.2	0.1	-0.2	-0.4	-0.7	-0.8	-0.9	-1.0	-1.1	-1.2	-1.2
Structural primary balance (before CoA)	0.5	-0.8	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	2.0	4.3	2.2	2.7	1.7	1.5	1.6	1.7	1.6	1.7	1.7	1.7	1.7
Potential GDP growth	1.3	2.0	2.0	2.2	2.0	1.8	1.8	1.7	1.6	1.7	1.7	1.7	1.7
Inflation rate	2.5	0.7	1.0	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	3.0	3.0	2.9	2.8	2.9	2.9	3.0	3.2	3.5	3.7	3.9	4.2
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.6	-0.7	-0.2	0.1	-1.2	-1.6	-1.6	-1.5	-1.3	-1.2	-1.1	-1.0	-0.9
Structural primary balance (before CoA)	0.5	-0.8	-0.2	-0.3	-1.4	-1.4	-1.2	-1.0	-0.8	-0.5	-0.3	-0.1	0.0
Real GDP growth	2.0	4.3	2.2	2.7	2.5	1.6	1.4	1.6	1.5	1.5	1.5	1.5	1.6
Potential GDP growth	1.3	2.0	2.0	2.2	2.8	1.9	1.6	1.6	1.5	1.5	1.5	1.5	1.6
Inflation rate	2.5	0.7	1.0	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	3.0	3.0	2.9	2.8	2.8	2.9	3.0	3.2	3.5	3.7	3.9	4.2
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.6	-0.7	-0.2	0.5	0.3	0.2	0.1	0.1	0.2	0.3	0.3	0.4	0.5
Structural primary balance (before CoA)	0.5	-0.8	-0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5
Real GDP growth	2.0	4.3	2.2	2.3	1.7	1.5	1.6	1.7	1.6	1.6	1.6	1.6	1.7
Potential GDP growth	1.3	2.0	2.0	1.9	2.0	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.7
Inflation rate	2.5	0.7	1.0	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	3.0	3.0	2.9	2.9	2.9	2.9	3.1	3.3	3.5	3.7	3.9	4.1
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.7	-0.5	-0.1	0.3	0.5	0.3	0.1	0.0	-0.1	-0.2	-0.3	-0.4	-0.5
Structural primary balance (before CoA)	0.3	-0.1	0.0	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Real GDP growth	2.0	2.7	2.5	2.3	2.3	1.4	1.5	1.4	1.4	1.4	1.4	1.6	1.7
Potential GDP growth	0.7	1.3	1.7	2.0	2.1	1.5	1.5	1.4	1.4	1.4	1.4	1.6	1.7
Inflation rate	2.4	1.9	1.4	1.4	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.1	2.8	2.8	2.8	2.8	2.8	2.9	3.0	3.2	3.4	3.6	3.9	4.0
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.6	-0.7	-0.2	0.1	-0.7	-1.4	-2.2	-2.8	-2.9	-3.0	-3.1	-3.2	-3.3
Structural primary balance (before CoA)	0.5	-0.8	-0.2	-0.3	-0.8	-1.3	-1.8	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
Real GDP growth	2.0	4.3	2.2	2.7	2.1	1.9	1.9	2.1	1.6	1.7	1.7	1.7	1.7
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.6	-0.7	-0.2	0.1	-0.7	-1.4	-2.2	-2.8	-2.9	-3.0	-3.1	-3.2	-3.3
Structural primary balance (before CoA)	0.5	-0.8	-0.2	-0.3	-0.8	-1.3	-1.8	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
Real GDP growth	2.0	4.3	2.2	2.7	3.0	3.0	3.0	2.9	2.6	2.6	2.6	2.6	2.6
Implicit interest rate (nominal)	3.0	3.0	3.0	2.9	2.9	2.9	3.1	3.4	3.6	3.7	3.9	3.9	4.0
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.0	3.0	3.1	3.2	3.2	3.3	3.4	3.7	4.0	4.2	4.5	4.8	5.0
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.0	3.0	2.8	2.6	2.5	2.4	2.4	2.4	2.5	2.7	2.9	3.1	3.3
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.0	3.0	3.3	3.5	3.6	3.6	3.6	3.9	4.1	4.3	4.6	4.8	5.1
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.0	4.3	2.7	3.2	2.2	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2
Potential GDP growth	1.3	2.0	2.5	2.7	2.5	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.0	4.3	1.7	2.2	1.2	1.0	1.1	1.2	1.1	1.2	1.2	1.2	1.2
Potential GDP growth	1.3	2.0	1.5	1.7	1.5	1.3	1.3	1.2	1.1	1.2	1.2	1.2	1.2
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.0	4.3	4.6	5.1	2.2	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2
Potential GDP growth	1.3	2.0	4.4	4.6	2.5	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.0	4.3	-0.2	0.3	1.2	1.0	1.1	1.2	1.1	1.2	1.2	1.2	1.2
Potential GDP growth	1.3	2.0	-0.5	-0.2	1.5	1.3	1.3	1.2	1.1	1.2	1.2	1.2	1.2
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	2.5	0.7	1.5	1.9	2.1	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	2.5	0.7	0.5	0.9	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.6	-0.7	-0.5	-0.2	-0.4	-0.7	-0.9	-1.0	-1.1	-1.2	-1.3	-1.4	-1.5
Structural primary balance (before CoA)	0.5	-0.8	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	2.0	4.3	2.5	2.5	1.7	1.5	1.6	1.7	1.6	1.7	1.7	1.7	1.7
Potential GDP growth	1.3	2.0	2.3	2.1	2.0	1.8	1.8	1.7	1.6	1.7	1.7	1.7	1.7
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-10.2%	-10.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.0	2.7	2.8	2.8	2.8	2.9	3.0	3.2	3.4	3.7	3.8	4.1

## 4. Denmark

### Public debt projections under baseline and alternative scenarios and sensitivity tests

DK - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	45.0	45.1	40.2	39.3	38.3	38.1	37.4	36.2	34.9	33.4	31.8	30.2	28.7	27.4
Changes in the ratio (-1+2+3) of which	-0.5	0.1	-5.0	-0.9	-1.0	-0.1	-0.7	-1.2	-1.3	-1.5	-1.6	-1.6	-1.5	-1.4
(1) Primary balance (1.1+1.2+1.3)	0.5	3.1	-1.8	-1.2	-0.5	0.1	0.6	1.0	1.3	1.5	1.6	1.6	1.6	1.4
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	1.6	2.1	-0.8	-0.1	0.2	0.6	0.8	1.0	1.3	1.5	1.6	1.6	1.6	1.4
(1.1.1) Structural Primary Balance (before CoA)	1.6	2.1	-0.8	-0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
(1.1.2) Cost of ageing						-0.3	-0.5	-0.7	-0.9	-1.0	-1.1	-1.1	-1.0	-0.9
(1.1.3) Others (taxes and property incomes)						0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.3
(1.2) Cyclical component	-2.6	-2.2	-1.8	-1.2	-0.7	-0.5	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	1.5	3.2	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	1.3	0.7	0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1	0.1
(2.1) Interest expenditure	1.7	1.5	1.5	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1
(2.2) Growth effect	0.2	-0.5	-0.7	-0.8	-0.7	-0.6	-0.6	-0.6	-0.5	-0.5	-0.5	-0.5	-0.4	-0.4
(2.3) Inflation effect	-0.7	-0.3	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6
(3) Stock flow adjustments	-1.3	2.4	-6.9	-2.0	-1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-0.2	0.6	-2.3	-1.4	-1.0	-0.6	-0.3	-0.1	0.1	0.3	0.5	0.5	0.5	0.4





### Sustainability indicators summary table

Long-term projections						
	2013	2014	2015	2016	2017	2018
<b>Budgetary projections</b>						
Total cost of ageing (gross)	29.8	29.6	29.5	29.1	28.8	28.4
Revenues from pensions taxation	4.8	4.8	4.6	4.7	4.7	4.6
Property incomes	2.4	2.4	2.4	2.4	2.5	2.5
<b>Sustainability indicators</b>						
<b>S0 indicator</b>		2009	2015	Critical threshold		
<b>Overall index</b>		0.50	0.25	0.43		
Fiscal sub-index		0.49	0.17	0.35		
Financial competitiveness sub-index		0.50	0.29	0.45		
<b>S1 indicator</b>						
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report	
<b>Overall index</b>	-3.3	-9.0	-2.9	-3.6	-2.0	
of which Initial Budgetary position	-0.4	-2.9	-0.4	-0.5	-0.9	
Cost of delaying adjustment**	-0.5	-2.0	-0.4	-0.7	-0.3	
Debt requirement***	-1.6	-3.3	-1.6	-2.3	-0.9	
Ageing costs	-0.8	-0.8	-0.4	-0.1	0.2	
<b>Required structural primary balance related to S1</b>	<b>-3.1</b>	<b>-6.5</b>	<b>-2.7</b>	<b>-2.6</b>	<b>-1.6</b>	
<b>S2 indicator</b>						
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report	
<b>Overall index</b>	1.2	-1.5	2.4	0.3	2.6	
of which Initial Budgetary position	1.3	-2.4	1.3	-0.4	0.9	
Long term component	0.0	1.0	1.1	0.7	1.7	
of which Pensions	-1.5	-1.0	-1.5	-1.0	-1.4	
Health care	0.6	0.5	1.3	0.5	3.4	
Long-term care	1.6	1.8	2.0	1.5	0.0	
Others	-0.7	-0.3	-0.7	-0.4	-0.3	
<b>Required structural primary balance related to S2</b>	<b>1.4</b>	<b>1.1</b>	<b>2.6</b>	<b>1.3</b>	<b>3.0</b>	

### Risks related to the structure of public debt financing

<b>Public debt structure - DK (2014):</b>	Change in share of short-term public debt (p.p.): -0.5	Share of public debt by non-residents (%): 39.3 (2013)	Share of public debt in foreign currency (%): 6.8
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			
		DK	EU
State guarantees (% GDP) (2013)		9.2	10.5
of which One-off guarantees		9.1	10.2
Standardised guarantees		0.1	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	0.04	3.07
	Securities issued under liquidity schemes	0.00	0.45
	Special purpose entity	0.23	0.91
	Total	0.27	4.43

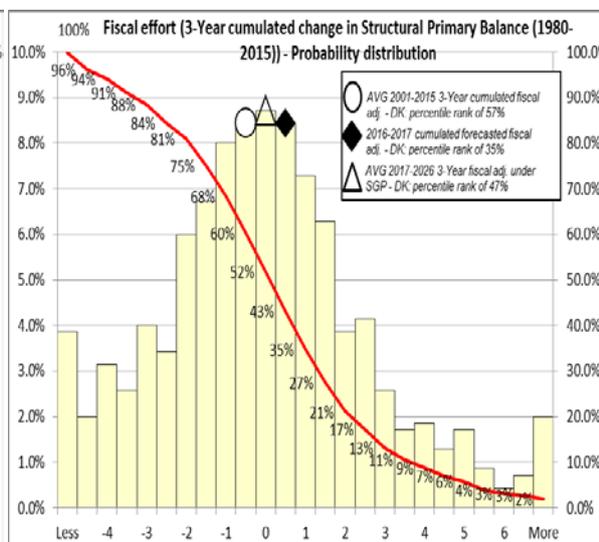
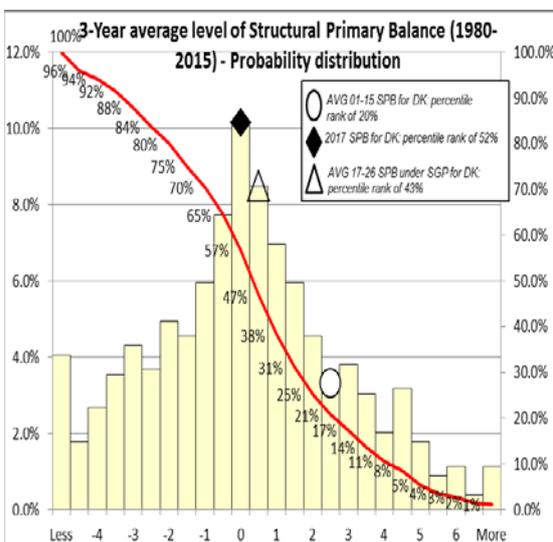
<b>Government's contingent liability risks from banking sector - DK (2014):</b>	Private sector credit flow (% GDP): 1.7	Bank loans-to-deposits ratio (%): n.a. ()	Share of non-performing loans (%): 5.1	Change in share of non-performing loans (p.p.): 1.2	Change in nominal house price index: 3.7	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.01% bank recap. at 10.5% 0.01%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, DK	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	
S&P	AAA	A-1+	AAA	A-1+
Fitch	AAA		AAA	F1+

Financial market information as of November 2015, DK		
Sovereign yield spreads(bp)*	2-year	-17.8
	10-year	27
CDS (bp)	5-year	18.3

### Realism of baseline assumptions



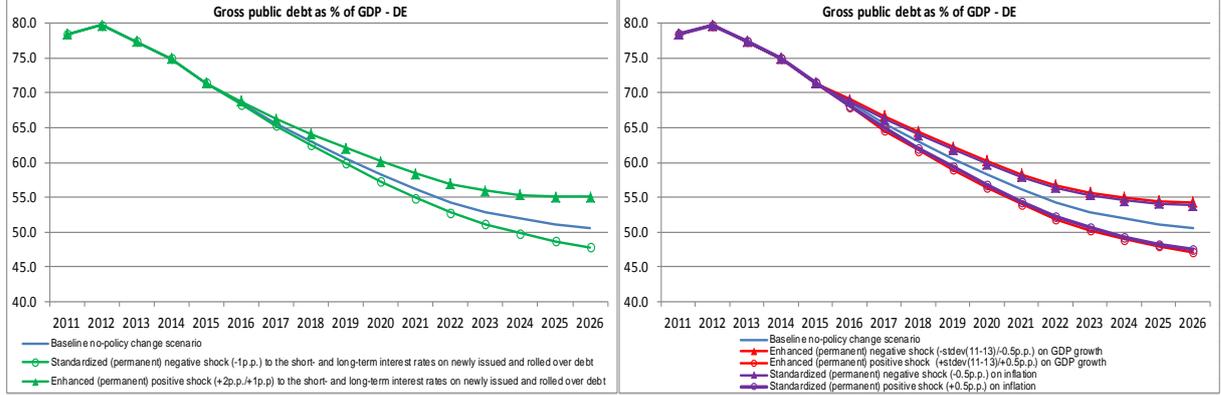
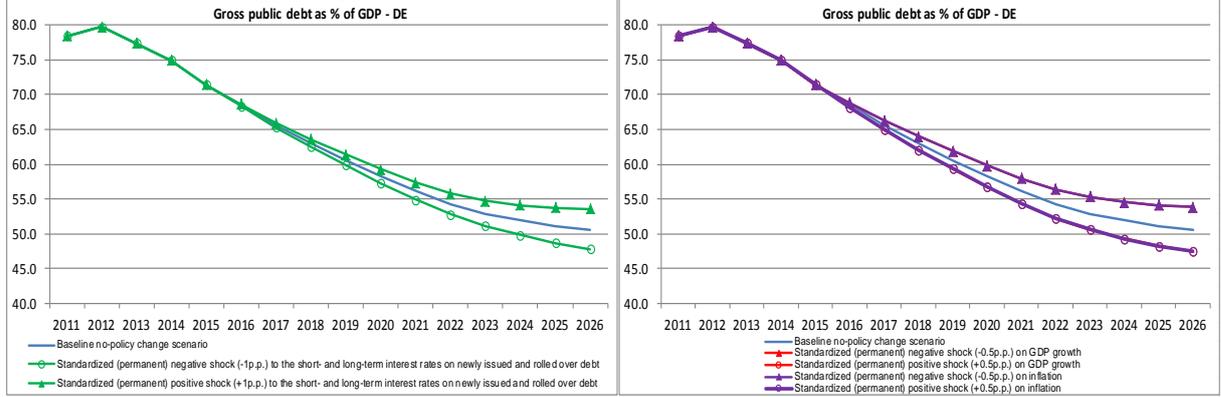
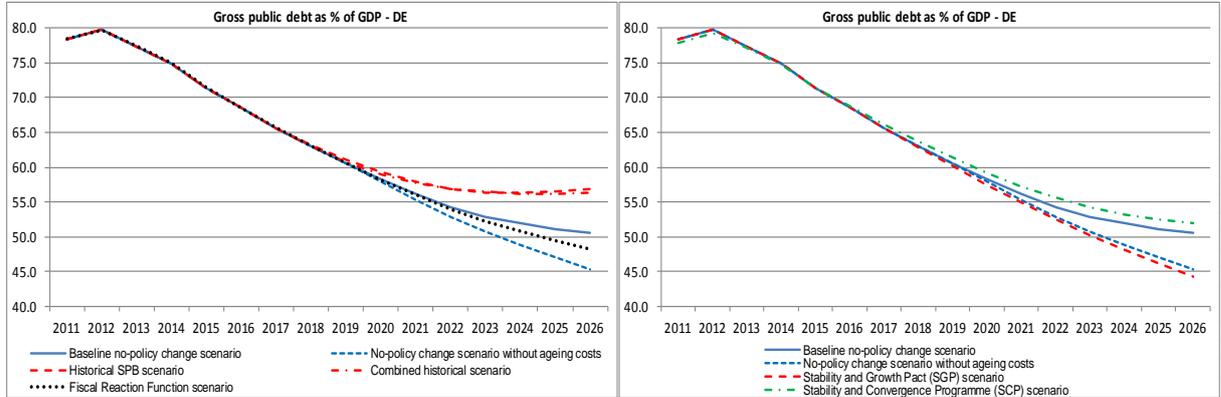
## Underlying macro-fiscal assumptions

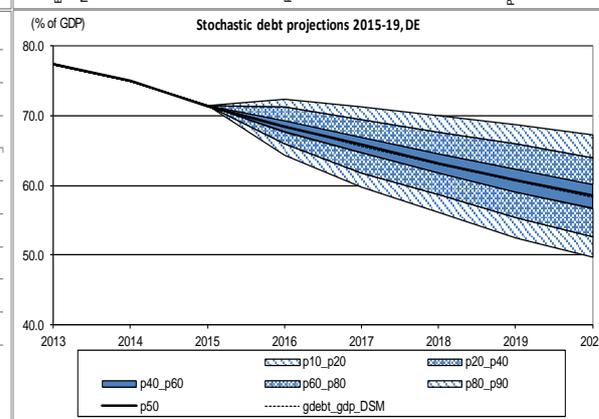
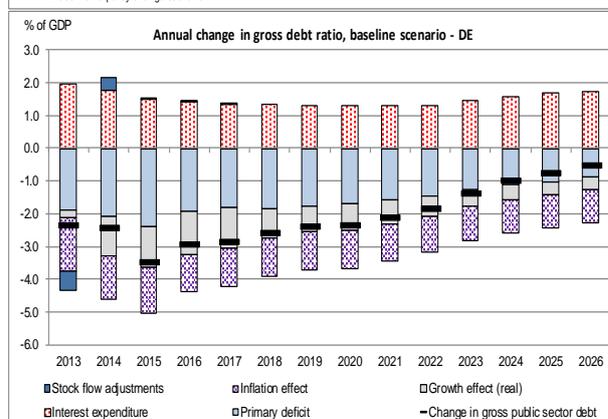
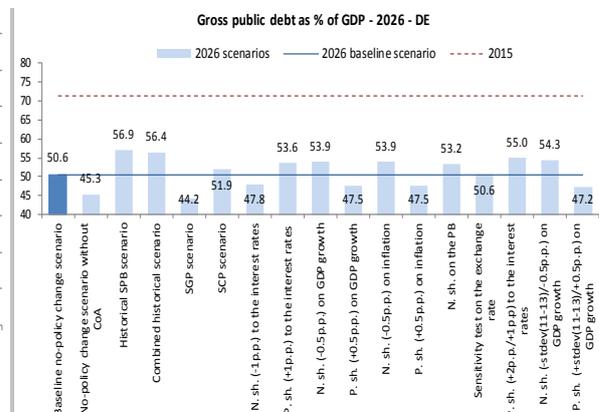
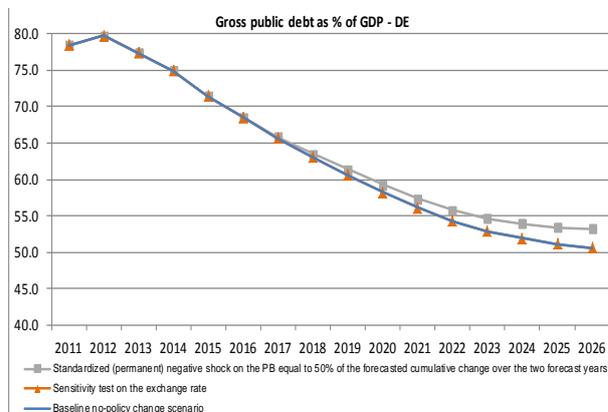
Macro-fiscal assumptions, Denmark													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	3.1	-1.8	-1.2	-0.5	0.1	0.6	1.0	1.3	1.5	1.6	1.6	1.6	1.4
Structural primary balance (before CoA)	2.1	-0.8	-0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Real GDP growth	1.1	1.6	2.0	1.8	1.6	1.6	1.6	1.3	1.4	1.5	1.5	1.5	1.6
Potential GDP growth	0.5	0.7	1.0	1.1	1.2	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.6
Inflation rate	0.8	1.4	1.5	1.6	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.5	3.4	3.2	3.1	3.2	3.1	3.2	3.3	3.3	3.4	3.6	3.8	3.8
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	3.1	-1.8	-1.2	-0.5	-0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.3	0.3
Structural primary balance (before CoA)	2.1	-0.8	-0.1	0.2	0.0	-0.2	-0.5	-0.7	-0.8	-1.0	-1.0	-1.0	-0.9
Real GDP growth	1.1	1.6	2.0	1.8	1.7	1.8	1.8	1.4	1.5	1.6	1.5	1.5	1.5
Potential GDP growth	0.5	0.7	1.0	1.1	1.3	1.4	1.4	1.4	1.5	1.6	1.5	1.5	1.5
Inflation rate	0.8	1.4	1.5	1.6	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.5	3.4	3.2	3.1	3.1	3.1	3.2	3.3	3.3	3.5	3.7	3.9	3.9
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	3.1	-1.8	-1.2	-0.4	0.2	0.4	0.7	0.7	0.6	0.7	0.7	0.8	0.8
Structural primary balance (before CoA)	2.1	-0.8	-0.1	0.3	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.8	0.8
Real GDP growth	1.1	1.6	2.0	1.7	1.3	1.6	1.6	1.3	1.4	1.4	1.5	1.5	1.6
Potential GDP growth	0.5	0.7	1.0	1.1	0.9	1.2	1.2	1.3	1.4	1.4	1.5	1.5	1.6
Inflation rate	0.8	1.4	1.5	1.6	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.5	3.4	3.2	3.1	3.1	3.1	3.2	3.3	3.3	3.5	3.7	3.9	3.9
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.8	0.0	-0.5	-0.1	0.7	1.3	1.2	1.1	1.2	1.2	1.1	0.9	0.8
Structural primary balance (before CoA)	1.9	1.0	0.6	0.6	0.9	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Real GDP growth	1.0	1.6	2.0	1.9	2.4	2.4	1.8	1.5	1.5	1.6	1.6	1.7	1.7
Potential GDP growth	0.4	1.2	1.6	1.4	1.9	1.9	1.8	1.4	1.6	1.6	1.6	1.7	1.7
Inflation rate	0.5	0.9	1.6	1.9	2.2	2.1	2.3	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.4	3.3	3.2	3.2	3.4	3.8	3.8	3.8	4.0	4.0	4.2	4.3	4.4
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	3.1	-1.8	-1.2	-0.5	0.7	1.8	2.8	3.7	3.8	4.0	4.0	4.0	3.8
Structural primary balance (before CoA)	2.1	-0.8	-0.1	0.2	0.8	1.4	2.0	2.6	2.6	2.6	2.6	2.6	2.6
Real GDP growth	1.1	1.6	2.0	1.8	1.1	1.2	1.1	0.9	1.4	1.5	1.5	1.5	1.6
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	3.1	-1.8	-1.2	-0.5	0.7	1.8	2.8	3.7	3.8	4.0	4.0	4.0	3.8
Structural primary balance (before CoA)	2.1	-0.8	-0.1	0.2	0.8	1.4	2.0	2.6	2.6	2.6	2.6	2.6	2.6
Real GDP growth	1.1	1.6	2.0	1.8	1.2	1.0	0.8	0.6	1.1	1.1	1.1	1.1	1.1
Implicit interest rate (nominal)	3.5	3.4	3.2	3.1	3.2	3.3	3.4	3.5	3.5	3.5	3.6	3.7	3.7
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.5	3.4	3.3	3.4	3.4	3.5	3.5	3.7	3.7	3.9	4.2	4.4	4.4
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.5	3.4	3.0	2.9	2.9	2.8	2.9	2.9	2.9	3.0	3.0	3.2	3.2
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.5	3.4	3.5	3.6	3.7	3.6	3.7	3.8	3.9	4.1	4.3	4.6	4.6
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.1	1.6	2.5	2.3	2.1	2.1	2.1	1.8	1.9	2.0	2.0	2.0	2.1
Potential GDP growth	0.5	0.7	1.5	1.6	1.7	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.1
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.1	1.6	1.5	1.3	1.1	1.1	1.1	0.8	0.9	1.0	1.0	1.0	1.1
Potential GDP growth	0.5	0.7	0.5	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.1
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.1	1.6	3.0	2.9	2.1	2.1	2.1	1.8	1.9	2.0	2.0	2.0	2.1
Potential GDP growth	0.5	0.7	2.0	2.2	1.7	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.1
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.1	1.6	0.9	0.8	1.1	1.1	1.1	0.8	0.9	1.0	1.0	1.0	1.1
Potential GDP growth	0.5	0.7	-0.1	0.1	0.7	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.1
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.8	1.4	2.0	2.1	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.8	1.4	1.0	1.1	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	3.1	-1.8	-1.6	-1.0	-0.4	0.1	0.6	0.8	1.0	1.1	1.1	1.1	0.9
Structural primary balance (before CoA)	2.1	-0.8	-0.5	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	1.1	1.6	2.3	1.9	1.6	1.6	1.6	1.3	1.4	1.5	1.5	1.5	1.6
Potential GDP growth	0.5	0.7	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.6
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.4	3.2	3.1	3.1	3.1	3.2	3.3	3.3	3.4	3.6	3.8	3.8

## 5. Germany

Public debt projections under baseline and alternative scenarios and sensitivity tests

DE - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	77.4	74.9	71.4	68.5	65.6	63.0	60.6	58.2	56.1	54.3	52.9	51.9	51.1	50.6
Changes in the ratio (-1+2+3) of which	-2.4	-2.4	-3.5	-2.9	-2.9	-2.6	-2.4	-2.3	-2.1	-1.9	-1.4	-1.0	-0.8	-0.5
(1) Primary balance (1.1+1.2+1.3)	1.9	2.1	2.4	1.9	1.8	1.8	1.8	1.7	1.6	1.4	1.3	1.1	1.0	0.9
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	2.3	2.6	2.4	2.1	1.9	1.9	1.8	1.7	1.6	1.4	1.3	1.1	1.0	0.9
(1.1.1) Structural Primary Balance (before CoA)	2.3	2.6	2.4	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
(1.1.2) Cost of ageing						0.0	0.2	0.3	0.5	0.6	0.8	1.0	1.2	1.3
(1.1.3) Others (taxes and property incomes)						0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3
(1.2) Cyclical component	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	-0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	0.1	-0.8	-1.1	-1.0	-1.1	-0.7	-0.6	-0.6	-0.5	-0.4	-0.1	0.1	0.3	0.3
(2.1) Interest expenditure	2.0	1.8	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.5	1.6	1.7	1.7
(2.2) Growth effect	-0.2	-1.2	-1.2	-1.3	-1.3	-0.9	-0.8	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.4
(2.3) Inflation effect	-1.6	-1.3	-1.4	-1.1	-1.2	-1.2	-1.2	-1.2	-1.1	-1.1	-1.1	-1.0	-1.0	-1.0
(3) Stock flow adjustments	-0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	0.3	0.8	0.9	0.7	0.6	0.6	0.5	0.4	0.3	0.1	-0.2	-0.5	-0.7	-0.9





### Sustainability indicators summary table

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	23.9	23.8	24.0	23.9	24.0	24.0	24.1	24.3	25.2	26.1
Revenues from pensions taxation	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1
Property incomes	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>				
<b>Overall index</b>		<b>0.17</b>		<b>0.02</b>		<b>0.43</b>				
Fiscal sub-index		0.49		0.06		0.35				
Financial competitiveness sub-index		0.03		0.01		0.45				
<b>S1 indicator</b>										
		<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>
<b>Overall index</b>		<b>-0.8</b>		<b>0.2</b>		<b>-0.2</b>		<b>-0.8</b>		<b>-0.3</b>
of which Initial Budgetary position		-2.0		-0.8		-1.9		-1.7		-2.1
Cost of delaying adjustment**		-0.1		0.0		0.0		-0.1		-0.1
Debt requirement***		0.4		-0.2		0.4		0.1		1.1
Ageing costs		0.9		1.2		1.4		0.9		0.7
<b>Required structural primary balance related to S1</b>		<b>1.1</b>		<b>1.2</b>		<b>1.7</b>		<b>1.2</b>		<b>2.2</b>
<b>S2 indicator</b>										
		<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>
<b>Overall index</b>		<b>1.7</b>		<b>2.7</b>		<b>4.1</b>		<b>1.8</b>		<b>1.4</b>
of which Initial Budgetary position		-0.8		0.4		-0.8		-0.7		-1.0
Long term component		2.5		2.2		4.9		2.4		2.4
of which Pensions		1.7		1.5		1.6		1.6		1.5
Health care		0.4		0.3		0.8		0.3		1.0
Long-term care		0.0		0.0		2.0		0.0		0.0
Others		0.5		0.5		0.5		0.6		0.0
<b>Required structural primary balance related to S2</b>		<b>3.6</b>		<b>3.7</b>		<b>6.0</b>		<b>3.8</b>		<b>3.9</b>

### Risks related to the structure of public debt financing

Public debt structure - DE (2014):	Change in share of short-term public debt (p.p.): -0.6	Share of public debt by non-residents (%): 56.1 (2013)	Share of public debt in foreign currency (%): 3.6
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			DE	EU
State guarantees (% GDP) (2013)			18.2	10.5
of which One-off guarantees			18.0	10.2
Standardised guarantees			0.2	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.36	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		:	0.91
	Total		0.36	4.43

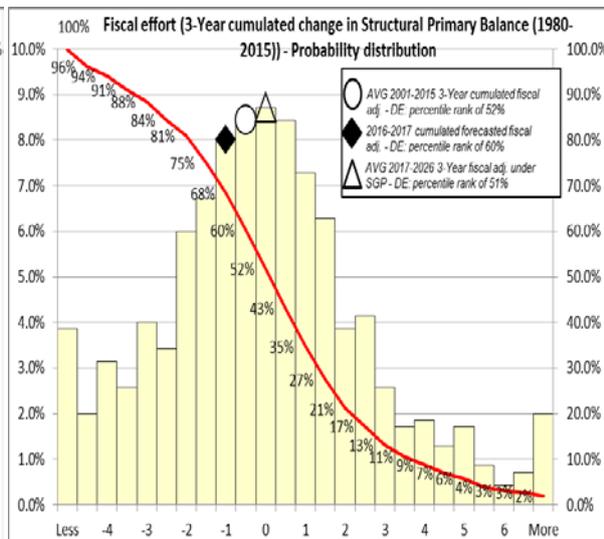
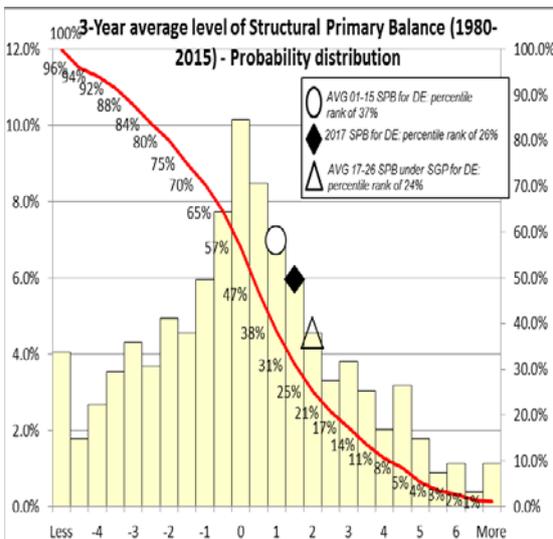
Government's contingent liability risks from banking sector - DE (2014):	Private sector credit flow (% GDP): 1.1	Bank loans-to-deposits ratio (%): 102.7	Share of non-performing loans (%): 2.5	Change in share of non-performing loans (p.p.): 0.7	Change in nominal house price index: 2.5	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, DE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	F1+

Financial market information as of November 2015, DE		
Sovereign yield spreads(bp)*	2-year	0
	10-year	0
CDS (bp)	5-year	13.4

### Realism of baseline assumptions



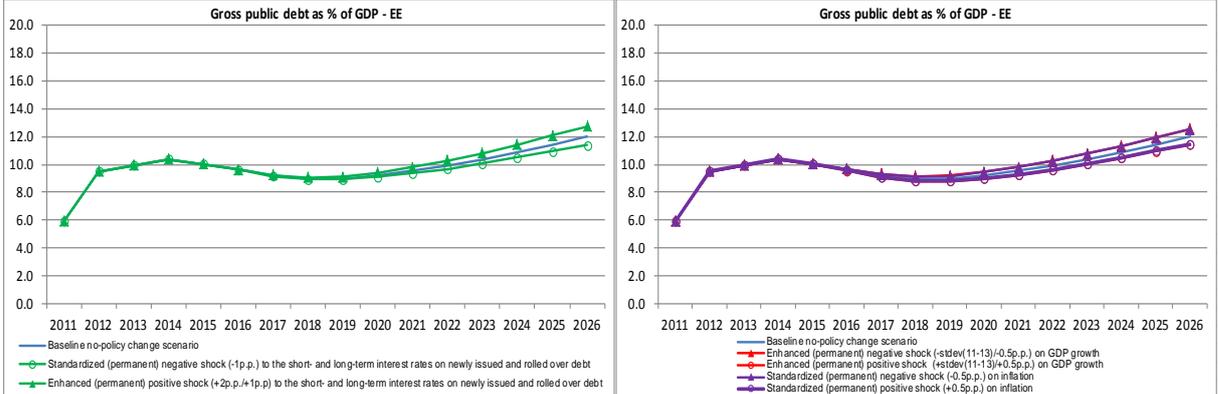
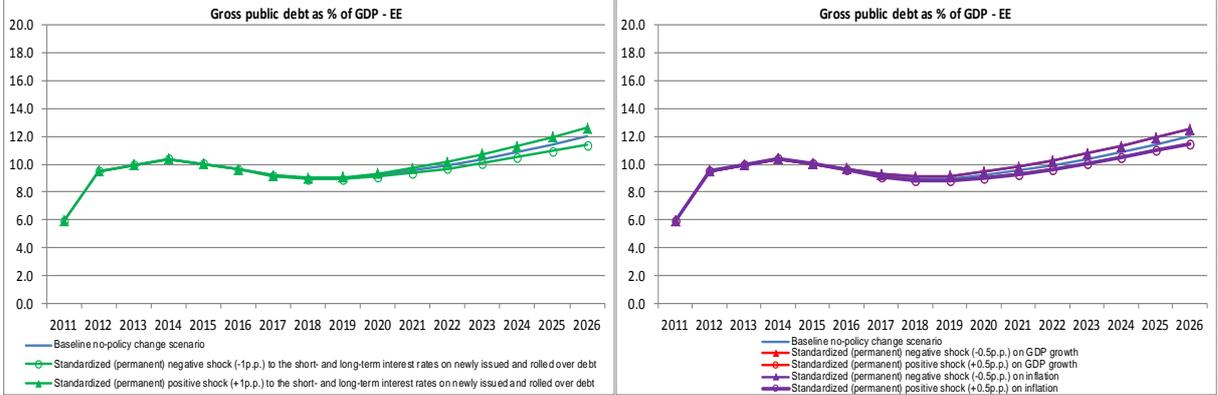
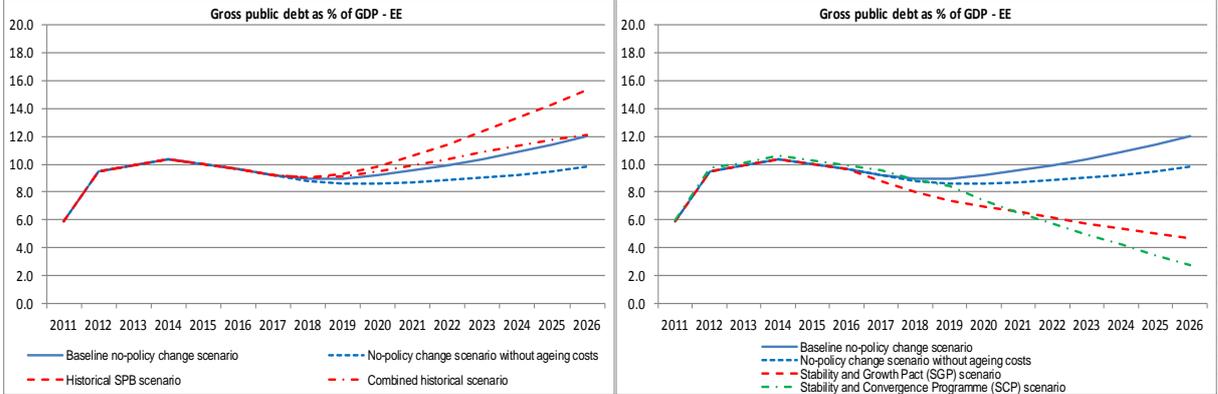
## Underlying macro-fiscal assumptions

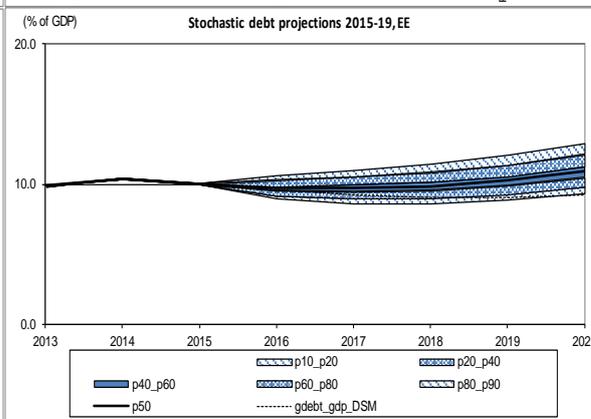
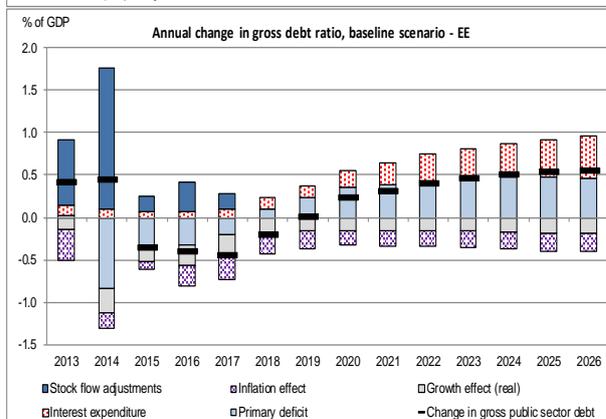
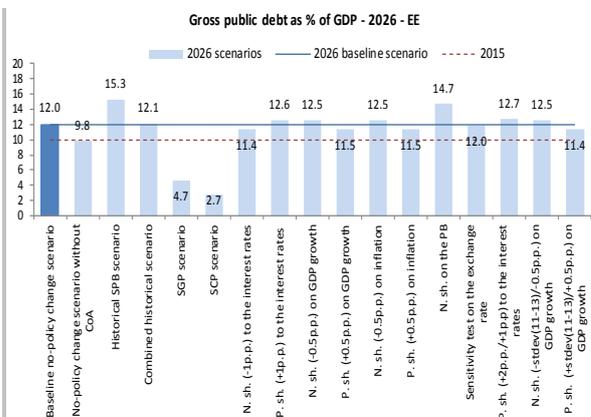
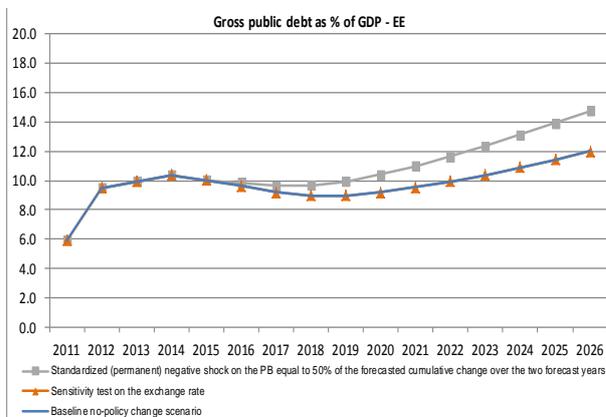
Macro-fiscal assumptions, Germany													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.1	2.4	1.9	1.8	1.8	1.8	1.7	1.6	1.4	1.3	1.1	1.0	0.9
Structural primary balance (before CoA)	2.6	2.4	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	1.6	1.7	1.9	1.9	1.4	1.3	1.4	1.3	1.1	1.0	0.9	0.8	0.8
Potential GDP growth	1.4	1.7	1.8	1.7	1.4	1.2	1.3	1.3	1.1	1.0	0.9	0.8	0.8
Inflation rate	1.7	1.9	1.6	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.8	3.1	3.4	3.5
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.1	2.4	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6	1.6
Structural primary balance (before CoA)	2.6	2.4	2.1	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.4	2.5	2.6
Real GDP growth	1.6	1.7	1.9	1.9	1.4	1.2	1.3	1.2	1.1	0.9	0.8	0.8	0.7
Potential GDP growth	1.4	1.7	1.8	1.7	1.4	1.2	1.2	1.2	1.1	0.9	0.8	0.8	0.7
Inflation rate	1.7	1.9	1.6	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.8	3.1	3.3	3.4
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.1	2.4	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2
Structural primary balance (before CoA)	2.6	2.4	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2
Real GDP growth	1.6	1.7	1.9	1.8	1.4	1.3	1.4	1.3	1.2	0.9	0.8	0.8	0.8
Potential GDP growth	1.4	1.7	1.8	1.6	1.4	1.2	1.3	1.3	1.2	0.9	0.8	0.8	0.8
Inflation rate	1.7	1.9	1.6	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.8	3.1	3.3	3.4
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.4	1.9	1.6	1.6	1.7	2.1	1.8	1.7	1.5	1.3	1.1	1.0	0.9
Structural primary balance (before CoA)	2.9	2.3	1.9	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Real GDP growth	1.6	1.5	1.6	1.3	1.3	1.3	1.2	1.1	1.0	0.9	0.8	0.8	0.8
Potential GDP growth	1.4	1.4	1.4	1.3	1.2	1.1	1.2	1.1	1.0	0.9	0.8	0.8	0.8
Inflation rate	1.7	2.2	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.3	2.2	2.2	2.1	2.2	2.4	2.6	2.7	2.8	2.9	3.0	3.4	3.5
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.1	2.4	1.9	1.8	1.6	1.3	1.0	0.7	0.6	0.4	0.3	0.2	0.0
Structural primary balance (before CoA)	2.6	2.4	2.1	1.9	1.7	1.5	1.3	1.0	1.0	1.0	1.0	1.0	1.0
Real GDP growth	1.6	1.7	1.9	1.9	1.6	1.4	1.5	1.4	1.1	1.0	0.9	0.8	0.8
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.1	2.4	1.9	1.8	1.6	1.3	1.0	0.7	0.6	0.4	0.3	0.2	0.0
Structural primary balance (before CoA)	2.6	2.4	2.1	1.9	1.7	1.5	1.3	1.0	1.0	1.0	1.0	1.0	1.0
Real GDP growth	1.6	1.7	1.9	1.9	1.9	1.7	1.6	1.4	1.2	1.2	1.2	1.2	1.2
Implicit interest rate (nominal)	2.4	2.1	2.1	2.1	2.1	2.3	2.4	2.6	2.7	3.1	3.3	3.5	3.6
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.4	2.1	2.3	2.3	2.4	2.5	2.7	2.8	2.9	3.4	3.8	4.1	4.2
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.4	2.1	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.2	2.5	2.6	2.8
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.4	2.1	2.5	2.6	2.8	2.8	2.9	3.0	3.1	3.6	3.9	4.2	4.4
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.6	1.7	2.4	2.4	1.9	1.8	1.9	1.8	1.6	1.5	1.4	1.3	1.3
Potential GDP growth	1.4	1.7	2.3	2.2	1.9	1.7	1.8	1.8	1.6	1.5	1.4	1.3	1.3
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.6	1.7	1.4	1.4	0.9	0.8	0.9	0.8	0.6	0.5	0.4	0.3	0.3
Potential GDP growth	1.4	1.7	1.3	1.2	0.9	0.7	0.8	0.8	0.6	0.5	0.4	0.3	0.3
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.6	1.7	2.7	2.7	1.9	1.8	1.9	1.8	1.6	1.5	1.4	1.3	1.3
Potential GDP growth	1.4	1.7	2.6	2.5	1.9	1.7	1.8	1.8	1.6	1.5	1.4	1.3	1.3
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.6	1.7	1.1	1.1	0.9	0.8	0.9	0.8	0.6	0.5	0.4	0.3	0.3
Potential GDP growth	1.4	1.7	1.0	1.0	0.9	0.7	0.8	0.8	0.6	0.5	0.4	0.3	0.3
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.7	1.9	2.1	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.7	1.9	1.1	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	2.1	2.4	1.8	1.5	1.6	1.5	1.4	1.3	1.2	1.0	0.9	0.8	0.6
Structural primary balance (before CoA)	2.6	2.4	2.0	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Real GDP growth	1.6	1.7	2.0	2.0	1.4	1.3	1.4	1.3	1.1	1.0	0.9	0.8	0.8
Potential GDP growth	1.4	1.7	1.9	1.9	1.4	1.2	1.3	1.3	1.1	1.0	0.9	0.8	0.8
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.8	3.1	3.4	3.5

## 6. Estonia

Public debt projections under baseline and alternative scenarios and sensitivity tests

EE - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	9.9	10.4	10.0	9.6	9.2	9.0	9.0	9.2	9.5	9.9	10.4	10.9	11.4	12.0
Changes in the ratio (-1+2+3) of which	0.4	0.4	-0.4	-0.4	-0.4	-0.2	0.0	0.2	0.3	0.4	0.5	0.5	0.5	0.5
<b>(1) Primary balance (1.1+1.2+1.3)</b>	0.0	0.8	0.3	0.3	0.2	-0.1	-0.2	-0.4	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5
<b>(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)</b>	-0.3	0.4	0.4	0.3	-0.1	-0.3	-0.3	-0.4	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5
(1.1.1) Structural Primary Balance (before CoA)	-0.3	0.4	0.4	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
(1.1.2) Cost of ageing						0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
<b>(1.2) Cyclical component</b>	0.4	0.5	0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(1.3) One-off and other temporary measures</b>	-0.2	-0.1	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(2) Snowball effect (2.1+2.2+2.3)</b>	-0.4	-0.4	-0.2	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1
(2.1) Interest expenditure	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.5	0.5
(2.2) Growth effect	-0.1	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
(2.3) Inflation effect	-0.4	-0.2	-0.1	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
<b>(3) Stock flow adjustments</b>	0.8	1.7	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-0.4	0.3	0.3	0.2	-0.2	-0.4	-0.5	-0.6	-0.7	-0.7	-0.8	-0.9	-0.9	-1.0





**Sustainability indicators summary table**

Long-term projections		2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>											
Total cost of ageing (gross)		17.1	17.2	17.1	17.3	17.5	17.6	17.7	17.7	17.7	17.6
Revenues from pensions taxation		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3
<b>Sustainability indicators</b>											
<b>S0 indicator</b>		<b>2009</b>	<b>2015</b>	<b>Critical threshold</b>							
Overall index		0.62	0.19	0.43							
Fiscal sub-index		0.45	0.07	0.35							
Financial competitiveness sub-index		0.68	0.24	0.45							
<b>S1 indicator</b>		<b>COM no-policy change scenario</b>	<b>Historical SPB scenario</b>	<b>AWG risk scenario</b>	<b>SCP scenario</b>	<b>2012 Sustainability Report</b>					
Overall index		-4.0	-5.6	-3.6	-2.9	-3.4					
of which Initial Budgetary position		0.2	0.7	0.2	0.6	0.0					
Cost of delaying adjustment**		-0.6	-1.3	-0.5	-0.4	-0.5					
Debt requirement***		-3.8	-5.3	-3.8	-3.5	-3.0					
Ageing costs		0.2	0.2	0.5	0.4	0.2					
Required structural primary balance related to S1		-4.1	-6.2	-3.7	-2.1	-3.0					
<b>S2 indicator</b>		<b>COM no-policy change scenario</b>	<b>Historical SPB scenario</b>	<b>AWG risk scenario</b>	<b>SCP scenario</b>	<b>2012 Sustainability Report</b>					
Overall index		0.7	1.4	2.8	0.4	1.2					
of which Initial Budgetary position		0.5	1.4	0.5	0.0	0.5					
Long term component		0.2	0.0	2.4	0.5	0.7					
of which Pensions		-1.1	-1.0	-1.1	-1.3	-0.1					
Health care		0.4	0.3	0.9	0.4	0.9					
Long-term care		0.4	0.4	2.0	0.6	0.0					
Others		0.5	0.3	0.5	0.7	-0.2					
Required structural primary balance related to S2		0.6	0.8	2.7	1.2	1.6					

**Risks related to the structure of public debt financing**

Public debt structure - EE (2014):	Change in share of short-term public debt (p.p.): -1	Share of public debt by non-residents (%): 65.1 (2013)	Share of public debt in foreign currency (%): 0
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			EE	EU
State guarantees (% GDP) (2013)			1.7	10.5
of which One-off guarantees			0.0	10.2
Standardised guarantees			1.7	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	:		3.07
	Securities issued under liquidity schemes	:		0.45
	Special purpose entity	:		0.91
	Total		0.00	4.43

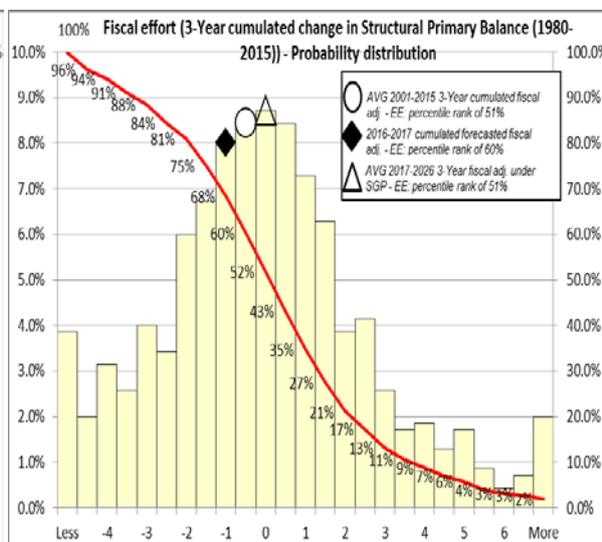
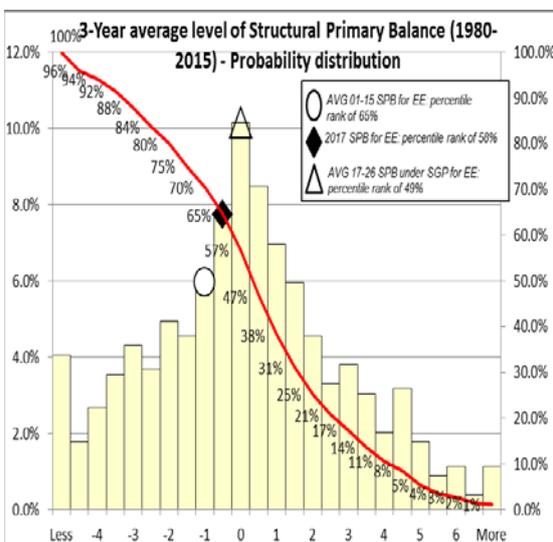
Government's contingent liability risks from banking sector - EE (2014):	Private sector credit flow (% GDP): 6.4	Bank loans-to-deposits ratio (%): 112.6	Share of non-performing loans (%): 2.6	Change in share of non-performing loans (p.p.): 0.7	Change in nominal house price index: 13.7	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):		
						bank recap. at 8%	bank recap. at 10.5%	
							0	0

**Financial market information**

Sovereign Ratings as of Nov 30 2015, EE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's			WR	
S&P	AA-	A-1+	AA-	A-1+
Fitch	A+		A+	F1

Financial market information as of November 2015, EE		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	n.a.
CDS (bp)	5-year	68.0

**Realism of baseline assumptions**



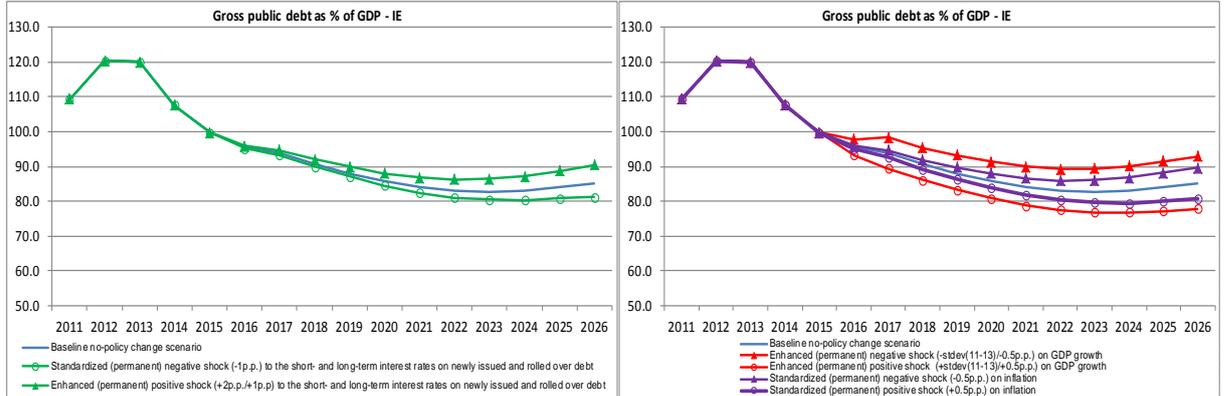
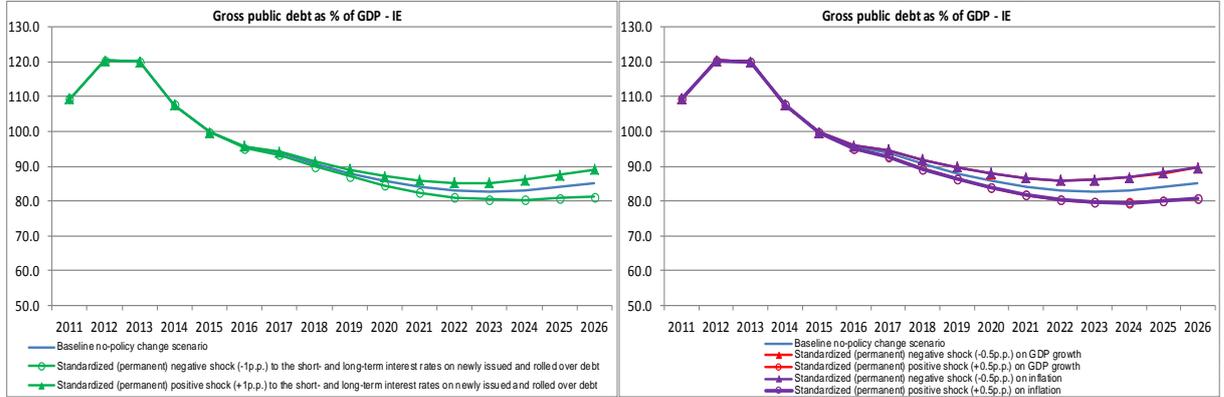
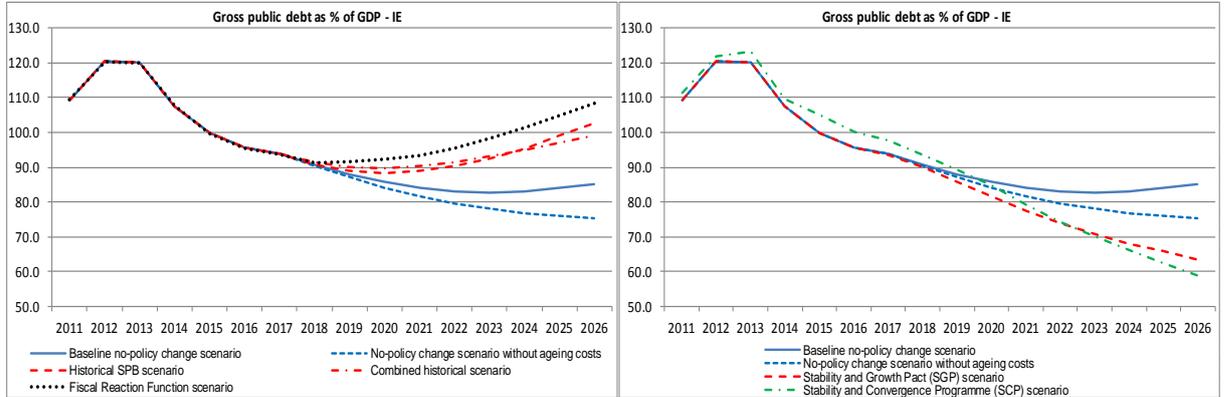
## Underlying macro-fiscal assumptions

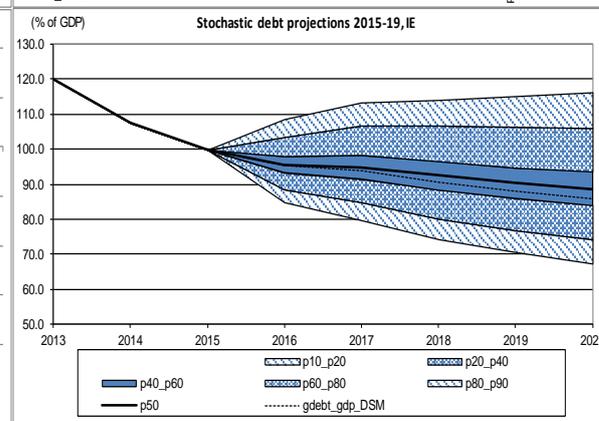
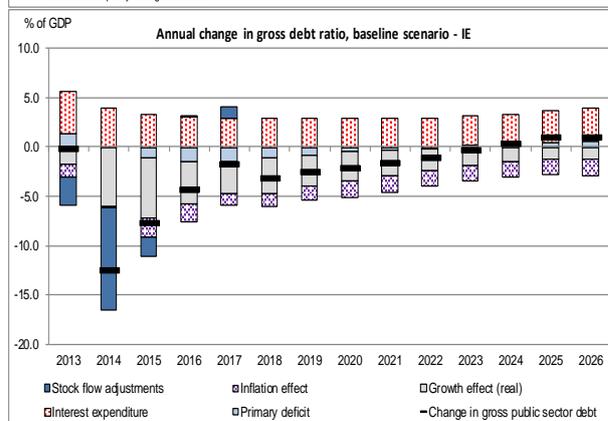
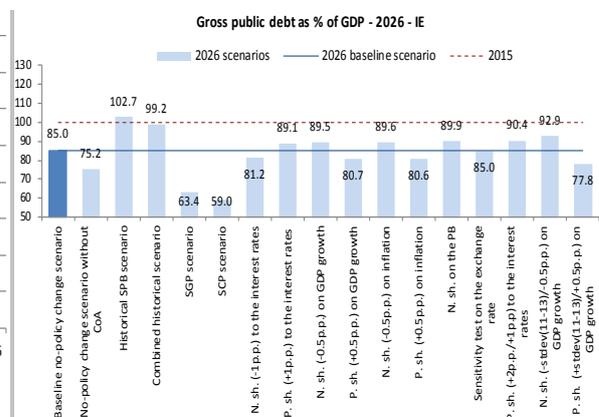
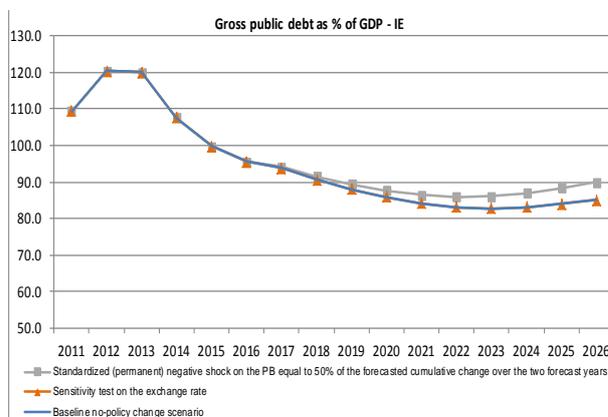
Macro-fiscal assumptions, Estonia													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	0.3	0.3	0.2	-0.1	-0.2	-0.4	-0.4	-0.4	-0.5	-0.5	-0.5	-0.5
Structural primary balance (before CoA)	0.4	0.4	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	2.9	1.9	2.6	2.6	2.0	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.7
Potential GDP growth	2.6	2.7	2.7	2.3	2.3	2.1	2.0	1.8	1.7	1.7	1.7	1.7	1.7
Inflation rate	2.0	0.9	2.5	3.2	2.8	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.1	0.8	0.8	1.1	1.5	1.5	2.3	2.9	3.3	3.4	4.0	4.3	4.5
<b>3. SGP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	0.3	0.3	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Structural primary balance (before CoA)	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Real GDP growth	2.9	1.9	2.6	2.3	2.0	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Potential GDP growth	2.6	2.7	2.7	2.0	2.3	2.1	1.9	1.7	1.7	1.7	1.7	1.7	1.7
Inflation rate	2.0	0.9	2.5	3.2	2.8	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.1	0.8	0.8	1.1	1.4	1.4	2.3	3.0	3.3	3.3	4.0	4.4	4.5
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.7	-0.3	0.2	0.3	0.5	1.1	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Structural primary balance (before CoA)	0.3	-0.1	0.3	0.1	0.2	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	2.1	2.0	2.8	3.4	3.2	3.0	1.8	1.7	1.7	1.7	1.7	1.7	1.7
Potential GDP growth	2.0	2.2	2.4	2.5	2.7	2.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7
Inflation rate	2.1	2.0	2.6	2.9	3.0	2.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.2	1.0	1.0	1.2	1.2	1.3	1.3	1.7	2.5	2.6	2.6	2.7	2.7
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	0.3	0.3	0.2	-0.2	-0.5	-0.7	-0.8	-0.9	-0.9	-0.9	-0.9	-0.9
Structural primary balance (before CoA)	0.4	0.4	0.3	-0.1	-0.2	-0.3	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	2.9	1.9	2.6	2.6	2.1	1.9	1.8	1.9	1.7	1.7	1.7	1.7	1.7
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	0.3	0.3	0.2	-0.2	-0.5	-0.7	-0.8	-0.9	-0.9	-0.9	-0.9	-0.9
Structural primary balance (before CoA)	0.4	0.4	0.3	-0.1	-0.2	-0.3	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	2.9	1.9	2.6	2.6	2.9	3.1	3.3	3.5	3.4	3.4	3.4	3.4	3.4
Implicit interest rate (nominal)	1.1	0.8	0.8	1.1	1.3	1.4	1.4	1.2	1.1	1.1	1.0	1.0	0.9
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.1	0.8	0.9	1.2	1.8	1.8	2.8	3.6	4.1	4.2	4.8	5.2	5.4
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.1	0.8	0.7	0.9	1.2	1.2	1.8	2.3	2.6	2.6	3.1	3.4	3.6
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.1	0.8	0.9	1.4	2.0	2.1	3.0	3.8	4.2	4.3	4.9	5.2	5.5
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	1.9	3.1	3.1	2.5	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2
Potential GDP growth	2.6	2.7	3.2	2.8	2.8	2.6	2.5	2.3	2.2	2.2	2.2	2.2	2.2
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	1.9	2.1	2.1	1.5	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2
Potential GDP growth	2.6	2.7	2.2	1.8	1.8	1.6	1.5	1.3	1.2	1.2	1.2	1.2	1.2
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	1.9	3.2	3.3	2.5	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2
Potential GDP growth	2.6	2.7	3.4	3.0	2.8	2.6	2.5	2.3	2.2	2.2	2.2	2.2	2.2
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	1.9	1.9	1.9	1.5	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2
Potential GDP growth	2.6	2.7	2.0	1.6	1.8	1.6	1.5	1.3	1.2	1.2	1.2	1.2	1.2
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	2.0	0.9	3.0	3.7	3.3	2.9	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	2.0	0.9	2.0	2.7	2.3	1.9	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	0.3	0.1	-0.1	-0.4	-0.5	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7
Structural primary balance (before CoA)	0.4	0.4	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	2.9	1.9	2.7	2.6	2.0	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.7
Potential GDP growth	2.6	2.7	2.8	2.3	2.3	2.1	2.0	1.8	1.7	1.7	1.7	1.7	1.7
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	0.8	0.8	1.1	1.5	1.5	2.3	2.9	3.3	3.4	4.0	4.3	4.5

## 7. Ireland

Public debt projections under baseline and alternative scenarios and sensitivity tests

IE - Debt projections baseline scenario		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>		120.0	107.5	99.8	95.4	93.7	90.6	88.0	85.8	84.1	83.1	82.8	83.1	84.0	85.0
Changes in the ratio (-1+2+3) of which		-0.2	-12.5	-7.7	-4.3	-1.8	-3.1	-2.5	-2.2	-1.7	-1.1	-0.3	0.3	0.9	1.0
<b>(1) Primary balance (1.1+1.2+1.3)</b>		-1.4	0.1	1.1	1.5	1.5	1.1	0.8	0.5	0.3	0.1	-0.2	-0.3	-0.5	-0.6
<b>(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)</b>		0.0	0.8	0.3	0.9	1.3	1.0	0.7	0.5	0.3	0.1	-0.2	-0.3	-0.5	-0.6
(1.1.1) Structural Primary Balance (before CoA)		0.0	0.8	0.3	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
(1.1.2) Cost of ageing							0.3	0.6	0.8	0.9	1.1	1.4	1.4	1.6	1.7
(1.1.3) Others (taxes and property incomes)							0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
<b>(1.2) Cyclical component</b>		-1.7	-0.6	0.6	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(1.3) One-off and other temporary measures</b>		0.4	-0.1	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(2) Snowball effect (2.1+2.2+2.3)</b>		1.2	-2.1	-4.8	-3.0	-1.4	-2.0	-1.7	-1.7	-1.3	-0.9	-0.4	0.0	0.5	0.4
(2.1) Interest expenditure		4.3	4.0	3.3	3.0	3.0	3.0	2.9	2.9	2.9	2.9	3.0	3.1	3.3	3.3
(2.2) Growth effect		-1.7	-5.9	-6.1	-4.3	-3.2	-3.6	-3.1	-2.9	-2.6	-2.2	-1.8	-1.5	-1.2	-1.3
(2.3) Inflation effect		-1.4	-0.2	-2.0	-1.8	-1.2	-1.3	-1.5	-1.7	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
<b>(3) Stock flow adjustments</b>		-2.8	-10.3	-1.8	0.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>															
Structural balance		-4.3	-3.2	-3.0	-2.1	-1.6	-2.0	-2.2	-2.5	-2.6	-2.8	-3.2	-3.4	-3.7	-3.9





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	22.1	21.6	21.6	21.7	22.1	22.4	22.6	22.9	23.7	23.9
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	0.9	0.9
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	0.70	0.38	0.43	Critical threshold						
Fiscal sub-index	0.78	0.14	0.35							
Financial competitiveness sub-index	0.66	0.48	0.45							
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	2.7	8.9	3.1	-2.0	:					
of which Initial Budgetary position	-1.6	2.2	-1.6	-4.8	:					
Cost of delaying adjustment**	0.4	2.0	0.5	-0.4	:					
Debt requirement***	2.6	3.1	2.6	2.5	:					
Ageing costs	1.3	1.6	1.6	0.7	:					
Required structural primary balance related to S1	4.1	7.6	4.4	2.7	:					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	1.0	3.9	3.1	-2.9	:					
of which Initial Budgetary position	-0.9	2.9	-0.9	-3.8	:					
Long term component	1.9	1.0	4.0	0.9	:					
of which Pensions	1.0	0.4	1.0	0.2	:					
Health care	1.0	0.8	1.6	0.9	:					
Long-term care	0.7	0.7	2.2	0.8	:					
Others	-0.8	-0.9	-0.8	-0.9	:					
Required structural primary balance related to S2	2.3	2.7	4.5	1.8	:					

### Risks related to the structure of public debt financing

Public debt structure - IE (2014):	Change in share of short-term public debt (p.p.): -3.6	Share of public debt by non-residents (%): n.a.	Share of public debt in foreign currency (%): 9.5
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			IE	EU
State guarantees (% GDP) (2013)			32.1	10.5
of which One-off guarantees			32.1	10.2
Standardised guarantees			0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		5.42	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		7.19	0.91
	Total		12.61	4.43

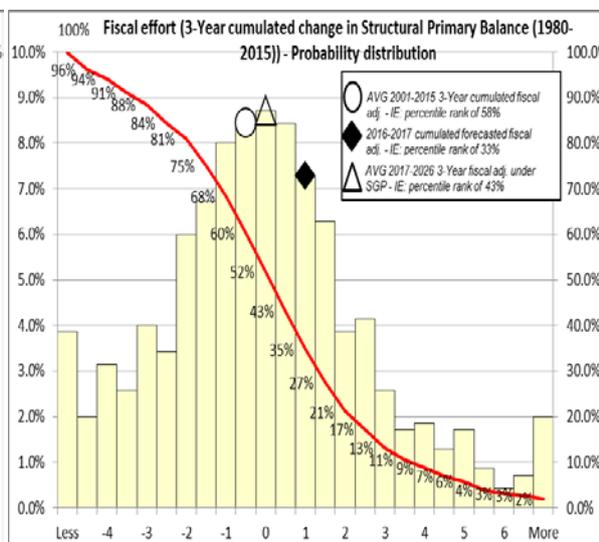
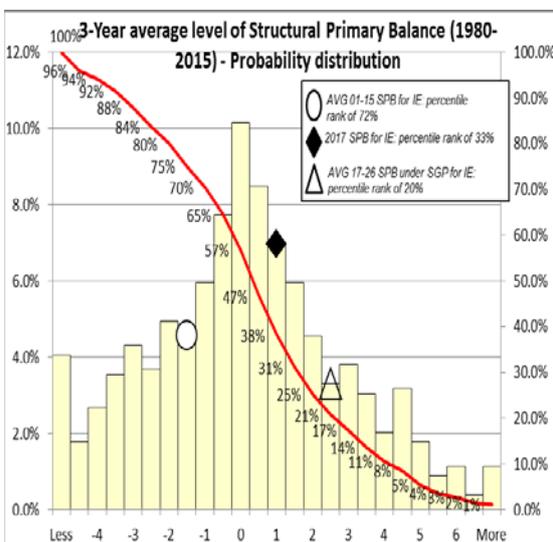
Government's contingent liability risks from banking sector - IE (2014):	Private sector credit flow (% GDP): 13.7	Bank loans-to-deposits ratio (%): 126.6	Share of non-performing loans (%): 16.3	Change in share of non-performing loans (p.p.): -2.1	Change in nominal house price index: 13	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.03%	bank recap. at 10.5% 0.08%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, IE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa1		Baa1	P-2
S&P	A+	A-1	A+	A-1
Fitch	A-		A-	F1

Financial market information as of November 2015, IE		
Sovereign yield spreads(bp)*	2-year	21.6
	10-year	51
CDS (bp)	5-year	48.4

### Realism of baseline assumptions



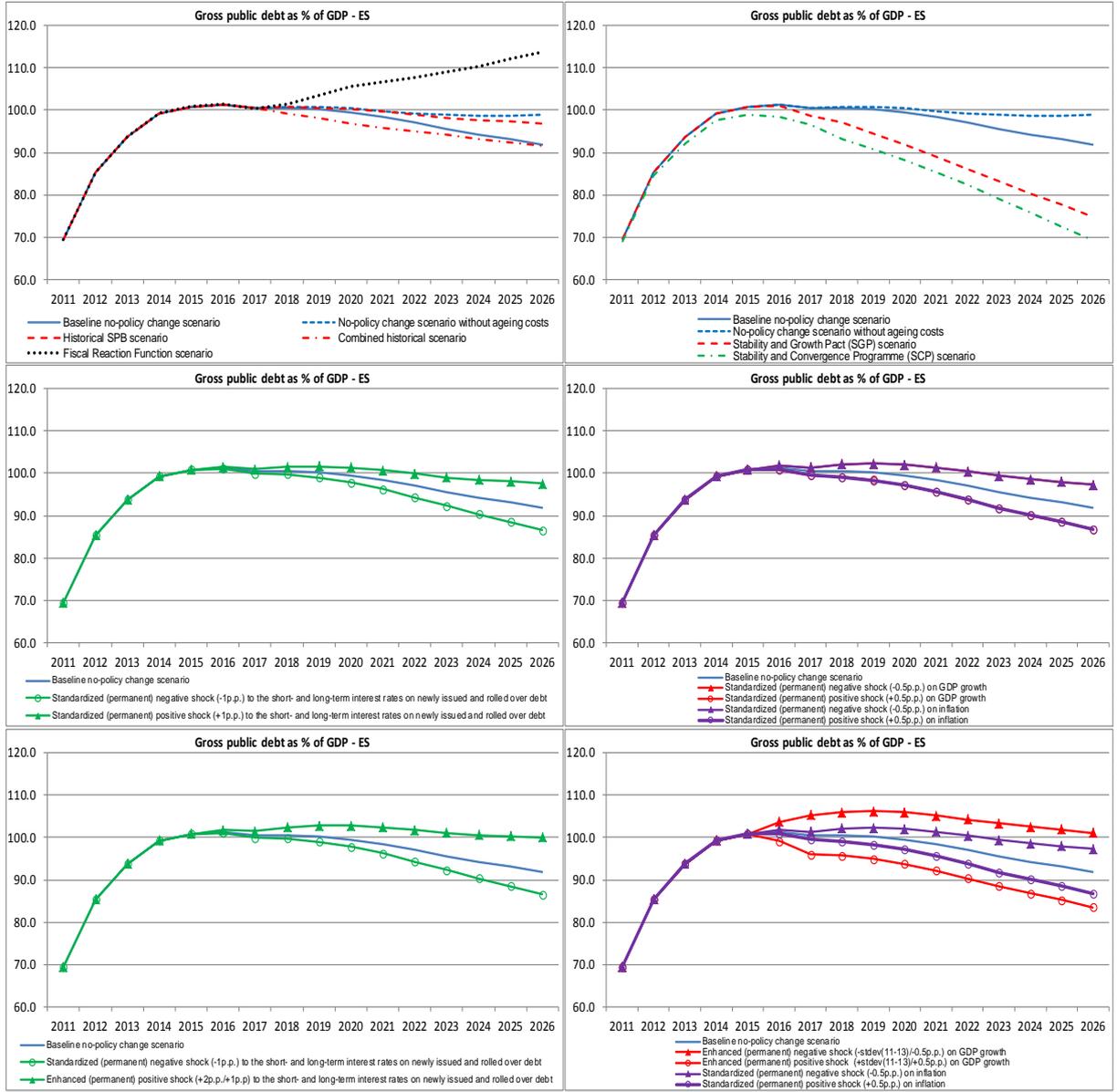
## Underlying macro-fiscal assumptions

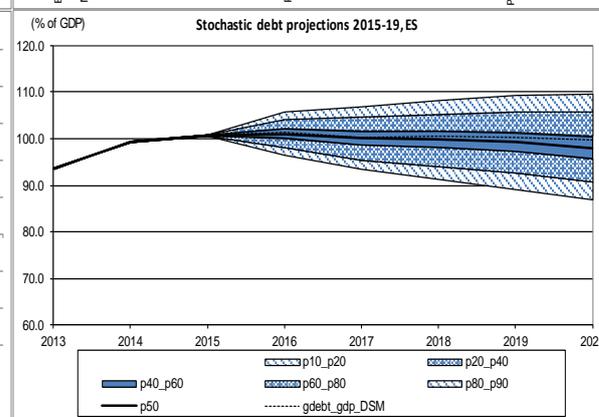
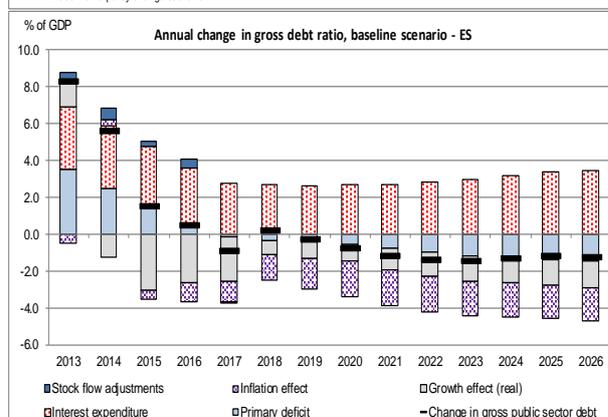
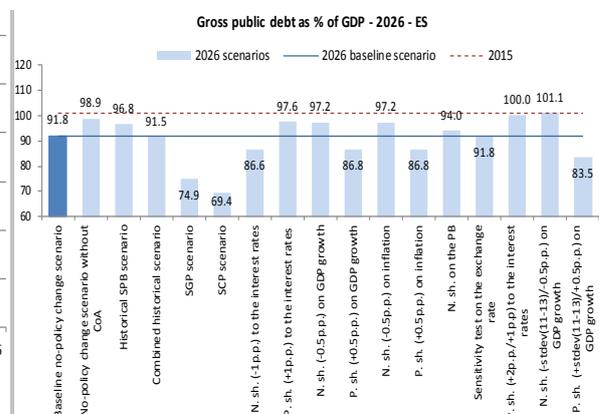
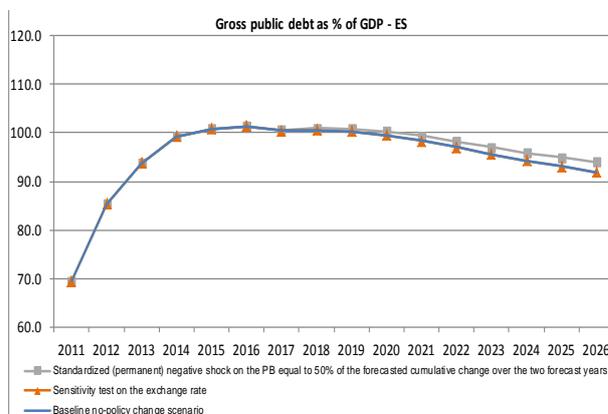
Macro-fiscal assumptions, Ireland													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.1	1.1	1.5	1.5	1.1	0.8	0.5	0.3	0.1	-0.2	-0.3	-0.5	-0.6
Structural primary balance (before CoA)	0.8	0.3	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	5.2	6.0	4.5	3.5	4.0	3.6	3.5	3.2	2.8	2.3	1.8	1.5	1.6
Potential GDP growth	2.8	3.7	4.4	4.5	4.2	3.7	3.6	3.2	2.8	2.3	1.8	1.5	1.6
Inflation rate	0.1	2.0	1.9	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.5	3.3	3.2	3.3	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.1
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.1	1.1	1.5	1.5	-1.3	-2.3	-2.5	-2.9	-3.0	-3.0	-3.0	-2.9	-2.8
Structural primary balance (before CoA)	0.8	0.3	0.9	1.3	-1.1	-1.8	-1.7	-1.9	-1.8	-1.5	-1.4	-1.1	-0.8
Real GDP growth	5.2	6.0	4.5	3.5	5.9	4.1	3.5	3.4	2.7	2.1	1.7	1.3	1.3
Potential GDP growth	2.8	3.7	4.4	4.5	6.0	4.2	3.6	3.4	2.7	2.1	1.7	1.3	1.3
Inflation rate	0.1	2.0	1.9	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.5	3.3	3.2	3.3	3.3	3.4	3.4	3.5	3.6	3.7	3.9	4.1	4.1
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.1	1.1	1.5	1.6	2.2	2.7	2.9	2.8	2.8	2.7	2.6	2.6	2.5
Structural primary balance (before CoA)	0.8	0.3	0.9	1.4	2.0	2.6	2.9	2.8	2.8	2.7	2.6	2.6	2.5
Real GDP growth	5.2	6.0	4.5	3.4	3.6	3.2	3.3	3.2	2.8	2.3	1.9	1.5	1.6
Potential GDP growth	2.8	3.7	4.4	4.4	3.7	3.3	3.4	3.2	2.8	2.3	1.9	1.5	1.6
Inflation rate	0.1	2.0	1.9	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.5	3.3	3.2	3.3	3.4	3.4	3.5	3.7	3.7	3.8	3.9	4.0	4.0
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	1.4	1.4	2.3	3.1	3.6	4.4	4.6	4.4	4.1	4.0	3.8	3.7
Structural primary balance (before CoA)	0.0	0.7	1.2	2.2	3.0	3.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Real GDP growth	4.8	4.0	3.8	3.2	3.2	3.0	3.0	2.3	2.0	1.6	1.5	1.5	1.6
Potential GDP growth	2.0	2.7	3.2	3.5	3.6	3.6	3.6	2.3	1.9	1.6	1.5	1.5	1.6
Inflation rate	1.2	2.8	1.5	1.0	1.2	1.2	1.2	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.2	3.2	3.3	3.2	3.2	3.3	3.4	3.5	3.6	3.7	3.8
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.1	1.1	1.5	1.5	0.5	-0.5	-1.5	-2.3	-2.5	-2.8	-2.9	-3.1	-3.2
Structural primary balance (before CoA)	0.8	0.3	0.9	1.3	0.7	0.0	-0.6	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	5.2	6.0	4.5	3.5	4.5	4.1	4.0	3.7	2.8	2.3	1.8	1.5	1.6
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.1	1.1	1.5	1.5	0.5	-0.5	-1.5	-2.3	-2.5	-2.8	-2.9	-3.1	-3.2
Structural primary balance (before CoA)	0.8	0.3	0.9	1.3	0.7	0.0	-0.6	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	5.2	6.0	4.5	3.5	3.9	3.9	3.8	3.8	3.3	3.3	3.3	3.3	3.3
Implicit interest rate (nominal)	3.5	3.3	3.2	3.3	3.4	3.5	3.7	3.8	3.9	4.0	4.1	4.3	4.3
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.5	3.3	3.5	3.5	3.6	3.8	4.0	4.0	4.1	4.3	4.4	4.7	4.7
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.5	3.3	3.0	3.0	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.5	3.4
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.5	3.3	3.7	3.8	4.0	3.9	4.1	4.1	4.2	4.4	4.5	4.8	4.8
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	5.2	6.0	5.0	4.0	4.5	4.1	4.0	3.7	3.3	2.8	2.3	2.0	2.1
Potential GDP growth	2.8	3.7	4.9	5.0	4.7	4.2	4.1	3.7	3.3	2.8	2.3	2.0	2.1
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	5.2	6.0	4.0	3.0	3.5	3.1	3.0	2.7	2.3	1.8	1.3	1.0	1.1
Potential GDP growth	2.8	3.7	3.9	4.0	3.7	3.2	3.1	2.7	2.3	1.8	1.3	1.0	1.1
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	5.2	6.0	6.9	5.9	4.5	4.1	4.0	3.7	3.3	2.8	2.3	2.0	2.1
Potential GDP growth	2.8	3.7	6.8	7.0	4.7	4.2	4.1	3.7	3.3	2.8	2.3	2.0	2.1
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	5.2	6.0	2.0	1.0	3.5	3.1	3.0	2.7	2.3	1.8	1.3	1.0	1.1
Potential GDP growth	2.8	3.7	1.9	2.1	3.7	3.2	3.1	2.7	2.3	1.8	1.3	1.0	1.1
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.1	2.0	2.4	1.8	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.1	2.0	1.4	0.8	1.0	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.1	1.1	1.2	1.0	0.6	0.3	0.0	-0.2	-0.4	-0.7	-0.8	-1.0	-1.1
Structural primary balance (before CoA)	0.8	0.3	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	5.2	6.0	4.7	3.6	4.0	3.6	3.5	3.2	2.8	2.3	1.8	1.5	1.6
Potential GDP growth	2.8	3.7	4.6	4.7	4.2	3.7	3.6	3.2	2.8	2.3	1.8	1.5	1.6
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.3	3.2	3.3	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.1	4.1

## 8. Spain

Public debt projections under baseline and alternative scenarios and sensitivity tests

ES - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	93.7	99.3	100.8	101.3	100.4	100.6	100.3	99.6	98.4	97.0	95.5	94.2	93.1	91.8
Changes in the ratio (-1+2+3) of which	8.3	5.6	1.5	0.5	-0.9	0.2	-0.3	-0.7	-1.2	-1.4	-1.5	-1.3	-1.2	-1.2
(1) Primary balance (1.1+1.2+1.3)	-3.5	-2.5	-1.6	-0.6	0.1	0.3	0.4	0.5	0.7	0.9	1.2	1.3	1.3	1.4
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	1.5	1.6	0.6	0.3	0.2	0.4	0.4	0.5	0.7	0.9	1.2	1.3	1.3	1.4
(1.1.1) Structural Primary Balance (before CoA)	1.5	1.6	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
(1.1.2) Cost of ageing						-0.2	-0.3	-0.4	-0.6	-0.8	-1.1	-1.2	-1.3	-1.4
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
(1.2) Cyclical component	-4.6	-3.7	-2.1	-0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	-0.4	-0.4	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	4.3	2.5	-0.4	-0.7	-0.8	0.5	0.1	-0.2	-0.4	-0.4	-0.3	0.0	0.2	0.2
(2.1) Interest expenditure	3.4	3.4	3.1	3.0	2.8	2.7	2.7	2.7	2.7	2.8	3.0	3.2	3.4	3.5
(2.2) Growth effect	1.5	-1.3	-3.0	-2.6	-2.4	-0.8	-0.9	-0.9	-1.2	-1.3	-1.4	-1.4	-1.4	-1.4
(2.3) Inflation effect	-0.5	0.4	-0.5	-1.0	-1.1	-1.4	-1.7	-1.9	-1.9	-1.9	-1.9	-1.8	-1.8	-1.8
(3) Stock flow adjustments	0.4	0.6	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-1.9	-1.8	-2.5	-2.6	-2.6	-2.3	-2.3	-2.1	-2.0	-1.9	-1.8	-1.9	-2.1	-2.0





### Sustainability indicators summary table

Long-term projections						
	2013	2014	2015	2016	2017	2018
<b>Budgetary projections</b>						
Total cost of ageing (gross)	25.4	25.6	25.5	25.4	25.2	25.0
Revenues from pensions taxation	0.9	0.9	0.9	0.9	0.9	0.9
Property incomes	1.0	1.0	1.0	0.9	0.9	0.9
<b>Sustainability indicators</b>						
<b>S0 indicator</b>	<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>	
Overall index	0.70		0.21		0.43	
Fiscal sub-index	0.78		0.34		0.35	
Financial competitiveness sub-index	0.67		0.16		0.45	
<b>S1 indicator</b>						
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report	
Overall index	2.5	5.3	3.0	-0.3	5.3	
of which Initial Budgetary position	0.1	1.2	0.1	-2.1	2.5	
Cost of delaying adjustment**	0.4	1.2	0.5	0.0	0.9	
Debt requirement***	3.1	4.3	3.1	2.8	2.2	
Ageing costs	-1.0	-1.3	-0.7	-0.9	-0.3	
Required structural primary balance related to S1	2.7	4.8	3.1	1.3	4.1	
<b>S2 indicator</b>						
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report	
Overall index	0.1	0.7	1.9	-1.6	4.8	
of which Initial Budgetary position	0.8	0.8	0.8	-1.1	2.9	
Long term component	-0.7	-0.1	1.2	-0.5	1.9	
of which Pensions	-0.7	-0.5	-0.7	-0.6	2.2	
Health care	0.8	0.7	1.5	0.8	1.5	
Long-term care	1.1	1.0	2.3	1.1	0.0	
Others	-1.8	-1.3	-1.8	-1.7	-1.9	
Required structural primary balance related to S2	0.3	0.1	2.1	0.0	3.5	

### Risks related to the structure of public debt financing

<b>Public debt structure - ES (2014):</b>	Change in share of short-term public debt (p.p.): -0.9	Share of public debt by non-residents (%): 38.8 (2013)	Share of public debt in foreign currency (%): 0.4
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			
		ES	EU
State guarantees (% GDP) (2013)		18.4	10.5
of which One-off guarantees		18.4	10.2
Standardised guarantees		.	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee <sup>3</sup>	0.83	3.07
	Securities issued under liquidity schemes	0.00	0.45
	Special purpose entity	4.46	0.91
	Total	5.29	4.43

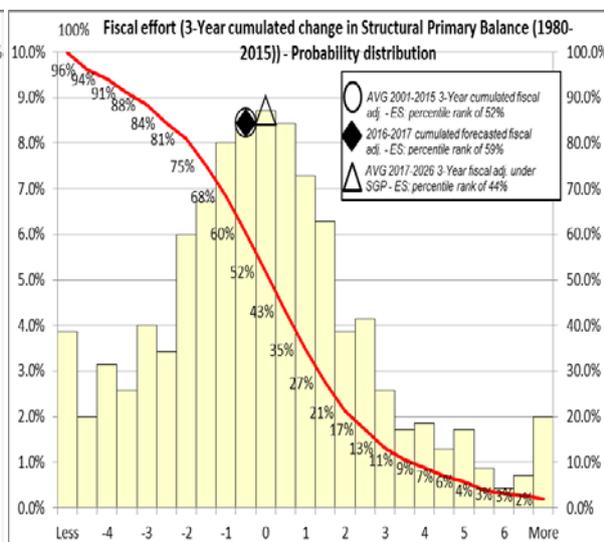
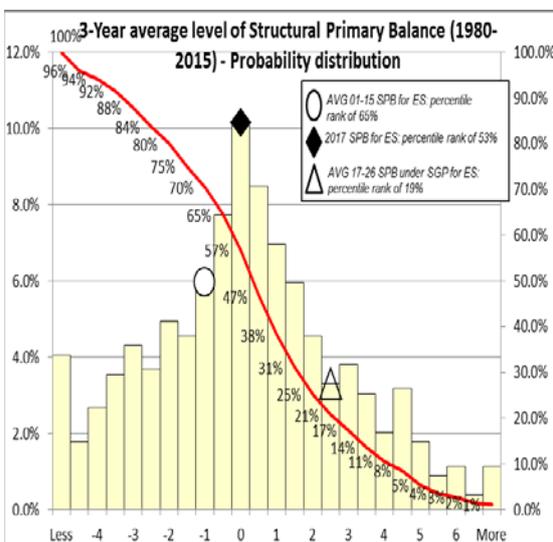
<b>Government's contingent liability risks from banking sector - ES (2014):</b>	Private sector credit flow (% GDP): -7.4	Bank loans-to-deposits ratio (%): 134.5	Share of non-performing loans (%): 6.9	Change in share of non-performing loans (p.p.): -1	Change in nominal house price index: 0.4	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.09% bank recap. at 10.5% 0.41%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, ES	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa2		Baa2	P-2
S&P	BBB+	A-2	BBB+	A-2
Fitch	BBB+		BBB+	F2

Financial market information as of November 2015, ES		
Sovereign yield spreads(bp) <sup>4</sup>	2-year	38
	10-year	105
CDS (bp)	5-year	100.5

### Realism of baseline assumptions



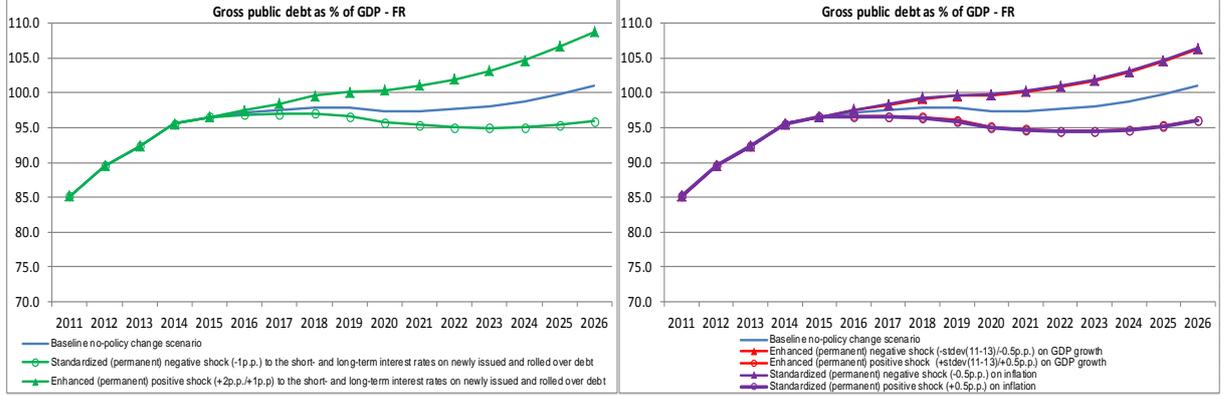
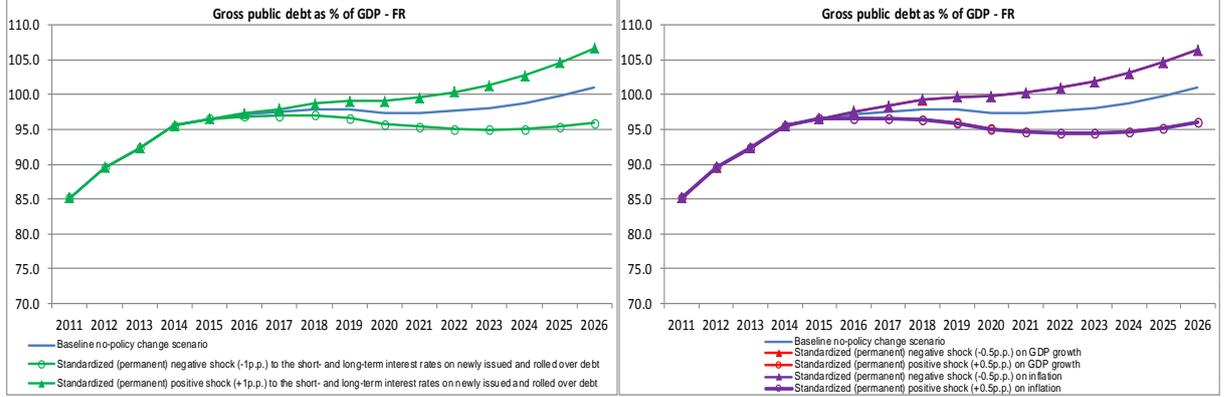
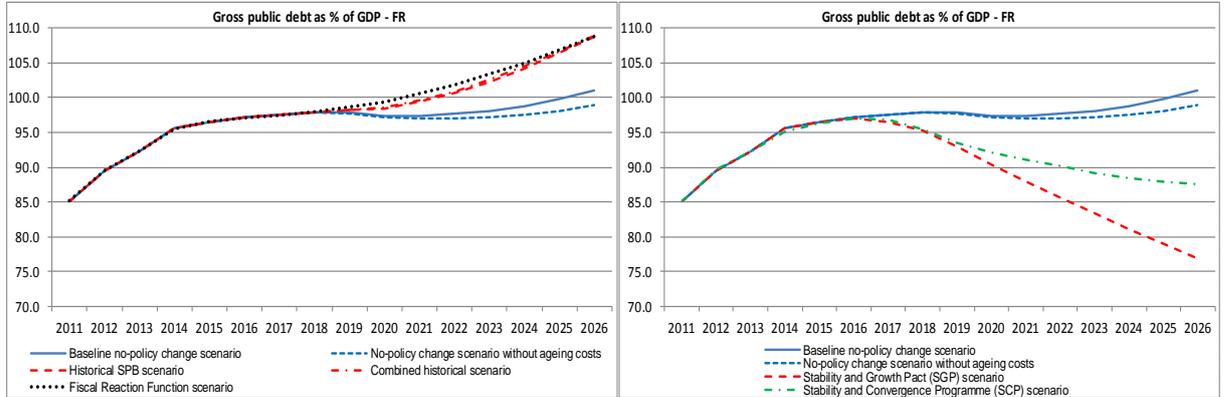
### Underlying macro-fiscal assumptions

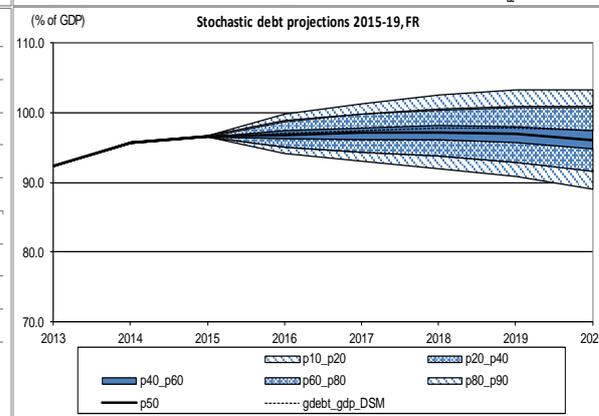
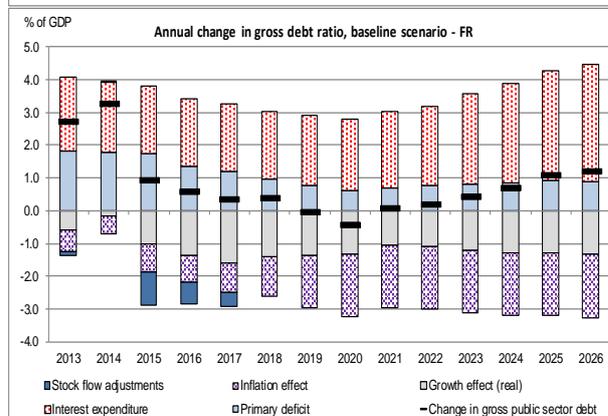
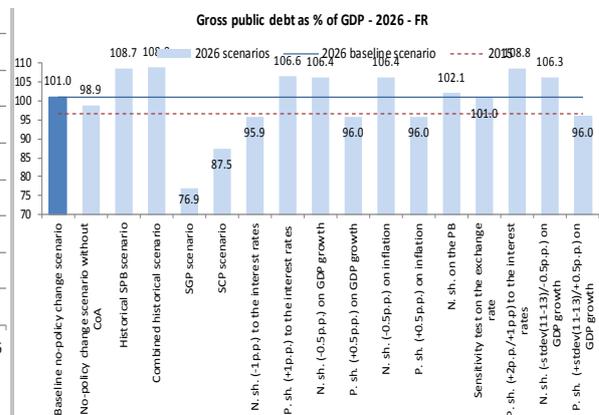
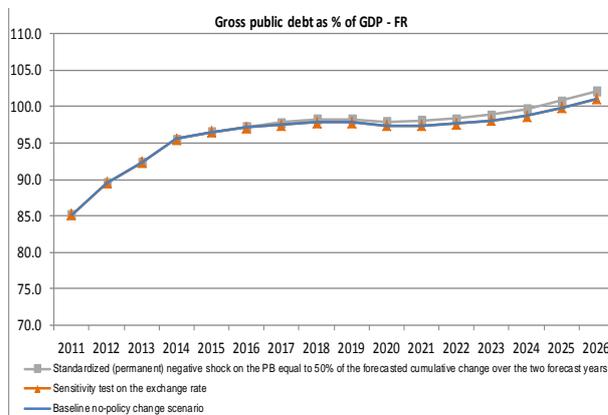
Macro-fiscal assumptions, Spain													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.6	-0.6	0.1	0.3	0.4	0.5	0.7	0.9	1.2	1.3	1.3	1.4
Structural primary balance (before CoA)	1.6	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Real GDP growth	1.4	3.1	2.7	2.4	0.8	0.9	0.9	1.3	1.4	1.5	1.5	1.5	1.6
Potential GDP growth	-0.4	0.0	0.4	0.7	0.8	0.9	0.9	1.3	1.4	1.5	1.5	1.5	1.6
Inflation rate	-0.4	0.5	1.0	1.1	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.0	2.8	2.7	2.7	2.8	2.8	3.0	3.2	3.5	3.7	3.9
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.6	-0.6	0.1	-2.3	-2.2	-2.0	-1.7	-1.6	-1.6	-1.5	-1.5	-1.4
Structural primary balance (before CoA)	1.6	0.6	0.3	0.2	-2.5	-2.5	-2.4	-2.3	-2.4	-2.6	-2.6	-2.6	-2.7
Real GDP growth	1.4	3.1	2.7	2.4	2.8	0.9	0.9	1.2	1.5	1.6	1.5	1.5	1.6
Potential GDP growth	-0.4	0.0	0.4	0.7	2.8	0.9	0.9	1.2	1.5	1.6	1.5	1.5	1.6
Inflation rate	-0.4	0.5	1.0	1.1	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.0	2.8	2.7	2.7	2.7	2.8	3.0	3.2	3.5	3.8	3.9
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.6	0.7	2.0	2.6	2.6	2.6	2.5	2.6	2.7	2.8	2.9	2.9
Structural primary balance (before CoA)	1.6	0.6	1.7	2.1	2.6	2.6	2.6	2.5	2.6	2.7	2.8	2.9	2.9
Real GDP growth	1.4	3.1	1.7	2.0	0.4	0.9	1.0	1.3	1.4	1.4	1.4	1.4	1.6
Potential GDP growth	-0.4	0.0	-0.6	0.3	0.4	0.8	1.0	1.3	1.4	1.4	1.4	1.4	1.6
Inflation rate	-0.4	0.5	1.0	1.1	1.4	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.7	3.3	3.0	2.9	2.8	2.8	2.8	2.9	3.0	3.2	3.5	3.7	3.8
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.0	0.1	1.2	2.2	1.6	1.8	2.0	2.2	2.4	2.5	2.6	2.7
Structural primary balance (before CoA)	1.3	1.3	1.2	1.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Real GDP growth	1.4	2.9	2.9	3.0	3.0	1.6	1.5	1.7	1.8	1.9	1.9	1.9	1.8
Potential GDP growth	0.1	0.4	0.6	1.0	1.2	1.0	1.5	1.7	1.8	1.9	1.9	1.9	1.8
Inflation rate	-0.5	0.6	0.9	1.2	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.2	3.0	2.8	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.9	3.3
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.6	-0.6	0.1	0.2	0.0	0.0	0.0	0.2	0.4	0.5	0.6	0.7
Structural primary balance (before CoA)	1.6	0.6	0.3	0.2	0.0	-0.2	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	1.4	3.1	2.7	2.4	0.9	1.0	1.1	1.4	1.4	1.5	1.5	1.5	1.6
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.6	-0.6	0.1	0.2	0.0	0.0	0.0	0.2	0.4	0.5	0.6	0.7
Structural primary balance (before CoA)	1.6	0.6	0.3	0.2	0.0	-0.2	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	1.4	3.1	2.7	2.4	2.4	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9
Implicit interest rate (nominal)	3.7	3.3	3.0	2.8	2.8	2.9	3.0	3.0	3.2	3.4	3.6	3.7	3.7
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.7	3.3	3.3	3.1	3.1	3.2	3.2	3.3	3.6	3.8	4.2	4.5	4.7
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.7	3.3	2.8	2.5	2.4	2.3	2.3	2.3	2.4	2.5	2.7	3.0	3.1
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.7	3.3	3.5	3.5	3.5	3.4	3.5	3.5	3.8	4.0	4.3	4.6	4.8
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.4	3.1	3.2	2.9	1.3	1.4	1.4	1.8	1.9	2.0	2.0	2.0	2.1
Potential GDP growth	-0.4	0.0	0.9	1.2	1.3	1.4	1.4	1.8	1.9	2.0	2.0	2.0	2.1
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.4	3.1	2.2	1.9	0.3	0.4	0.4	0.8	0.9	1.0	1.0	1.0	1.1
Potential GDP growth	-0.4	0.0	-0.1	0.2	0.3	0.4	0.4	0.8	0.9	1.0	1.0	1.0	1.1
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.4	3.1	5.1	4.9	1.3	1.4	1.4	1.8	1.9	2.0	2.0	2.0	2.1
Potential GDP growth	-0.4	0.0	2.8	3.1	1.3	1.4	1.4	1.8	1.9	2.0	2.0	2.0	2.1
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.4	3.1	0.2	0.0	0.3	0.4	0.4	0.8	0.9	1.0	1.0	1.0	1.1
Potential GDP growth	-0.4	0.0	-2.0	-1.7	0.3	0.4	0.4	0.8	0.9	1.0	1.0	1.0	1.1
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	-0.4	0.5	1.5	1.6	1.9	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	-0.4	0.5	0.5	0.6	0.9	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.5	-1.6	-0.7	-0.1	0.1	0.2	0.3	0.5	0.7	1.0	1.0	1.1	1.2
Structural primary balance (before CoA)	1.6	0.6	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	1.4	3.1	2.7	2.6	0.8	0.9	0.9	1.3	1.4	1.5	1.5	1.5	1.6
Potential GDP growth	-0.4	0.0	0.5	0.8	0.8	0.9	0.9	1.3	1.4	1.5	1.5	1.5	1.6
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.3	3.0	2.8	2.7	2.7	2.8	2.8	3.0	3.2	3.5	3.7	3.9

## 9. France

Public debt projections under baseline and alternative scenarios and sensitivity tests

FR - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>92.3</b>	<b>95.6</b>	<b>96.5</b>	<b>97.1</b>	<b>97.4</b>	<b>97.8</b>	<b>97.8</b>	<b>97.4</b>	<b>97.4</b>	<b>97.6</b>	<b>98.0</b>	<b>98.7</b>	<b>99.8</b>	<b>101.0</b>
Changes in the ratio (-1+2+3) of which	2.7	3.3	0.9	0.6	0.3	0.4	0.0	-0.4	0.1	0.2	0.4	0.7	1.1	1.2
(1) Primary balance (1.1+1.2+1.3)	-1.8	-1.8	-1.8	-1.4	-1.2	-1.0	-0.8	-0.6	-0.7	-0.8	-0.8	-0.9	-0.9	-0.9
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	-1.3	-0.6	-0.7	-0.3	-0.5	-0.6	-0.6	-0.6	-0.7	-0.8	-0.8	-0.9	-0.9	-0.9
(1.1.1) Structural Primary Balance (before CoA)	-1.3	-0.6	-0.7	-0.3	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
(1.1.2) Cost of ageing						0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.4	0.4
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
(1.2) Cyclical component	-0.7	-1.2	-1.1	-0.9	-0.6	-0.4	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.2	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	1.0	1.5	0.2	-0.1	-0.4	-0.5	-0.8	-1.0	-0.6	-0.6	-0.4	-0.1	0.2	0.3
(2.1) Interest expenditure	2.3	2.2	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.7	3.0	3.4	3.6
(2.2) Growth effect	-0.6	-0.2	-1.0	-1.4	-1.6	-1.4	-1.4	-1.3	-1.1	-1.1	-1.2	-1.3	-1.3	-1.3
(2.3) Inflation effect	-0.7	-0.5	-0.8	-0.8	-0.9	-1.2	-1.6	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9	-1.9
(3) Stock flow adjustments	-0.1	0.0	-1.0	-0.7	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-3.5	-2.8	-2.7	-2.4	-2.6	-2.6	-2.7	-2.8	-3.0	-3.2	-3.6	-3.9	-4.3	-4.5





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	31.1	31.3	31.3	31.2	31.1	31.1	31.1	31.2	31.5	31.4
Revenues from pensions taxation	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Property incomes	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		2009		2015		Critical threshold				
<b>Overall index</b>		0.26		0.17		0.43				
Fiscal sub-index		0.82		0.25		0.35				
Financial competitiveness sub-index		0.03		0.14		0.45				
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
<b>Overall index</b>	4.4	9.1	4.8	2.7	1.9					
of which Initial Budgetary position	0.6	2.4	0.6	-1.0	-0.6					
Cost of delaying adjustment**	0.7	2.1	0.7	0.4	0.3					
Debt requirement***	2.9	4.2	2.9	3.0	2.1					
Ageing costs	0.3	0.4	0.6	0.3	0.1					
<b>Required structural primary balance related to S1</b>	<b>3.8</b>	<b>7.5</b>	<b>4.2</b>	<b>3.6</b>	<b>2.4</b>					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
<b>Overall index</b>	0.6	1.6	2.6	-1.0	1.6					
of which Initial Budgetary position	1.5	2.8	1.5	0.0	0.6					
Long term component	-1.0	-1.2	1.0	-1.0	0.9					
of which Pensions	-1.7	-1.8	-1.7	-1.7	0.6					
Health care	0.7	0.5	1.2	0.6	0.9					
Long-term care	0.6	0.6	2.1	0.6	0.0					
Others	-0.6	-0.5	-0.6	-0.5	-0.5					
<b>Required structural primary balance related to S2</b>	<b>0.0</b>	<b>0.0</b>	<b>2.0</b>	<b>-0.1</b>	<b>2.0</b>					

**Risks related to the structure of public debt financing**

<b>Public debt structure - FR (2014):</b>	<b>Change in share of short-term public debt (p.p.):</b> -0.7	<b>Share of public debt by non-residents (%):</b> 55.5 (2013)	<b>Share of public debt in foreign currency (%):</b> 2.2
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			FR	EU
State guarantees (% GDP) (2013)			5.5	10.5
of which One-off guarantees			3.5	10.2
Standardised guarantees			2.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		2.22	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		0.00	0.91
	Total		2.22	4.43

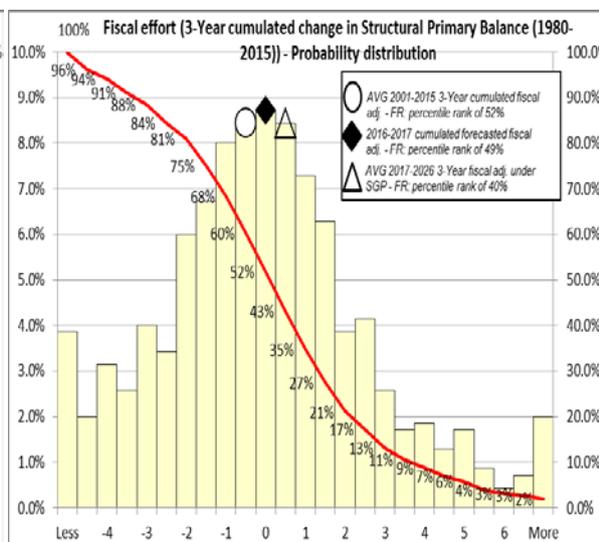
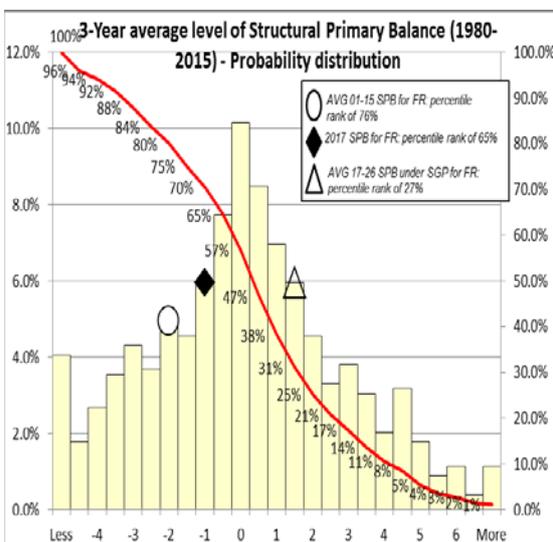
<b>Government's contingent liability risks from banking sector - FR (2014):</b>	<b>Private sector credit flow (% GDP):</b> 3.3	<b>Bank loans-to-deposits ratio (%):</b> 119.8	<b>Share of non-performing loans (%):</b> 3.6	<b>Change in share of non-performing loans (p.p.):</b> -1	<b>Change in nominal house price index:</b> -1.6	<b>Probability of gov't cont. liabilities (&gt;3% of GDP) linked to banking losses and recap needs (SYMBOL):</b> bank recap. at 8% 0.00%	bank recap. at 10.5% 0.01%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, FR	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa2		Aa2	
S&P	AAu	A-1+u	AAu	A-1+u
Fitch	AA		AA	F1+

Financial market information as of November 2015, FR		
Sovereign yield spreads(bp)*	2-year	8.4
	10-year	31
CDS (bp)	5-year	31.1

**Realism of baseline assumptions**



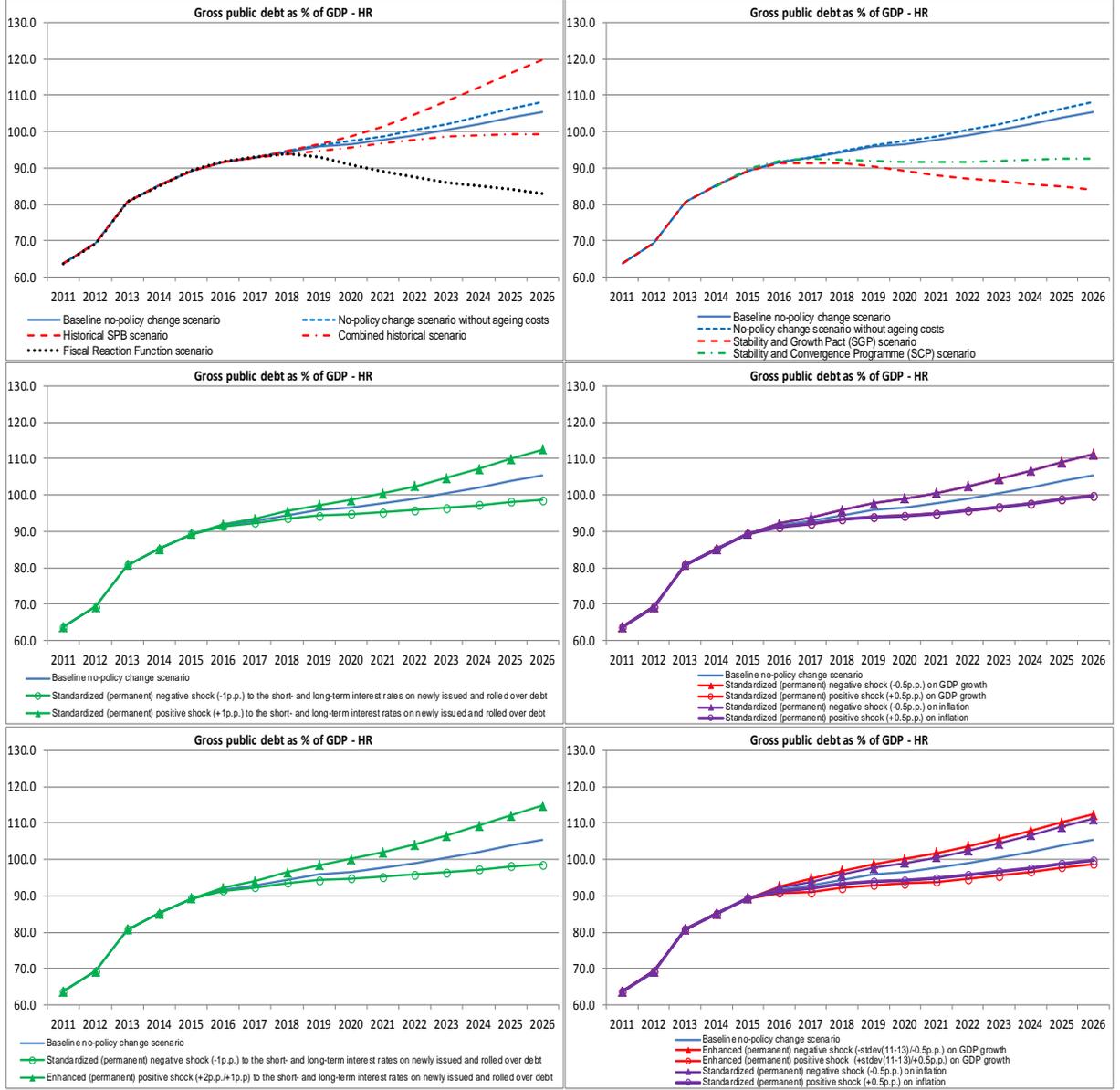
### Underlying macro-fiscal assumptions

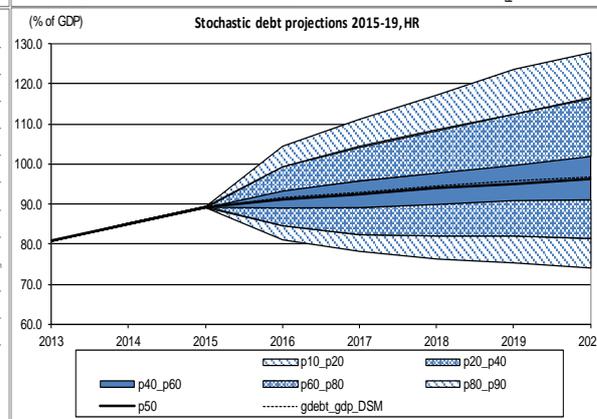
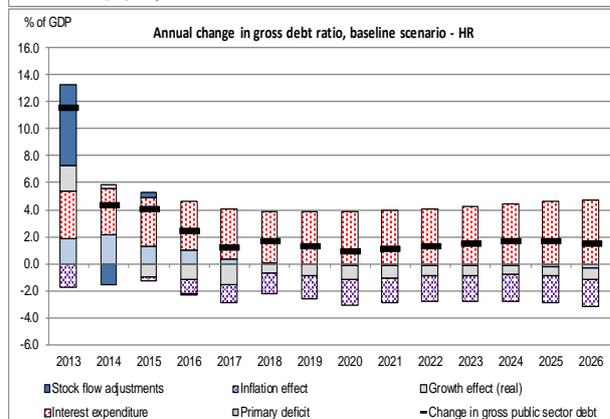
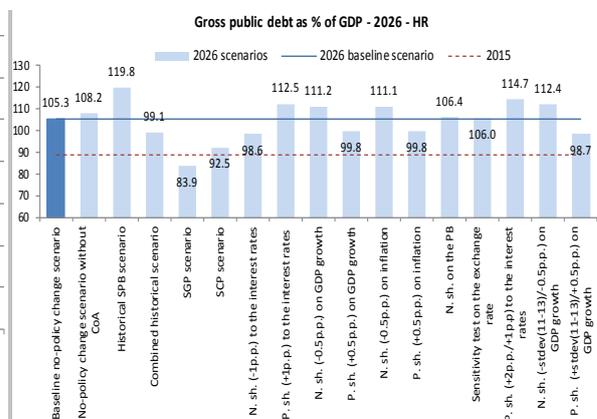
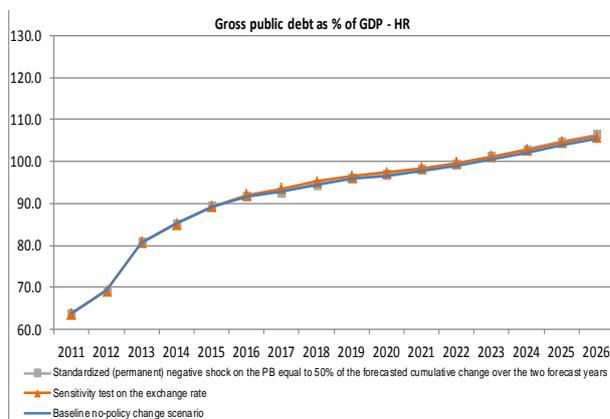
Macro-fiscal assumptions, France													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.8	-1.4	-1.2	-1.0	-0.8	-0.6	-0.7	-0.8	-0.8	-0.9	-0.9	-0.9
Structural primary balance (before CoA)	-0.6	-0.7	-0.3	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	0.2	1.1	1.4	1.7	1.5	1.4	1.4	1.1	1.2	1.3	1.4	1.3	1.4
Potential GDP growth	0.9	1.0	1.1	1.2	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.3	1.4
Inflation rate	0.6	0.9	0.9	0.9	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.9	3.2	3.5	3.7
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.8	-1.4	-1.2	-1.6	-1.8	-1.8	-1.8	-1.8	-1.8	-1.7	-1.7	-1.6
Structural primary balance (before CoA)	-0.6	-0.7	-0.3	-0.5	-1.1	-1.5	-1.8	-1.7	-1.6	-1.5	-1.4	-1.3	-1.2
Real GDP growth	0.2	1.1	1.4	1.7	1.9	1.7	1.6	1.0	1.1	1.2	1.3	1.2	1.3
Potential GDP growth	0.9	1.0	1.1	1.2	1.6	1.4	1.2	1.0	1.1	1.2	1.3	1.2	1.3
Inflation rate	0.6	0.9	0.9	0.9	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.6	2.9	3.2	3.5	3.7
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.8	-0.9	0.4	1.2	1.5	1.7	1.8	1.8	2.0	2.1	2.3	2.4
Structural primary balance (before CoA)	-0.6	-0.7	0.1	1.0	1.6	1.7	1.7	1.8	1.8	2.0	2.1	2.3	2.4
Real GDP growth	0.2	1.1	1.1	0.8	1.0	1.4	1.4	1.1	1.1	1.1	1.2	1.2	1.3
Potential GDP growth	0.9	1.0	0.7	0.4	0.7	1.1	1.0	1.1	1.1	1.1	1.2	1.2	1.3
Inflation rate	0.6	0.9	0.9	0.9	1.3	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.9	3.2	3.4	3.6
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.7	-1.3	-0.5	0.4	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.5
Structural primary balance (before CoA)	-0.4	-0.2	-0.1	0.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	0.4	1.0	1.5	1.5	1.8	1.7	1.1	1.1	1.2	1.3	1.2	1.3	1.3
Potential GDP growth	1.0	1.1	1.5	1.5	1.4	1.1	1.2	1.2	1.2	1.3	1.2	1.3	1.3
Inflation rate	0.9	1.0	0.9	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.4	2.2	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.2	3.4
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.8	-1.4	-1.2	-1.2	-1.3	-1.4	-1.8	-1.9	-2.0	-2.0	-2.0	-2.0
Structural primary balance (before CoA)	-0.6	-0.7	-0.3	-0.5	-0.8	-1.1	-1.4	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Real GDP growth	0.2	1.1	1.4	1.7	1.7	1.7	1.6	1.3	1.2	1.3	1.4	1.3	1.4
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.8	-1.4	-1.2	-1.2	-1.3	-1.4	-1.8	-1.9	-2.0	-2.0	-2.0	-2.0
Structural primary balance (before CoA)	-0.6	-0.7	-0.3	-0.5	-0.8	-1.1	-1.4	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
Real GDP growth	0.2	1.1	1.4	1.7	1.8	1.7	1.7	1.6	1.4	1.4	1.4	1.4	1.4
Implicit interest rate (nominal)	2.4	2.2	2.2	2.2	2.2	2.4	2.5	2.7	2.8	3.1	3.3	3.5	3.6
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.4	2.2	2.4	2.5	2.6	2.7	2.8	3.0	3.1	3.5	3.9	4.3	4.5
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.4	2.2	2.0	1.9	1.8	1.8	1.9	1.9	2.0	2.3	2.5	2.8	2.9
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.4	2.2	2.6	2.8	2.9	2.9	3.0	3.2	3.3	3.7	4.0	4.4	4.6
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.2	1.1	1.9	2.2	2.0	1.9	1.9	1.6	1.7	1.8	1.9	1.8	1.9
Potential GDP growth	0.9	1.0	1.6	1.7	1.6	1.6	1.6	1.6	1.7	1.8	1.9	1.8	1.9
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.2	1.1	0.9	1.2	1.0	0.9	0.9	0.6	0.7	0.8	0.9	0.8	0.9
Potential GDP growth	0.9	1.0	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.9	0.8	0.9
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.2	1.1	1.9	2.1	2.0	1.9	1.9	1.6	1.7	1.8	1.9	1.8	1.9
Potential GDP growth	0.9	1.0	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.9	1.8	1.9
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.2	1.1	1.0	1.2	1.0	0.9	0.9	0.6	0.7	0.8	0.9	0.8	0.9
Potential GDP growth	0.9	1.0	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.8	0.9	0.8	0.9
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.6	0.9	1.4	1.4	1.8	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.6	0.9	0.4	0.4	0.8	1.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.8	-1.8	-1.7	-1.3	-1.0	-0.9	-0.7	-0.8	-0.8	-0.9	-0.9	-1.0	-1.0
Structural primary balance (before CoA)	-0.6	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	0.2	1.1	1.7	1.5	1.5	1.4	1.4	1.1	1.2	1.3	1.4	1.3	1.4
Potential GDP growth	0.9	1.0	1.3	1.0	1.1	1.1	1.1	1.1	1.2	1.3	1.4	1.3	1.4
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.9	3.2	3.5	3.7

# 10. Croatia

Public debt projections under baseline and alternative scenarios and sensitivity tests

HR - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>80.8</b>	<b>85.1</b>	<b>89.2</b>	<b>91.7</b>	<b>92.9</b>	<b>94.5</b>	<b>95.8</b>	<b>96.7</b>	<b>97.7</b>	<b>99.0</b>	<b>100.5</b>	<b>102.1</b>	<b>103.8</b>	<b>105.3</b>
Changes in the ratio (-1+2+3) of which	11.5	4.4	4.1	2.5	1.2	1.7	1.2	0.9	1.1	1.3	1.4	1.6	1.7	1.5
(1) Primary balance (1.1+1.2+1.3)	-1.9	-2.1	-1.3	-1.0	-0.4	-0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.3
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	-0.1	-0.4	0.1	-0.2	-0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3
(1.1.1) Structural Primary Balance (before CoA)	-0.1	-0.4	0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
(1.1.2) Cost of ageing						-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	-1.6	-1.7	-1.3	-0.8	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	3.7	3.8	2.4	1.5	0.8	1.6	1.3	1.0	1.2	1.4	1.6	1.8	1.9	1.8
(2.1) Interest expenditure	3.5	3.5	3.6	3.7	3.7	3.8	3.9	3.9	4.0	4.1	4.2	4.4	4.6	4.7
(2.2) Growth effect	2.0	0.3	-0.9	-1.2	-1.5	-0.7	-0.9	-1.0	-0.9	-0.8	-0.7	-0.7	-0.7	-0.9
(2.3) Inflation effect	-1.8	0.0	-0.3	-1.0	-1.4	-1.5	-1.7	-1.9	-1.9	-1.9	-1.9	-2.0	-2.0	-2.0
(3) Stock flow adjustments	6.0	-1.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-3.6	-3.9	-3.5	-3.8	-3.9	-3.7	-3.8	-3.8	-3.8	-4.0	-4.1	-4.3	-4.4	-4.4





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	21.2	22.1	22.1	21.8	21.7	21.4	21.4	21.4	21.3	20.8
Revenues from pensions taxation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Property incomes	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8
<b>Sustainability indicators</b>										
<b>S0 indicator</b>	<b>2009</b>	<b>2015</b>	<b>Critical threshold</b>							
Overall index	0.76	0.26	0.43							
Fiscal sub-index	0.55	0.35	0.35							
Financial competitiveness sub-index	0.83	0.23	0.45							
<b>S1 indicator</b>	<b>COM no-policy change scenario</b>	<b>Historical SPB scenario</b>	<b>AWG risk scenario</b>	<b>SCP scenario</b>	<b>2012 Sustainability Report</b>					
Overall index	4.5	11.3	4.8	3.1	:					
of which Initial Budgetary position	1.9	4.9	1.9	0.3	:					
Cost of delaying adjustment**	0.8	2.7	0.8	0.6	:					
Debt requirement***	2.3	4.1	2.3	2.4	:					
Ageing costs	-0.4	-0.5	-0.2	-0.2	:					
Required structural primary balance related to S1	4.3	9.1	4.7	4.5	:					
<b>S2 indicator</b>	<b>COM no-policy change scenario</b>	<b>Historical SPB scenario</b>	<b>AWG risk scenario</b>	<b>SCP scenario</b>	<b>2012 Sustainability Report</b>					
Overall index	-0.8	1.0	0.5	-2.5	:					
of which Initial Budgetary position	1.7	3.3	1.6	-0.2	:					
Long term component	-2.5	-2.3	-1.1	-2.3	:					
of which Pensions	-2.7	-2.7	-2.8	-2.6	:					
Health care	0.6	0.5	1.3	0.6	:					
Long-term care	0.0	0.0	0.7	0.0	:					
Others	-0.4	-0.2	-0.4	-0.3	:					
Required structural primary balance related to S2	-1.0	-1.2	0.3	-1.1	:					

### Risks related to the structure of public debt financing

Public debt structure - HR (2014):	Change in share of short-term public debt (p.p.): -0.5	Share of public debt by non-residents (%): n.a.	Share of public debt in foreign currency (%): 78.5
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			HR	EU
State guarantees (% GDP) (2013)			7.3	10.5
of which One-off guarantees			7.3	10.2
Standardised guarantees			:	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	:	3.07	
	Securities issued under liquidity schemes	:	0.45	
	Special purpose entity	:	0.91	
	Total	0.00	4.43	

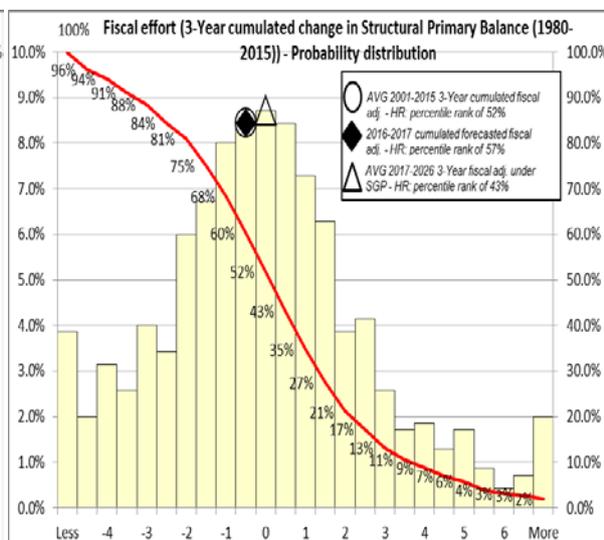
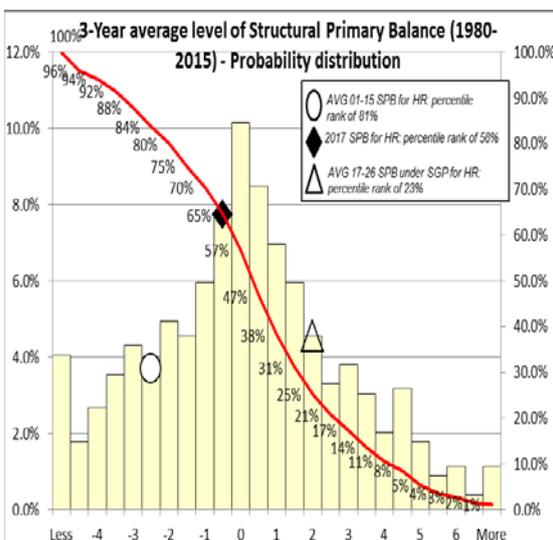
Government's contingent liability risks from banking sector - HR (2014):	Private sector credit flow (% GDP): 0.3	Bank loans-to-deposits ratio (%): 90.6 (2012)	Share of non-performing loans (%): 12.9	Change in share of non-performing loans (p.p.): 1.1	Change in nominal house price index: -2.3	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, HR	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba1		Ba1	
S&P	BB	B	BB	B
Fitch	BB+		BB	B

Financial market information as of November 2015, HR		
Sovereign yield spreads(bp)*	2-year	262.3
	10-year	329
CDS (bp)	5-year	276.5

### Realism of baseline assumptions



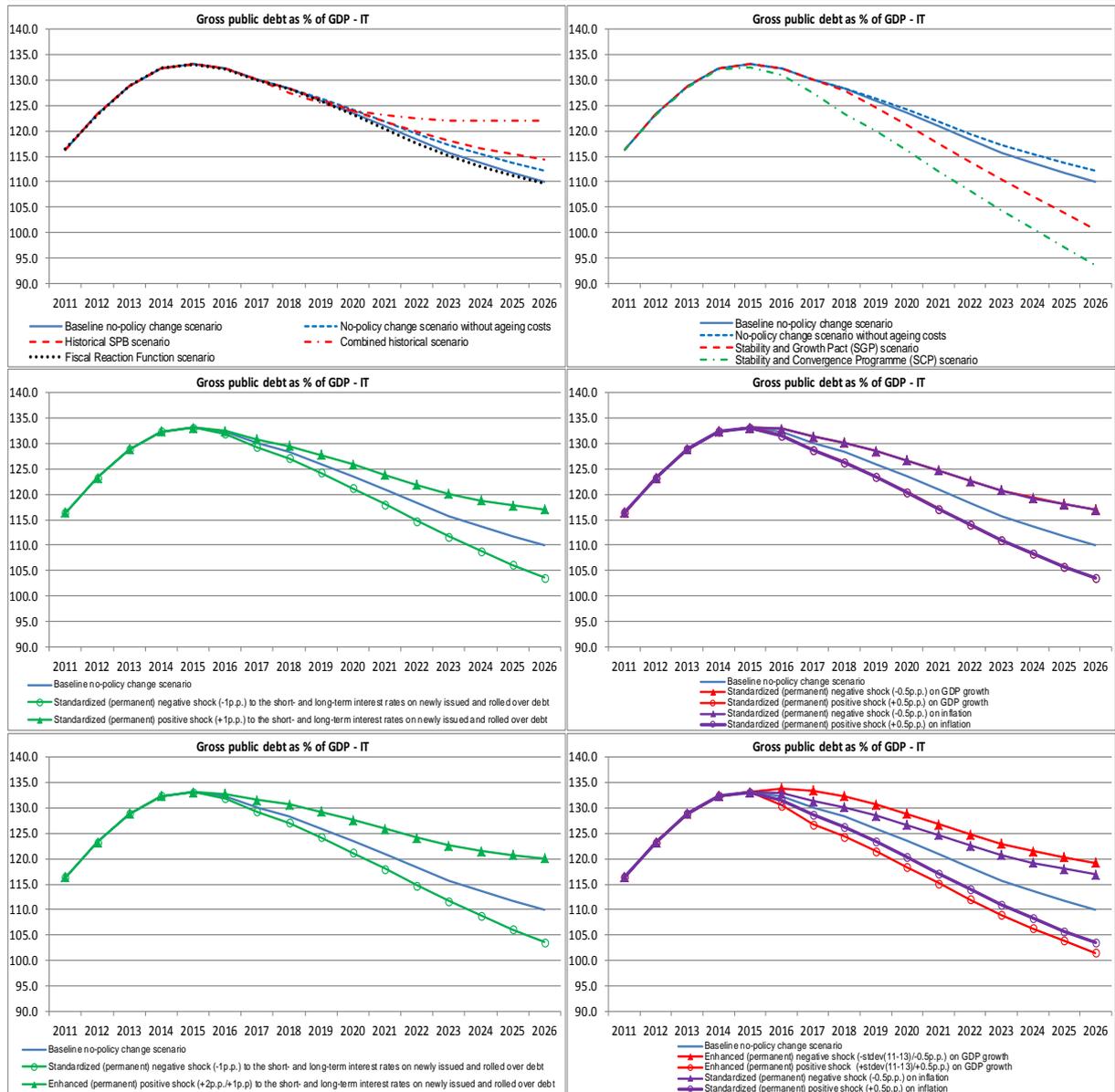
### Underlying macro-fiscal assumptions

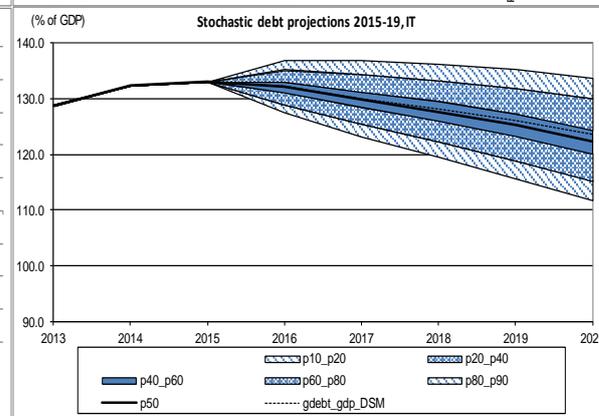
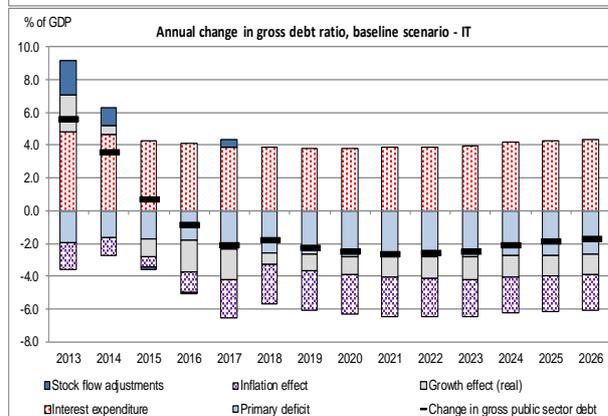
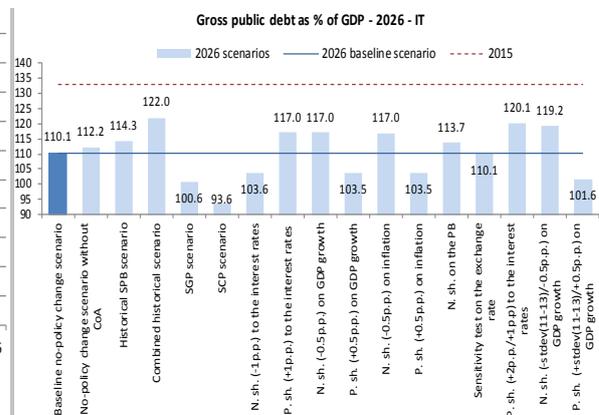
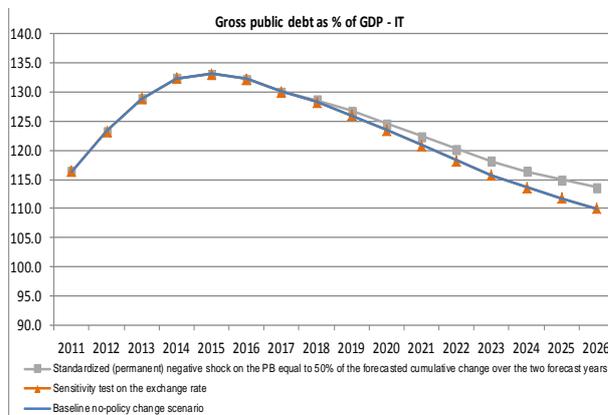
Macro-fiscal assumptions, Croatia													
<b>1. Baseline no-policy change scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.1	-1.3	-1.0	-0.4	-0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.3
Structural primary balance (before CoA)	-0.4	0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	-0.4	1.1	1.4	1.7	0.8	1.0	1.1	0.9	0.8	0.8	0.7	0.7	0.9
Potential GDP growth	-0.2	0.3	0.2	0.5	0.6	0.8	0.9	0.9	0.8	0.8	0.7	0.7	0.9
Inflation rate	0.0	0.3	1.1	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.3	4.3	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.4	4.5	4.6	4.7
<b>2. Fiscal reaction function institutional scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.1	-1.3	-1.0	-0.4	2.0	2.8	3.0	3.0	2.9	2.7	2.6	2.5	2.4
Structural primary balance (before CoA)	-0.4	0.1	-0.2	-0.1	2.0	2.7	2.8	2.7	2.6	2.5	2.3	2.1	2.0
Real GDP growth	-0.4	1.1	1.4	1.7	-0.8	0.4	1.0	1.0	0.9	0.9	0.8	0.8	1.0
Potential GDP growth	-0.2	0.3	0.2	0.5	-1.0	0.3	0.9	1.0	0.9	0.9	0.8	0.8	1.0
Inflation rate	0.0	0.3	1.1	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.3	4.3	4.2	4.2	4.2	4.2	4.3	4.3	4.4	4.5	4.6	4.7	4.7
<b>3. SCP scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.1	-1.3	0.1	1.3	2.0	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4
Structural primary balance (before CoA)	-0.4	0.1	0.9	1.5	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.4
Real GDP growth	-0.4	1.1	0.5	1.3	0.3	0.9	1.1	0.9	0.8	0.7	0.6	0.7	0.9
Potential GDP growth	-0.2	0.3	-0.6	0.1	0.1	0.7	0.9	0.9	0.8	0.7	0.6	0.7	0.9
Inflation rate	0.0	0.3	1.1	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.3	4.3	4.2	4.2	4.2	4.2	4.2	4.3	4.4	4.4	4.5	4.7	4.7
<b>4. SCP scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.2	-1.3	-0.2	1.1	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.6
Structural primary balance (before CoA)	-0.6	0.0	0.8	1.6	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Real GDP growth	-0.4	0.4	1.0	1.2	1.5	1.4	0.9	0.8	0.7	0.6	0.6	0.8	1.0
Potential GDP growth	0.0	0.0	0.1	0.3	0.6	0.7	0.9	0.8	0.7	0.6	0.6	0.8	1.0
Inflation rate	0.0	0.2	0.8	1.1	1.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.3	4.3	4.3	4.3	4.3	4.3	4.4	4.4	4.5	4.5	4.6	4.7	4.7
<b>5. Historical SPB scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.1	-1.3	-1.0	-0.4	-0.6	-1.0	-1.4	-1.9	-1.9	-1.9	-1.9	-1.8	-1.8
Structural primary balance (before CoA)	-0.4	0.1	-0.2	-0.1	-0.6	-1.2	-1.7	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Real GDP growth	-0.4	1.1	1.4	1.7	1.2	1.3	1.5	1.3	0.8	0.8	0.7	0.7	0.9
<b>6. Combined historical scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.1	-1.3	-1.0	-0.4	-0.6	-1.0	-1.4	-1.9	-1.9	-1.9	-1.9	-1.8	-1.8
Structural primary balance (before CoA)	-0.4	0.1	-0.2	-0.1	-0.6	-1.2	-1.7	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Real GDP growth	-0.4	1.1	1.4	1.7	2.0	1.9	1.8	1.8	1.4	1.4	1.4	1.4	1.4
Implicit interest rate (nominal)	4.3	4.3	4.2	4.2	4.0	3.8	3.4	2.9	2.4	2.2	1.9	1.6	1.5
<b>7. Higher IR scenario (standard DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Implicit interest rate (nominal)	4.3	4.3	4.5	4.6	4.6	4.7	4.8	4.9	5.0	5.2	5.3	5.5	5.6
<b>8. Lower IR scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Implicit interest rate (nominal)	4.3	4.3	4.0	3.8	3.8	3.7	3.7	3.6	3.6	3.6	3.7	3.8	3.8
<b>9. Higher IR scenario (enhanced DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Implicit interest rate (nominal)	4.3	4.3	4.8	4.9	5.1	4.9	5.0	5.1	5.2	5.3	5.4	5.6	5.6
<b>10. Higher growth scenario (standard DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	-0.4	1.1	1.9	2.2	1.3	1.5	1.6	1.4	1.3	1.3	1.2	1.2	1.4
Potential GDP growth	-0.2	0.3	0.7	1.0	1.1	1.3	1.4	1.4	1.3	1.3	1.2	1.2	1.4
<b>11. Lower growth scenario (standard DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	-0.4	1.1	0.9	1.2	0.3	0.5	0.6	0.4	0.3	0.3	0.2	0.2	0.4
Potential GDP growth	-0.2	0.3	-0.3	0.0	0.1	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.4
<b>12. Higher growth scenario (enhanced DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	-0.4	1.1	2.4	2.8	1.3	1.5	1.6	1.4	1.3	1.3	1.2	1.2	1.4
Potential GDP growth	-0.2	0.3	1.3	1.6	1.1	1.3	1.4	1.4	1.3	1.3	1.2	1.2	1.4
<b>13. Lower growth scenario (enhanced DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	-0.4	1.1	0.3	0.6	0.3	0.5	0.6	0.4	0.3	0.3	0.2	0.2	0.4
Potential GDP growth	-0.2	0.3	-0.9	-0.6	0.1	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.4
<b>14. Higher inflation scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Inflation rate	0.0	0.3	1.6	2.0	2.2	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Inflation rate	0.0	0.3	0.6	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	-2.1	-1.3	-0.9	-0.5	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Structural primary balance (before CoA)	-0.4	0.1	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	-0.4	1.1	1.3	1.9	0.8	1.0	1.1	0.9	0.8	0.8	0.7	0.7	0.9
Potential GDP growth	-0.2	0.3	0.1	0.6	0.6	0.8	0.9	0.9	0.8	0.8	0.7	0.7	0.9
<b>17. Exchange rate depreciation scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Exchange rate depreciation	0.0%	0.0%	-1.5%	-1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	4.3	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.4	4.5	4.6	4.7

## 11. Italy

Public debt projections under baseline and alternative scenarios and sensitivity tests

IT - Debt projections baseline scenario		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>		128.8	132.3	133.0	132.2	130.0	128.2	126.0	123.5	120.8	118.2	115.7	113.6	111.8	110.1
Changes in the ratio (-1+2+3) of which		5.6	3.5	0.7	-0.9	-2.1	-1.8	-2.3	-2.5	-2.6	-2.6	-2.5	-2.1	-1.9	-1.7
<b>(1) Primary balance (1.1+1.2+1.3)</b>		1.9	1.6	1.7	1.8	2.3	2.6	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.6
<b>(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)</b>		4.0	3.6	3.3	2.6	2.5	2.7	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.6
(1.1.1) Structural Primary Balance (before CoA)		4.0	3.6	3.3	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
(1.1.2) Cost of ageing							-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1
(1.1.3) Others (taxes and property incomes)							0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(1.2) Cyclical component</b>		-2.3	-2.2	-1.6	-0.8	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(1.3) One-off and other temporary measures</b>		0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(2) Snowball effect (2.1+2.2+2.3)</b>		5.4	4.1	2.6	1.0	-0.2	0.8	0.4	0.3	0.2	0.2	0.3	0.6	0.9	0.9
(2.1) Interest expenditure		4.8	4.6	4.3	4.1	3.9	3.9	3.8	3.8	3.9	3.9	4.0	4.2	4.3	4.4
(2.2) Growth effect		2.3	0.6	-1.1	-1.9	-1.9	-0.7	-1.0	-1.1	-1.3	-1.3	-1.4	-1.3	-1.3	-1.3
(2.3) Inflation effect		-1.7	-1.1	-0.6	-1.3	-2.3	-2.4	-2.4	-2.4	-2.4	-2.3	-2.3	-2.2	-2.2	-2.2
<b>(3) Stock flow adjustments</b>		2.1	1.1	-0.2	-0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>															
Structural balance		-0.9	-1.1	-1.0	-1.5	-1.4	-1.2	-1.1	-1.1	-1.1	-1.1	-1.2	-1.5	-1.6	-1.7





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	28.2	28.3	28.2	28.1	28.0	27.8	27.7	27.7	27.8	28.1
Revenues from pensions taxation	2.8	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.9
Property incomes	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	0.44	0.21	0.43	Critical threshold						
Fiscal sub-index	0.90	0.34	0.35							
Financial competitiveness sub-index	0.24	0.15	0.45							
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	4.2	8.0	4.3	2.4	0.6					
of which Initial Budgetary position	-1.4	-0.2	-1.4	-3.4	-2.8					
Cost of delaying adjustment**	0.7	1.9	0.7	0.4	0.1					
Debt requirement***	5.1	6.5	5.1	5.3	3.7					
Ageing costs	-0.2	-0.2	-0.1	0.0	-0.3					
Required structural primary balance related to S1	6.7	9.9	6.8	6.4	5.6					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	-0.9	-0.5	-0.5	-2.9	-2.3					
of which Initial Budgetary position	-0.8	-0.7	-0.9	-3.0	-3.0					
Long term component	-0.1	0.2	0.4	0.1	0.7					
of which Pensions	-0.9	-0.8	-0.9	-0.8	-0.3					
Health care	0.6	0.5	0.9	0.5	1.2					
Long-term care	0.6	0.6	0.8	0.6	0.0					
Others	-0.4	-0.2	-0.4	-0.3	-0.2					
Required structural primary balance related to S2	1.6	1.3	2.0	1.1	2.7					

### Risks related to the structure of public debt financing

<b>Public debt structure - IT (2014):</b>	Change in share of short-term public debt (p.p.): -0.6	Share of public debt by non-residents (%): 31.8 (2013)	Share of public debt in foreign currency (%): 0.2
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			
		IT	EU
State guarantees (% GDP) (2013)		6.1	10.5
of which One-off guarantees		5.4	10.2
Standardised guarantees		0.7	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	1.45	3.07
	Securities issued under liquidity schemes	:	0.45
	Special purpose entity	:	0.91
	<b>Total</b>	<b>1.45</b>	<b>4.43</b>

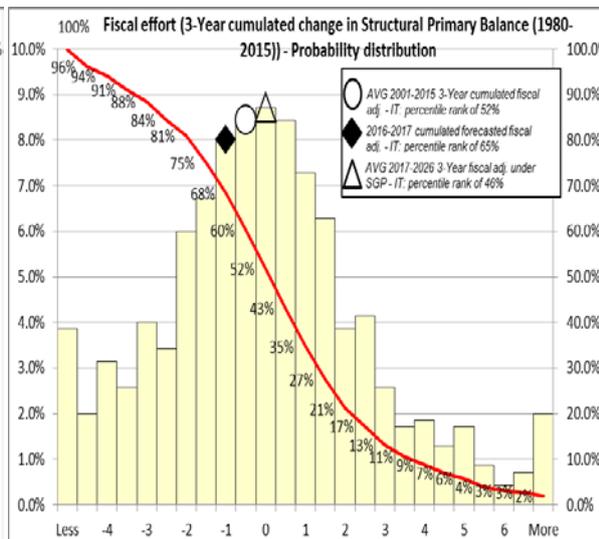
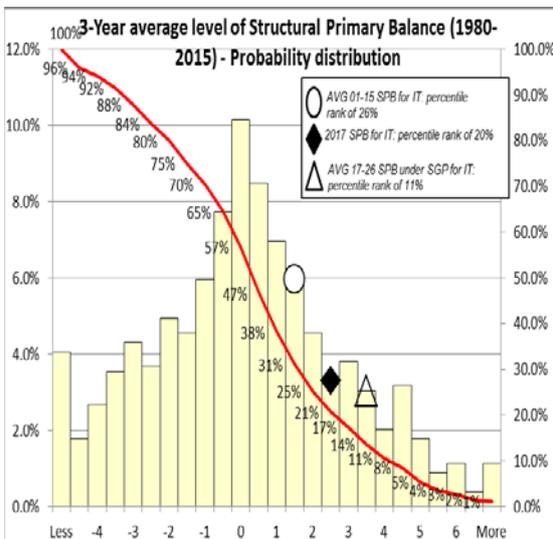
<b>Government's contingent liability risks from banking sector - IT (2014):</b>	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans:	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
	-0.9	120.9	15.8	2.9	-4.3	bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

### Financial market information

Sovereign Ratings as of Nov 30 2015, IT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa2	P-2	Baa2	(P)P-2
S&P	BBB-u	A-3u	BBB-u	A-3u
Fitch	BBB+		BBB+	F2

Financial market information as of November 2015, IT		
Sovereign yield spreads(bp)*	2-year	39.3
	10-year	94
CDS (bp)	5-year	112.1

### Realism of baseline assumptions



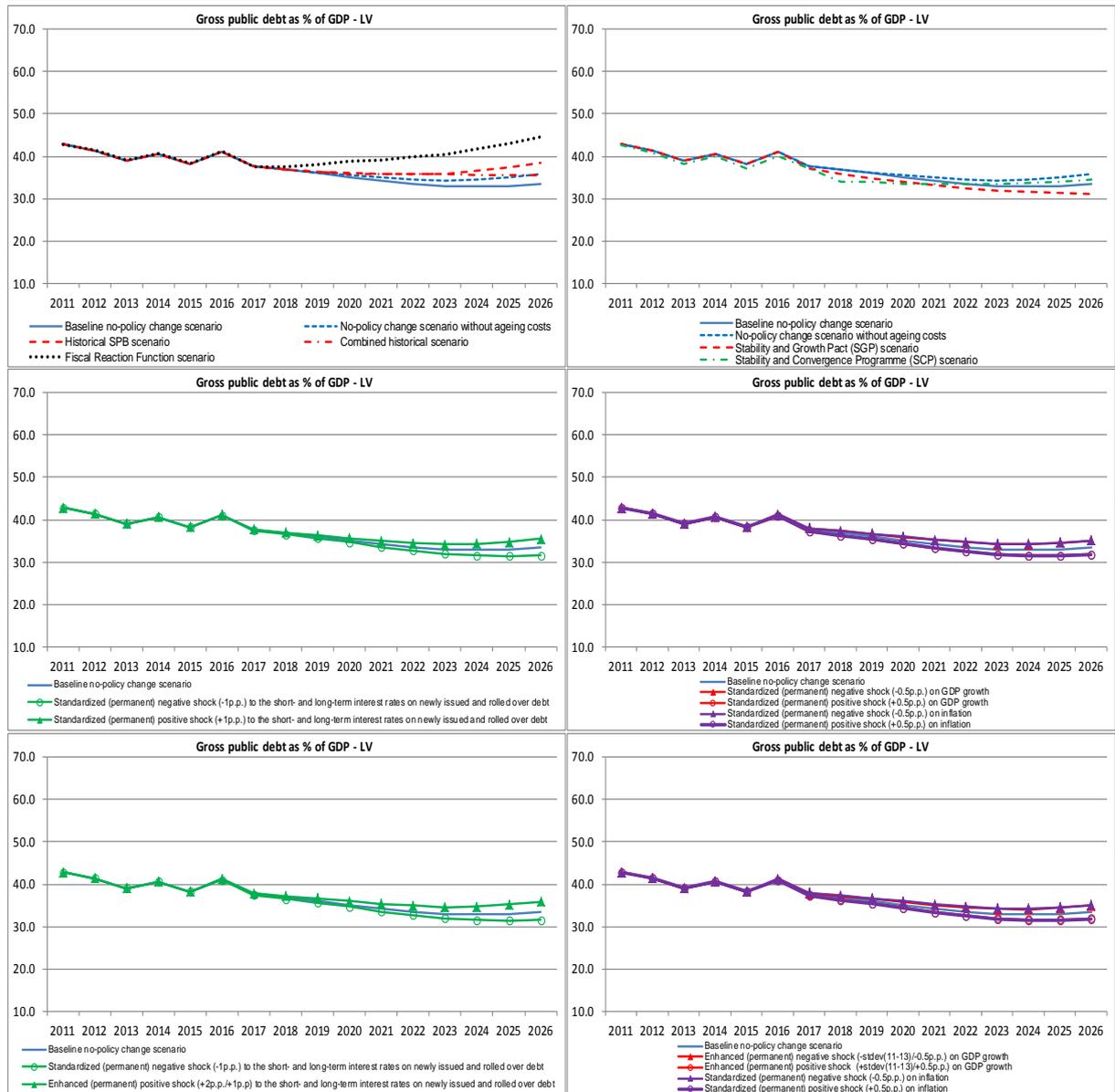
Underlying macro-fiscal assumptions

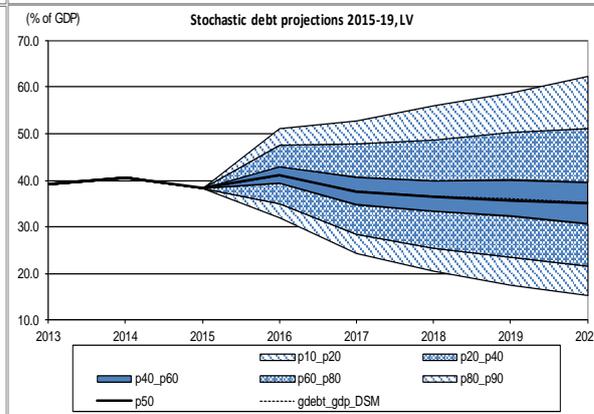
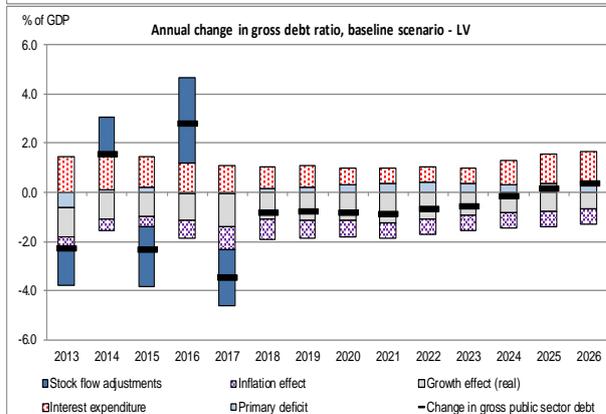
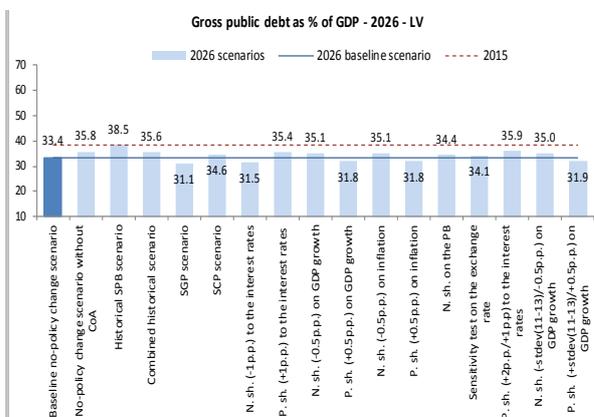
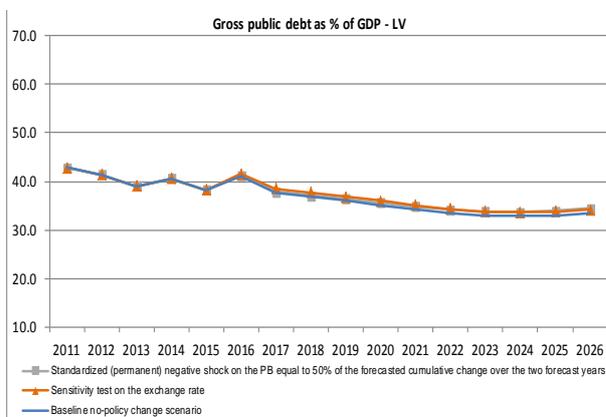
Macro-fiscal assumptions, Italy													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.7	1.8	2.3	2.6	2.7	2.8	2.8	2.8	2.8	2.7	2.7	2.6
Structural primary balance (before CoA)	3.6	3.3	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Real GDP growth	-0.4	0.9	1.5	1.4	0.6	0.8	0.9	1.1	1.1	1.2	1.2	1.1	1.2
Potential GDP growth	-0.7	-0.3	0.0	0.2	0.5	0.7	0.8	1.1	1.1	1.2	1.2	1.1	1.2
Inflation rate	0.9	0.4	1.0	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	3.2	3.1	3.1	3.1	3.1	3.2	3.3	3.5	3.7	3.9	4.0
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.7	1.8	2.3	2.6	2.9	3.0	3.0	2.9	2.8	2.7	2.5	2.4
Structural primary balance (before CoA)	3.6	3.3	2.6	2.5	2.6	2.7	2.7	2.7	2.6	2.5	2.5	2.4	2.3
Real GDP growth	-0.4	0.9	1.5	1.4	0.5	0.7	0.9	1.1	1.2	1.3	1.2	1.2	1.2
Potential GDP growth	-0.7	-0.3	0.0	0.2	0.4	0.6	0.8	1.1	1.2	1.3	1.2	1.2	1.2
Inflation rate	0.9	0.4	1.0	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	3.2	3.1	3.1	3.1	3.1	3.2	3.3	3.5	3.7	3.9	4.0
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.7	1.8	2.9	3.5	3.8	3.8	3.8	3.8	3.9	4.0	4.1	4.0
Structural primary balance (before CoA)	3.6	3.3	2.6	3.0	3.6	3.9	3.8	3.8	3.8	3.9	4.0	4.1	4.0
Real GDP growth	-0.4	0.9	1.5	1.0	0.1	0.6	0.9	1.1	1.2	1.1	1.1	1.1	1.2
Potential GDP growth	-0.7	-0.3	0.0	-0.3	0.1	0.5	0.8	1.1	1.2	1.1	1.1	1.1	1.2
Inflation rate	0.9	0.4	1.0	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	3.2	3.1	3.1	3.1	3.2	3.2	3.3	3.5	3.7	3.9	4.0
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.6	2.4	3.2	3.8	4.1	4.0	4.1	4.1	4.1	4.0	3.9	3.9
Structural primary balance (before CoA)	3.6	3.5	3.6	3.7	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Real GDP growth	-0.4	0.7	1.4	1.5	1.4	1.3	1.1	1.2	1.2	1.1	1.1	1.1	1.1
Potential GDP growth	-0.4	-0.1	0.0	0.2	0.3	0.5	1.1	1.1	1.2	1.1	1.1	1.1	1.1
Inflation rate	0.8	0.7	1.2	1.8	1.9	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	3.3	3.1	3.1	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.5
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.7	1.8	2.3	2.4	2.4	2.3	2.2	2.1	2.2	2.1	2.0	2.0
Structural primary balance (before CoA)	3.6	3.3	2.6	2.5	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	-0.4	0.9	1.5	1.4	0.7	0.9	1.0	1.2	1.1	1.2	1.2	1.1	1.2
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.7	1.8	2.3	2.4	2.4	2.3	2.2	2.1	2.2	2.1	2.0	2.0
Structural primary balance (before CoA)	3.6	3.3	2.6	2.5	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	-0.4	0.9	1.5	1.4	1.3	1.0	0.7	0.4	0.3	0.3	0.3	0.3	0.3
Implicit interest rate (nominal)	3.6	3.3	3.2	3.1	3.1	3.2	3.3	3.5	3.6	3.8	3.9	4.0	4.1
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.3	3.4	3.4	3.4	3.5	3.6	3.7	3.8	4.1	4.4	4.6	4.8
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.3	3.0	2.7	2.7	2.7	2.7	2.7	2.8	2.9	3.1	3.2	3.3
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.3	3.7	3.7	3.8	3.7	3.8	3.9	4.0	4.3	4.5	4.8	4.9
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.9	2.0	1.9	1.1	1.3	1.4	1.6	1.6	1.7	1.7	1.6	1.7
Potential GDP growth	-0.7	-0.3	0.5	0.7	1.0	1.2	1.3	1.6	1.6	1.7	1.7	1.6	1.7
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.9	1.0	0.9	0.1	0.3	0.4	0.6	0.6	0.7	0.7	0.6	0.7
Potential GDP growth	-0.7	-0.3	-0.5	-0.3	0.0	0.2	0.3	0.6	0.6	0.7	0.7	0.6	0.7
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.9	2.8	2.8	1.1	1.3	1.4	1.6	1.6	1.7	1.7	1.6	1.7
Potential GDP growth	-0.7	-0.3	1.3	1.5	1.0	1.2	1.3	1.6	1.6	1.7	1.7	1.6	1.7
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.9	0.1	0.1	0.1	0.3	0.4	0.6	0.6	0.7	0.7	0.6	0.7
Potential GDP growth	-0.7	-0.3	-1.3	-1.2	0.0	0.2	0.3	0.6	0.6	0.7	0.7	0.6	0.7
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.9	0.4	1.5	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.9	0.4	0.5	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.6	1.7	1.9	1.9	2.2	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.2
Structural primary balance (before CoA)	3.6	3.3	2.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Real GDP growth	-0.4	0.9	1.4	1.8	0.6	0.8	0.9	1.1	1.1	1.2	1.2	1.1	1.2
Potential GDP growth	-0.7	-0.3	-0.1	0.5	0.5	0.7	0.8	1.1	1.1	1.2	1.2	1.1	1.2
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.3	3.2	3.1	3.1	3.1	3.1	3.2	3.3	3.5	3.7	3.9	4.0

## 12. Latvia

Public debt projections under baseline and alternative scenarios and sensitivity tests

LV - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	39.1	40.6	38.3	41.1	37.6	36.7	36.0	35.1	34.2	33.6	33.0	32.9	33.0	33.4
Changes in the ratio (-1+2+3) of which	-2.3	1.6	-2.3	2.8	-3.5	-0.9	-0.8	-0.8	-0.9	-0.7	-0.6	-0.2	0.2	0.4
(1) Primary balance (1.1+1.2+1.3)	0.6	-0.1	-0.2	0.0	0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	-0.4	-0.4
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.5	-0.3	-0.8	-0.6	-0.6	-0.6	-0.5	-0.3	-0.4	-0.4	-0.4	-0.3	-0.4	-0.4
(1.1.1) Structural Primary Balance (before CoA)	0.5	-0.3	-0.8	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
(1.1.2) Cost of ageing						0.0	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.3
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
(1.2) Cyclical component	0.0	0.6	0.6	0.7	0.7	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	-0.2	-0.1	-0.2	-0.6	-1.1	-1.0	-1.0	-1.1	-1.3	-1.1	-0.9	-0.4	-0.2	0.0
(2.1) Interest expenditure	1.5	1.4	1.3	1.2	1.1	0.9	0.9	0.7	0.6	0.6	0.6	1.0	1.2	1.3
(2.2) Growth effect	-1.2	-1.1	-1.0	-1.1	-1.3	-1.1	-1.1	-1.1	-1.2	-1.1	-0.9	-0.8	-0.8	-0.7
(2.3) Inflation effect	-0.5	-0.5	-0.4	-0.7	-0.9	-0.8	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6	-0.6
(3) Stock flow adjustments	-1.5	1.5	-2.4	3.5	-2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-0.9	-1.8	-2.1	-1.9	-1.8	-1.5	-1.3	-1.0	-1.0	-1.1	-1.0	-1.3	-1.6	-1.7





**Sustainability indicators summary table**

Long-term projections																
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030						
<b>Budgetary projections</b>																
Total cost of ageing (gross)	16.2	15.5	15.1	14.9	14.9	14.9	14.8	14.6	14.6	14.7						
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Property incomes	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.0						
<b>Sustainability indicators</b>																
<b>S0 indicator</b>		2009		2015		Critical threshold										
<b>Overall index</b>		0.80		0.34		0.43										
Fiscal sub-index		0.59		0.17		0.35										
Financial competitiveness sub-index		0.87		0.42		0.45										
<b>S1 indicator</b>							COM no-policy change scenario		Historical SPB scenario		AWG risk scenario		SCP scenario		2012 Sustainability Report	
<b>Overall index</b>							-2.1		-2.1		-1.6		-2.1		-2.0	
of which Initial Budgetary position							0.2		1.3		0.2		0.6		0.0	
Cost of delaying adjustment**							-0.3		-0.5		-0.2		-0.3		-0.3	
Debt requirement***							-1.8		-2.6		-1.8		-2.1		-0.9	
Ageing costs							-0.3		-0.3		0.1		-0.3		-0.8	
<b>Required structural primary balance related to S1</b>							-2.8		-3.5		-2.3		-2.8		-1.6	
<b>S2 indicator</b>							COM no-policy change scenario		Historical SPB scenario		AWG risk scenario		SCP scenario		2012 Sustainability Report	
<b>Overall index</b>							0.9		1.7		3.3		1.0		-0.7	
of which Initial Budgetary position							1.3		1.8		1.3		1.4		0.7	
Long term component							-0.4		-0.1		2.0		-0.4		-1.5	
of which Pensions							-1.6		-1.0		-1.6		-1.5		-1.4	
Health care							0.4		0.4		1.1		0.4		0.5	
Long-term care							0.1		0.1		1.9		0.1		0.0	
Others							0.6		0.4		0.6		0.5		-0.6	
<b>Required structural primary balance related to S2</b>							0.2		0.3		2.7		0.3		-0.4	

### Risks related to the structure of public debt financing

Public debt structure - LV (2014):	Change in share of short-term public debt (p.p.): -0.5	Share of public debt by non-residents (%): 80.2 (2013)	Share of public debt in foreign currency (%): 23.7
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			LV	EU
State guarantees (% GDP) (2013)			2.3	10.5
of which One-off guarantees			1.9	10.2
Standardised guarantees			0.5	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.16	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		:	0.91
	Total		0.16	4.43

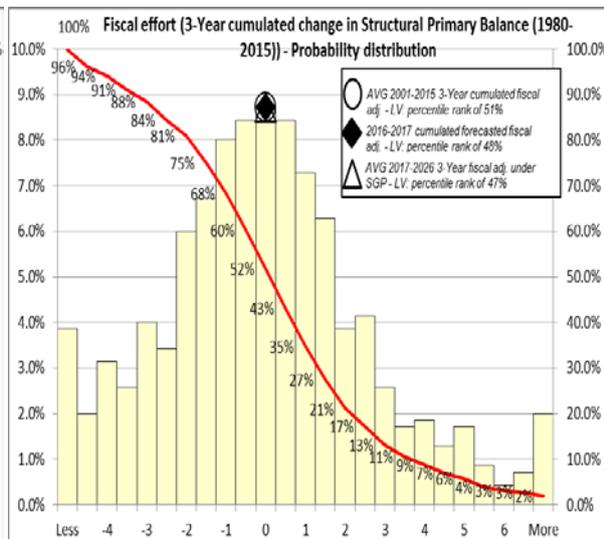
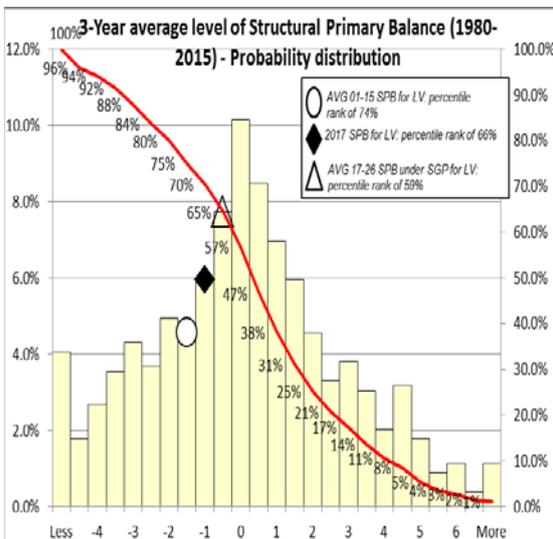
Government's contingent liability risks from banking sector - LV (2014):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
	-11.9	77	7.6	2.1	5.9	bank recap. at 8%	bank recap. at 10.5%
						0.00%	0.00%

### Financial market information

Sovereign Ratings as of Nov 30 2015, LV	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3		A3	
S&P	A-	A-2	A-	A-2
Fitch	A-		A-	F1

Financial market information as of November 2015, LV		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	43.5
CDS (bp)	5-year	87.6

### Realism of baseline assumptions



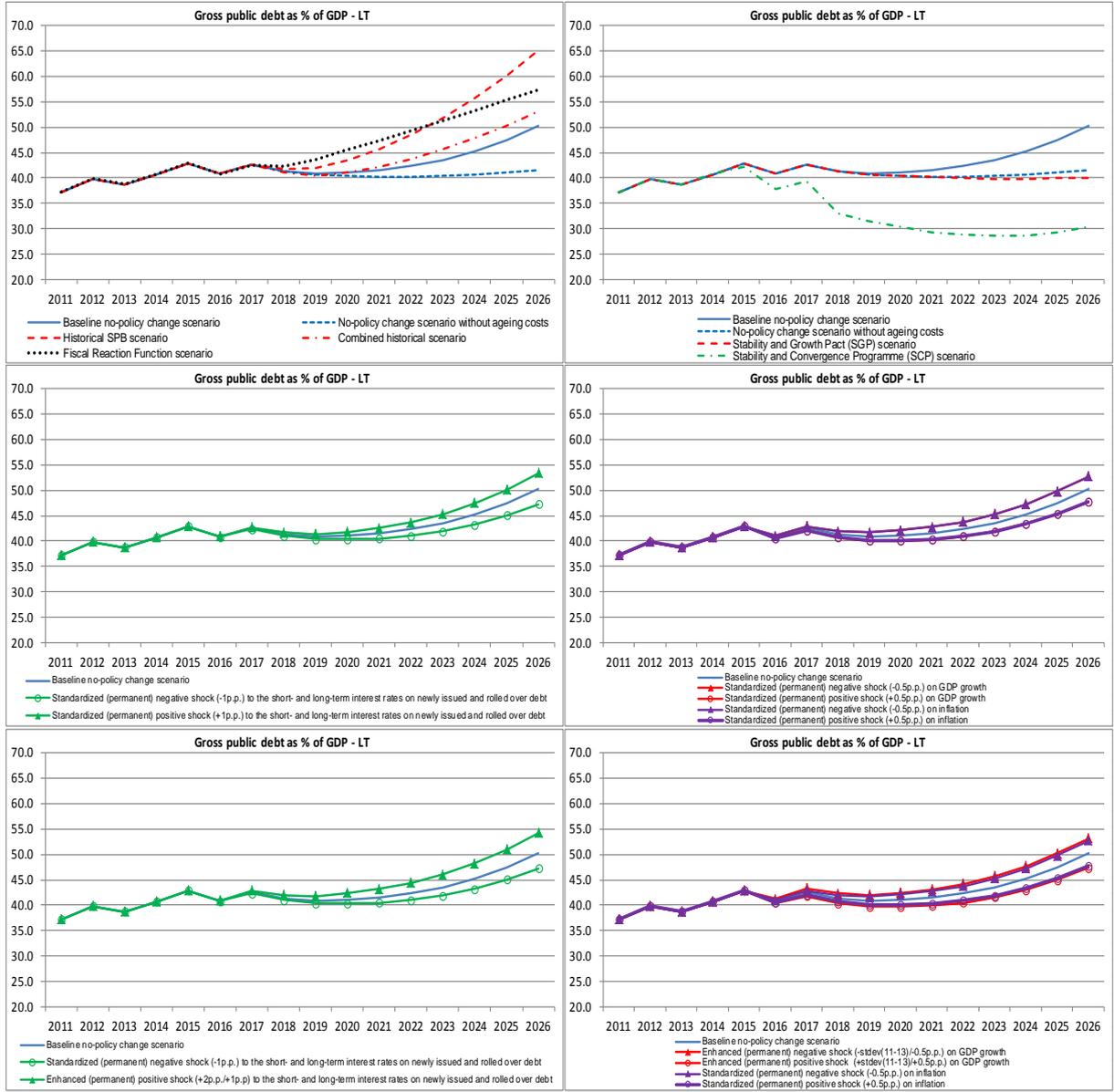
### Underlying macro-fiscal assumptions

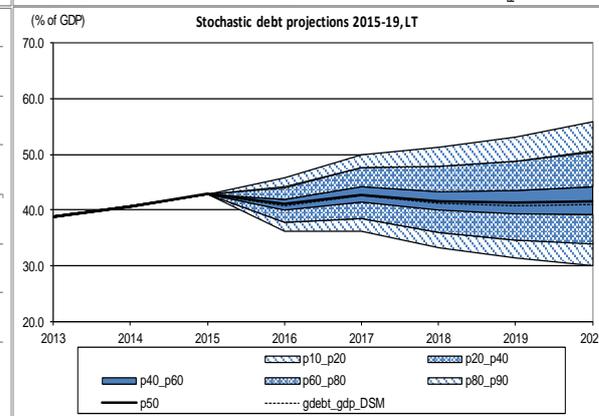
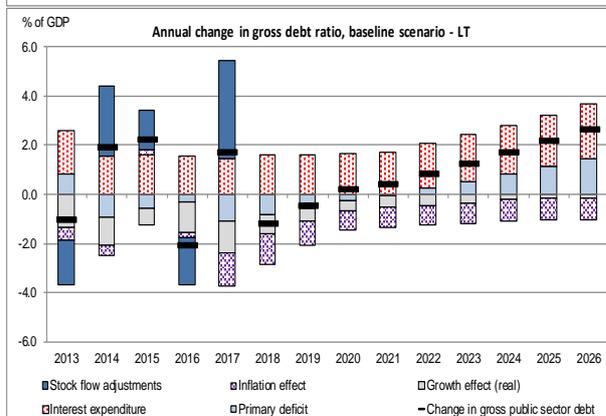
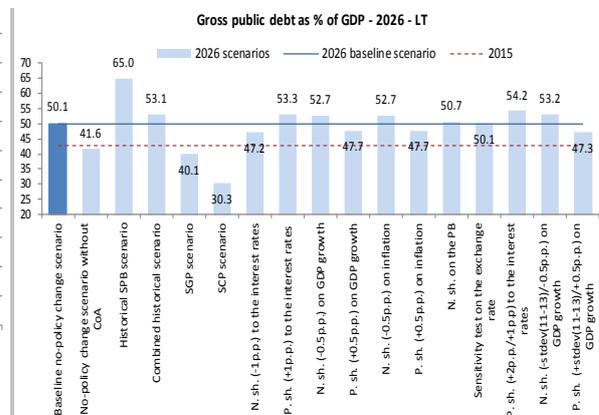
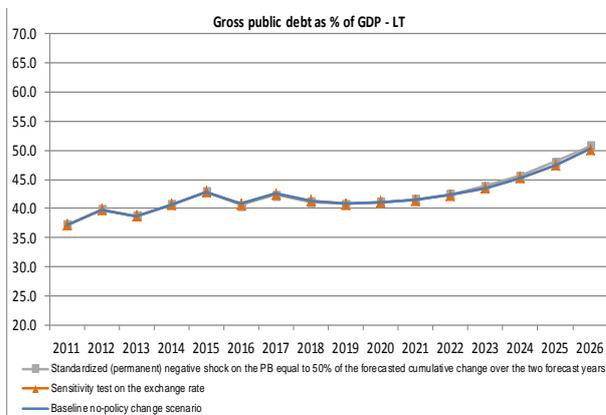
Macro-fiscal assumptions, Latvia													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.2	0.0	0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	-0.4	-0.4
Structural primary balance (before CoA)	-0.3	-0.8	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	2.8	2.4	3.0	3.3	3.1	3.2	3.3	3.6	3.2	2.8	2.5	2.4	2.1
Potential GDP growth	1.5	2.2	2.7	3.4	3.7	3.8	4.0	3.6	3.2	2.8	2.5	2.4	2.1
Inflation rate	1.2	1.1	2.0	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.2	3.3	2.9	2.5	2.5	2.0	1.9	1.9	2.0	3.1	3.8	4.0
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.2	0.0	0.1	-1.3	-1.8	-1.9	-1.9	-1.9	-1.8	-1.8	-1.7	-1.5
Structural primary balance (before CoA)	-0.3	-0.8	-0.6	-0.6	-1.8	-2.2	-2.2	-2.1	-2.1	-2.1	-2.1	-1.9	-1.7
Real GDP growth	2.8	2.4	3.0	3.3	3.9	3.5	3.4	3.6	3.2	2.8	2.5	2.3	2.0
Potential GDP growth	1.5	2.2	2.7	3.4	4.6	4.1	4.0	3.6	3.2	2.8	2.5	2.3	2.0
Inflation rate	1.2	1.1	2.0	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.2	3.3	2.9	2.4	2.3	1.8	1.8	1.9	2.0	3.1	3.8	4.0
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.2	0.0	0.6	0.4	0.1	-0.3	-0.4	-0.4	-0.4	0.0	0.2	0.2
Structural primary balance (before CoA)	-0.3	-0.8	-0.6	-0.1	-0.1	-0.1	-0.3	-0.4	-0.4	-0.4	0.0	0.2	0.2
Real GDP growth	2.8	2.4	3.0	2.9	3.1	3.2	3.5	3.7	3.2	2.8	2.3	2.3	2.1
Potential GDP growth	1.5	2.2	2.7	3.0	3.7	3.9	4.1	3.7	3.2	2.8	2.3	2.3	2.1
Inflation rate	1.2	1.1	2.0	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.2	3.3	2.9	2.5	2.5	2.0	1.9	1.9	1.9	3.1	3.8	4.0
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.3	-0.1	0.2	-0.2	-0.5	-0.4	-0.4	-0.5	-0.5	-0.4	-0.4	-0.5
Structural primary balance (before CoA)	-0.2	-0.6	-0.3	-0.2	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Real GDP growth	2.4	2.1	3.0	3.6	3.6	2.7	3.1	2.8	2.6	2.3	2.2	2.0	1.8
Potential GDP growth	2.6	2.8	3.1	3.3	3.5	3.3	3.1	2.8	2.6	2.3	2.2	2.0	1.8
Inflation rate	1.2	1.2	1.9	2.5	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.8	3.1	3.4	3.2	3.0	2.9	2.9	3.0	3.1	3.2	3.4	3.8	4.1
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.2	0.0	0.1	-0.4	-0.6	-0.9	-1.1	-1.2	-1.1	-1.0	-1.1	-1.2
Structural primary balance (before CoA)	-0.3	-0.8	-0.6	-0.6	-0.8	-1.0	-1.2	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4
Real GDP growth	2.8	2.4	3.0	3.3	3.2	3.3	3.5	3.8	3.2	2.8	2.5	2.4	2.1
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.2	0.0	0.1	-0.4	-0.6	-0.9	-1.1	-1.2	-1.1	-1.0	-1.1	-1.2
Structural primary balance (before CoA)	-0.3	-0.8	-0.6	-0.6	-0.8	-1.0	-1.2	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4
Real GDP growth	2.8	2.4	3.0	3.3	3.5	3.6	3.7	3.8	3.6	3.6	3.6	3.6	3.6
Implicit interest rate (nominal)	3.8	3.2	3.3	2.9	2.5	2.5	2.2	2.2	2.3	2.3	2.3	2.3	2.4
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.8	3.2	3.5	3.1	2.8	2.8	2.5	2.5	2.7	2.7	4.0	4.8	4.9
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.8	3.2	3.1	2.7	2.2	2.2	1.5	1.2	1.2	1.2	2.2	2.9	3.0
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.8	3.2	3.6	3.3	3.1	3.0	2.7	2.7	2.8	2.8	4.0	4.8	4.9
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.8	2.4	3.5	3.8	3.6	3.7	3.8	4.1	3.7	3.3	3.0	2.9	2.6
Potential GDP growth	1.5	2.2	3.2	3.9	4.2	4.3	4.5	4.1	3.7	3.3	3.0	2.9	2.6
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.8	2.4	2.5	2.8	2.6	2.7	2.8	3.1	2.7	2.3	2.0	1.9	1.6
Potential GDP growth	1.5	2.2	2.2	2.9	3.2	3.3	3.5	3.1	2.7	2.3	2.0	1.9	1.6
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.8	2.4	3.3	3.6	3.6	3.7	3.8	4.1	3.7	3.3	3.0	2.9	2.6
Potential GDP growth	1.5	2.2	3.0	3.7	4.2	4.3	4.5	4.1	3.7	3.3	3.0	2.9	2.6
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.8	2.4	2.7	3.0	2.6	2.7	2.8	3.1	2.7	2.3	2.0	1.9	1.6
Potential GDP growth	1.5	2.2	2.4	3.1	3.2	3.3	3.5	3.1	2.7	2.3	2.0	1.9	1.6
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.2	1.1	2.5	2.9	2.8	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.2	1.1	1.5	1.9	1.8	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.1	-0.2	-0.1	0.0	-0.3	-0.3	-0.4	-0.5	-0.5	-0.5	-0.4	-0.5	-0.5
Structural primary balance (before CoA)	-0.3	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Real GDP growth	2.8	2.4	3.1	3.3	3.1	3.2	3.3	3.6	3.2	2.8	2.5	2.4	2.1
Potential GDP growth	1.5	2.2	2.8	3.3	3.7	3.8	4.0	3.6	3.2	2.8	2.5	2.4	2.1
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-1.3%	-1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.2	3.3	2.8	2.5	2.5	2.0	1.9	1.9	2.0	3.1	3.8	3.9

### 13. Lithuania

Public debt projections under baseline and alternative scenarios and sensitivity tests

LT - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>38.8</b>	<b>40.7</b>	<b>42.9</b>	<b>40.8</b>	<b>42.5</b>	<b>41.3</b>	<b>40.9</b>	<b>41.1</b>	<b>41.5</b>	<b>42.3</b>	<b>43.5</b>	<b>45.3</b>	<b>47.5</b>	<b>50.1</b>
Changes in the ratio (-1+2+3) of which	-1.0	1.9	2.2	-2.1	1.7	-1.2	-0.5	0.2	0.4	0.8	1.3	1.7	2.2	2.7
(1) Primary balance (1.1+1.2+1.3)	-0.9	0.9	0.6	0.3	1.1	0.8	0.5	0.2	0.0	-0.2	-0.6	-0.8	-1.1	-1.5
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	-0.5	0.2	0.4	0.1	0.6	0.5	0.4	0.2	0.0	-0.2	-0.6	-0.8	-1.1	-1.5
(1.1.1) Structural Primary Balance (before CoA)	-0.5	0.2	0.4	0.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
(1.1.2) Cost of ageing						0.1	0.2	0.3	0.5	0.8	1.1	1.4	1.7	2.0
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	0.1	0.5	0.2	0.3	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	-0.4	0.3	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	-0.1	0.0	1.1	0.1	-1.2	-0.4	0.1	0.5	0.4	0.6	0.7	0.9	1.1	1.2
(2.1) Interest expenditure	1.8	1.6	1.6	1.6	1.5	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.2
(2.2) Growth effect	-1.4	-1.1	-0.7	-1.2	-1.3	-0.8	-0.5	-0.4	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1
(2.3) Inflation effect	-0.5	-0.4	0.2	-0.2	-1.4	-1.2	-1.0	-0.8	-0.8	-0.8	-0.8	-0.8	-0.9	-0.9
(3) Stock flow adjustments	-1.8	2.8	1.6	-1.9	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-2.3	-1.4	-1.2	-1.4	-0.9	-1.1	-1.2	-1.5	-1.7	-2.1	-2.4	-2.8	-3.2	-3.7





**Sustainability indicators summary table**

Long-term projections						
	2013	2014	2015	2016	2017	2018
<b>Budgetary projections</b>						
Total cost of ageing (gross)	16.9	16.4	16.1	16.2	16.2	16.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	0.5	0.5	0.5	0.5	0.5	0.5
<b>Sustainability indicators</b>						
<b>S0 indicator</b>	2009		2015		Critical threshold	
Overall index	0.61		0.18		0.43	
Fiscal sub-index	0.71		0.06		0.35	
Financial competitiveness sub-index	0.57		0.24		0.45	
<b>S1 indicator</b>						
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report	
Overall index	0.5	4.2	1.1	-2.0	0.3	
of which Initial Budgetary position	0.1	2.6	0.1	-1.1	0.7	
Cost of delaying adjustment**	0.1	1.0	0.2	-0.3	0.1	
Debt requirement***	-1.1	-1.4	-1.1	-2.0	-1.1	
Ageing costs	1.5	2.0	1.9	1.5	0.7	
Required structural primary balance related to S1	1.1	2.9	1.6	-0.5	0.2	
<b>S2 indicator</b>						
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report	
Overall index	2.9	5.1	5.3	1.9	4.7	
of which Initial Budgetary position	0.1	2.7	0.1	-0.8	0.9	
Long term component	2.8	2.4	5.2	2.8	3.8	
of which Pensions	1.2	1.0	1.2	1.2	3.0	
Health care	0.1	0.0	0.6	0.1	1.1	
Long-term care	0.7	0.6	2.6	0.7	0.0	
Others	0.8	0.8	0.8	0.9	-0.3	
Required structural primary balance related to S2	3.5	3.8	5.9	3.4	4.6	

### Risks related to the structure of public debt financing

Public debt structure - LT (2014):	Change in share of short-term public debt (p.p.): -0.6	Share of public debt by non-residents (%): 69.9 (2013)	Share of public debt in foreign currency (%): 37.2
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			LT	EU
State guarantees (% GDP) (2013)			0.8	10.5
of which One-off guarantees			0.7	10.2
Standardised guarantees			0.1	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	:		3.07
	Securities issued under liquidity schemes	:		0.45
	Special purpose entity	:		0.91
	Total		0.00	4.43

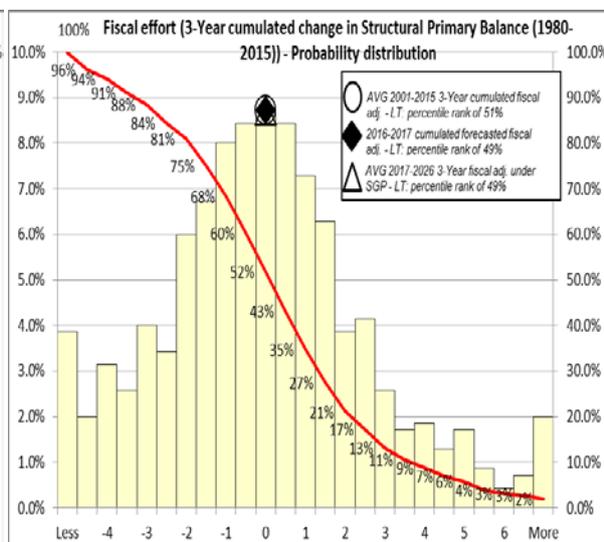
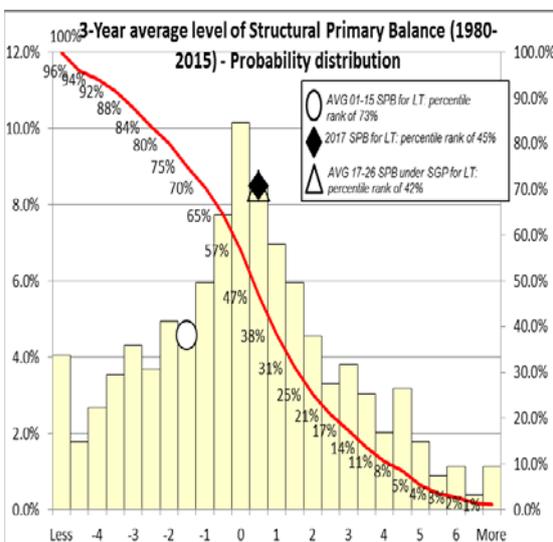
Government's contingent liability risks from banking sector - LT (2014):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
	-1.2	109.7	6.5	-2	6.4	bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

### Financial market information

Sovereign Ratings as of Nov 30 2015, LT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3		A3	P-2
S&P	A-	A-2	A-	A-2
Fitch	A-		A-	F1

Financial market information as of November 2015, LT		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	81.5
CDS (bp)	5-year	n.a.

### Realism of baseline assumptions



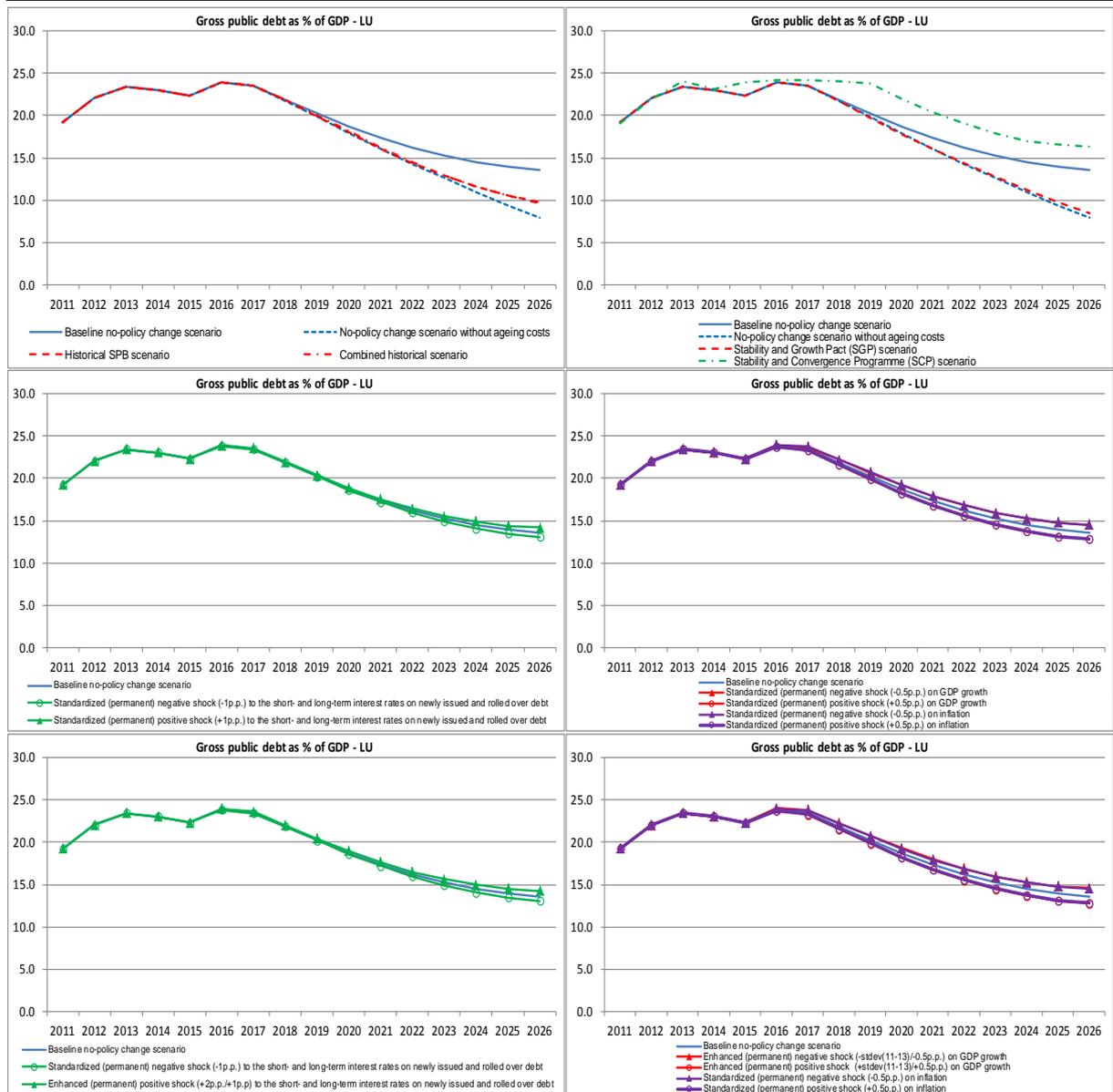
## Underlying macro-fiscal assumptions

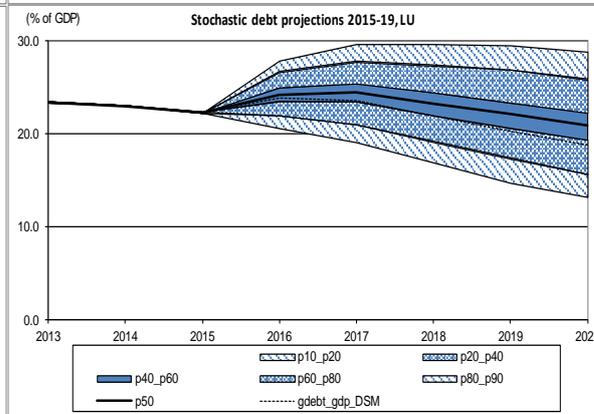
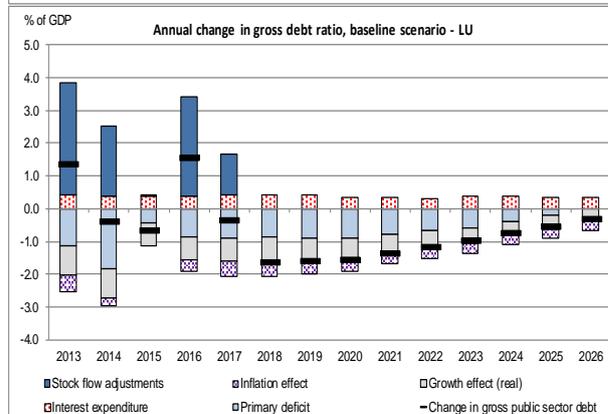
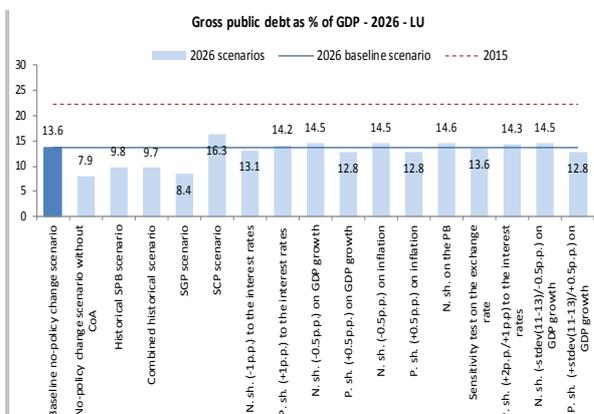
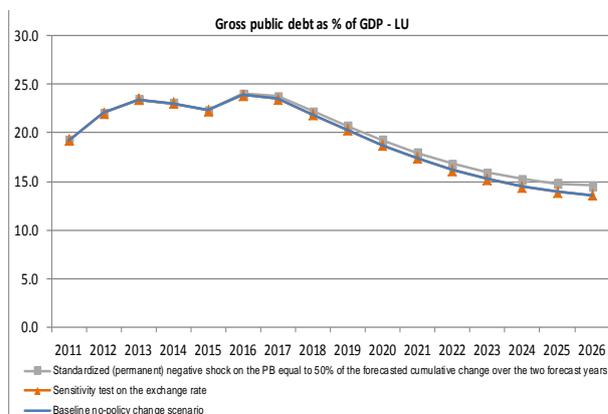
Macro-fiscal assumptions, Lithuania													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.6	0.3	1.1	0.8	0.5	0.2	0.0	-0.2	-0.6	-0.8	-1.1	-1.5
Structural primary balance (before CoA)	0.2	0.4	0.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	3.0	1.7	2.9	3.4	2.0	1.3	1.1	1.3	1.1	0.8	0.5	0.3	0.3
Potential GDP growth	2.0	2.4	2.6	2.9	2.3	1.7	1.5	1.3	1.1	0.8	0.5	0.3	0.3
Inflation rate	1.2	-0.5	0.5	3.5	3.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.0	3.8	3.9	4.0	4.1	4.3	4.4	4.5	4.5	4.7	4.8	4.8
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.6	0.3	1.1	-0.7	-1.2	-1.3	-1.3	-1.2	-1.0	-0.8	-0.6	-0.4
Structural primary balance (before CoA)	0.2	0.4	0.1	0.6	-0.9	-1.2	-1.0	-0.7	-0.3	0.2	0.6	1.1	1.6
Real GDP growth	3.0	1.7	2.9	3.4	3.1	1.5	0.9	1.1	0.8	0.5	0.2	0.0	-0.1
Potential GDP growth	2.0	2.4	2.6	2.9	3.5	1.9	1.3	1.1	0.8	0.5	0.2	0.0	-0.1
Inflation rate	1.2	-0.5	0.5	3.5	3.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.0	3.8	3.9	4.0	4.1	4.3	4.4	4.5	4.6	4.7	4.8	4.8
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.6	0.3	1.0	1.0	0.8	0.7	0.7	0.8	0.8	0.8	0.9	0.9
Structural primary balance (before CoA)	0.2	0.4	0.1	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	0.9
Real GDP growth	3.0	1.7	2.9	3.4	1.8	1.3	1.0	1.2	1.1	0.8	0.5	0.3	0.2
Potential GDP growth	2.0	2.4	2.6	3.0	2.2	1.7	1.4	1.2	1.1	0.8	0.5	0.3	0.2
Inflation rate	1.2	-0.5	0.5	3.5	3.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.2	4.0	3.8	3.9	4.0	4.1	4.3	4.4	4.5	4.6	4.7	4.8	4.8
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.7	0.4	1.5	1.9	1.4	1.2	1.0	0.8	0.5	0.2	-0.1	-0.5
Structural primary balance (before CoA)	0.4	0.5	0.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Real GDP growth	2.9	2.5	3.2	3.5	3.9	1.8	1.6	1.3	1.1	0.7	0.5	0.5	0.4
Potential GDP growth	3.1	3.1	3.4	2.4	2.6	2.0	1.6	1.3	1.0	0.7	0.5	0.5	0.4
Inflation rate	0.9	0.5	2.2	2.4	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.9	4.0	4.3	3.7	3.9	3.8	3.7	3.7	3.7	3.7	3.8	4.0	4.2
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.6	0.3	1.1	0.3	-0.4	-1.2	-1.9	-2.2	-2.5	-2.8	-3.1	-3.4
Structural primary balance (before CoA)	0.2	0.4	0.1	0.6	0.1	-0.4	-0.9	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.0	1.7	2.9	3.4	2.3	1.7	1.4	1.6	1.1	0.8	0.5	0.3	0.3
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.6	0.3	1.1	0.3	-0.4	-1.2	-1.9	-2.2	-2.5	-2.8	-3.1	-3.4
Structural primary balance (before CoA)	0.2	0.4	0.1	0.6	0.1	-0.4	-0.9	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.0	1.7	2.9	3.4	3.8	3.9	4.0	4.1	3.8	3.8	3.8	3.8	3.8
Implicit interest rate (nominal)	4.2	4.0	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.4	4.5	4.5	4.5
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.2	4.0	3.9	4.2	4.4	4.5	4.8	5.1	5.3	5.4	5.6	5.7	5.8
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.2	4.0	3.7	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.8	3.9	3.9
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.2	4.0	4.1	4.5	4.8	4.8	5.1	5.3	5.4	5.5	5.6	5.7	5.8
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	1.7	3.4	3.9	2.5	1.8	1.6	1.8	1.6	1.3	1.0	0.8	0.8
Potential GDP growth	2.0	2.4	3.1	3.4	2.8	2.2	2.0	1.8	1.6	1.3	1.0	0.8	0.8
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	1.7	2.4	2.9	1.5	0.8	0.6	0.8	0.6	0.3	0.0	-0.2	-0.2
Potential GDP growth	2.0	2.4	2.1	2.4	1.8	1.2	1.0	0.8	0.6	0.3	0.0	-0.2	-0.2
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	1.7	3.9	4.3	2.5	1.8	1.6	1.8	1.6	1.3	1.0	0.8	0.8
Potential GDP growth	2.0	2.4	3.6	3.9	2.8	2.2	2.0	1.8	1.6	1.3	1.0	0.8	0.8
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	1.7	1.9	2.4	1.5	0.8	0.6	0.8	0.6	0.3	0.0	-0.2	-0.2
Potential GDP growth	2.0	2.4	1.6	2.0	1.8	1.2	1.0	0.8	0.6	0.3	0.0	-0.2	-0.2
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.2	-0.5	1.0	4.0	3.5	3.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.2	-0.5	0.0	3.0	2.5	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.9	0.6	0.6	1.0	0.7	0.5	0.1	-0.1	-0.3	-0.6	-0.9	-1.2	-1.6
Structural primary balance (before CoA)	0.2	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Real GDP growth	3.0	1.7	2.7	3.7	2.0	1.3	1.1	1.3	1.1	0.8	0.5	0.3	0.3
Potential GDP growth	2.0	2.4	2.4	3.2	2.3	1.7	1.5	1.3	1.1	0.8	0.5	0.3	0.3
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	4.0	3.8	3.9	4.0	4.1	4.3	4.4	4.5	4.5	4.7	4.8	4.8

## 14. Luxembourg

Public debt projections under baseline and alternative scenarios and sensitivity tests

LU - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>23.4</b>	<b>23.0</b>	<b>22.3</b>	<b>23.9</b>	<b>23.5</b>	<b>21.9</b>	<b>20.3</b>	<b>18.7</b>	<b>17.4</b>	<b>16.2</b>	<b>15.2</b>	<b>14.5</b>	<b>13.9</b>	<b>13.6</b>
Changes in the ratio (-1+2+3) of which	1.3	-0.4	-0.7	1.5	-0.4	-1.6	-1.6	-1.6	-1.4	-1.2	-1.0	-0.7	-0.5	-0.3
(1) Primary balance (1.1+1.2+1.3)	1.1	1.8	0.4	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.6	0.4	0.2	0.0
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	2.5	2.5	1.1	1.3	1.3	1.1	1.0	0.9	0.8	0.7	0.6	0.4	0.2	0.0
(1.1.1) Structural Primary Balance (before CoA)	2.5	2.5	1.1	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
(1.1.2) Cost of ageing						0.2	0.3	0.4	0.5	0.6	0.7	0.9	1.1	1.3
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	-1.4	-0.9	-0.7	-0.5	-0.4	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	-1.0	-0.7	-0.3	-0.6	-0.7	-0.7	-0.7	-0.7	-0.6	-0.5	-0.4	-0.3	-0.3	-0.3
(2.1) Interest expenditure	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3
(2.2) Growth effect	-0.9	-0.9	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.5	-0.5	-0.4	-0.4	-0.4
(2.3) Inflation effect	-0.5	-0.2	0.1	-0.3	-0.5	-0.5	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3
(3) Stock flow adjustments	3.4	2.2	0.0	3.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	2.1	2.1	0.7	0.9	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.0	-0.2	-0.4





### Sustainability indicators summary table

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	19.5	19.6	19.8	20.0	20.2	20.4	20.5	20.6	21.3	22.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.2
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>				
<b>Overall index</b>		<b>0.24</b>		<b>0.09</b>		<b>0.43</b>				
Fiscal sub-index		0.42		0.00		0.35				
Financial competitiveness sub-index		0.17		0.13		0.45				
<b>S1 indicator</b>										
		<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>
<b>Overall index</b>		<b>-4.4</b>		<b>-7.4</b>		<b>-4.2</b>		<b>-4.9</b>		<b>0.3</b>
of which Initial Budgetary position		-1.7		-2.0		-1.7		-1.4		0.2
Cost of delaying adjustment**		-0.6		-1.5		-0.6		-0.8		0.0
Debt requirement***		-3.2		-5.2		-3.2		-3.7		-2.0
Ageing costs		1.1		1.3		1.2		0.9		2.0
<b>Required structural primary balance related to S1</b>		<b>-3.1</b>		<b>-5.6</b>		<b>-2.9</b>		<b>-3.8</b>		<b>-0.1</b>
<b>S2 indicator</b>										
		<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>
<b>Overall index</b>		<b>4.2</b>		<b>3.9</b>		<b>5.7</b>		<b>4.7</b>		<b>9.7</b>
of which Initial Budgetary position		-0.6		-0.4		-0.6		0.2		1.2
Long term component		4.8		4.3		6.3		4.6		8.5
of which Pensions		2.9		2.4		2.9		2.7		6.4
Health care		0.4		0.4		0.7		0.4		2.1
Long-term care		1.3		1.3		2.6		1.3		0.0
Others		0.1		0.2		0.1		0.1		0.0
<b>Required structural primary balance related to S2</b>		<b>5.5</b>		<b>5.8</b>		<b>7.0</b>		<b>5.8</b>		<b>9.3</b>

### Risks related to the structure of public debt financing

<b>Public debt structure - LU (2014):</b>	Change in share of short-term public debt (p.p.): 0.9	Share of public debt by non-residents (%): 19.5 (2013)	Share of public debt in foreign currency (%): 0
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			LU	EU
State guarantees (% GDP) (2013)			7.7	10.5
of which One-off guarantees			7.0	10.2
Standardised guarantees			0.8	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		4.48	3.07
	Securities issued under liquidity schemes		0.00	0.45
	Special purpose entity		0.00	0.91
	Total		4.48	4.43

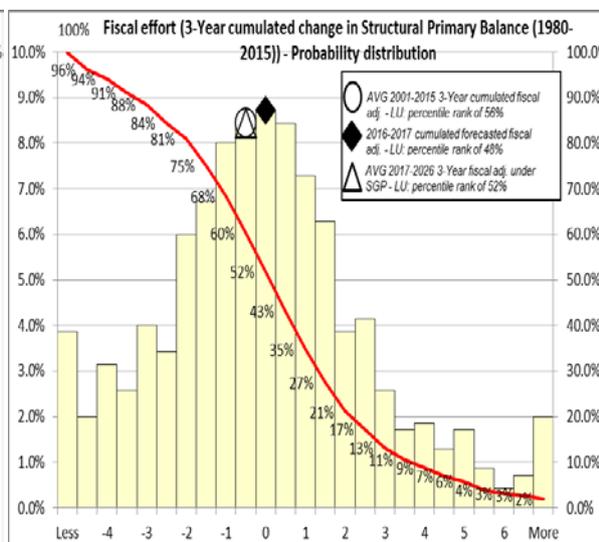
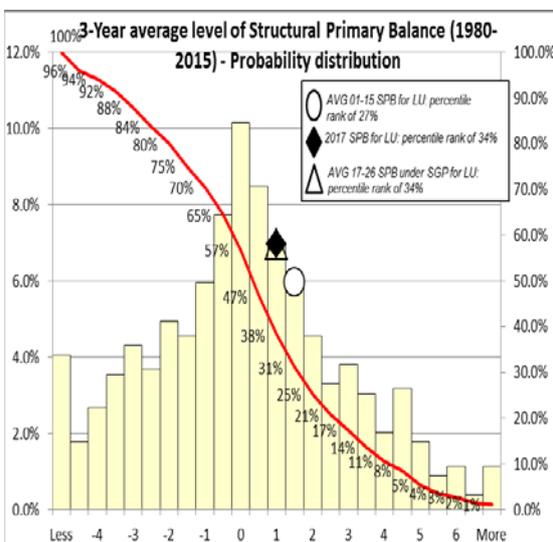
<b>Government's contingent liability risks from banking sector - LU (2014):</b>	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
	0.5	96.3	0.7	0.5	4.4	bank recap. at 8%	bank recap. at 10.5%
						0.03%	0.07%

### Financial market information

Sovereign Ratings as of Nov 30 2015, LU	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	
S&P	AAA	A-1+	AAA	A-1+
Fitch	AAA		AAA	F1+

Financial market information as of November 2015, LU		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	-6.8
CDS (bp)	5-year	n.a.

### Realism of baseline assumptions



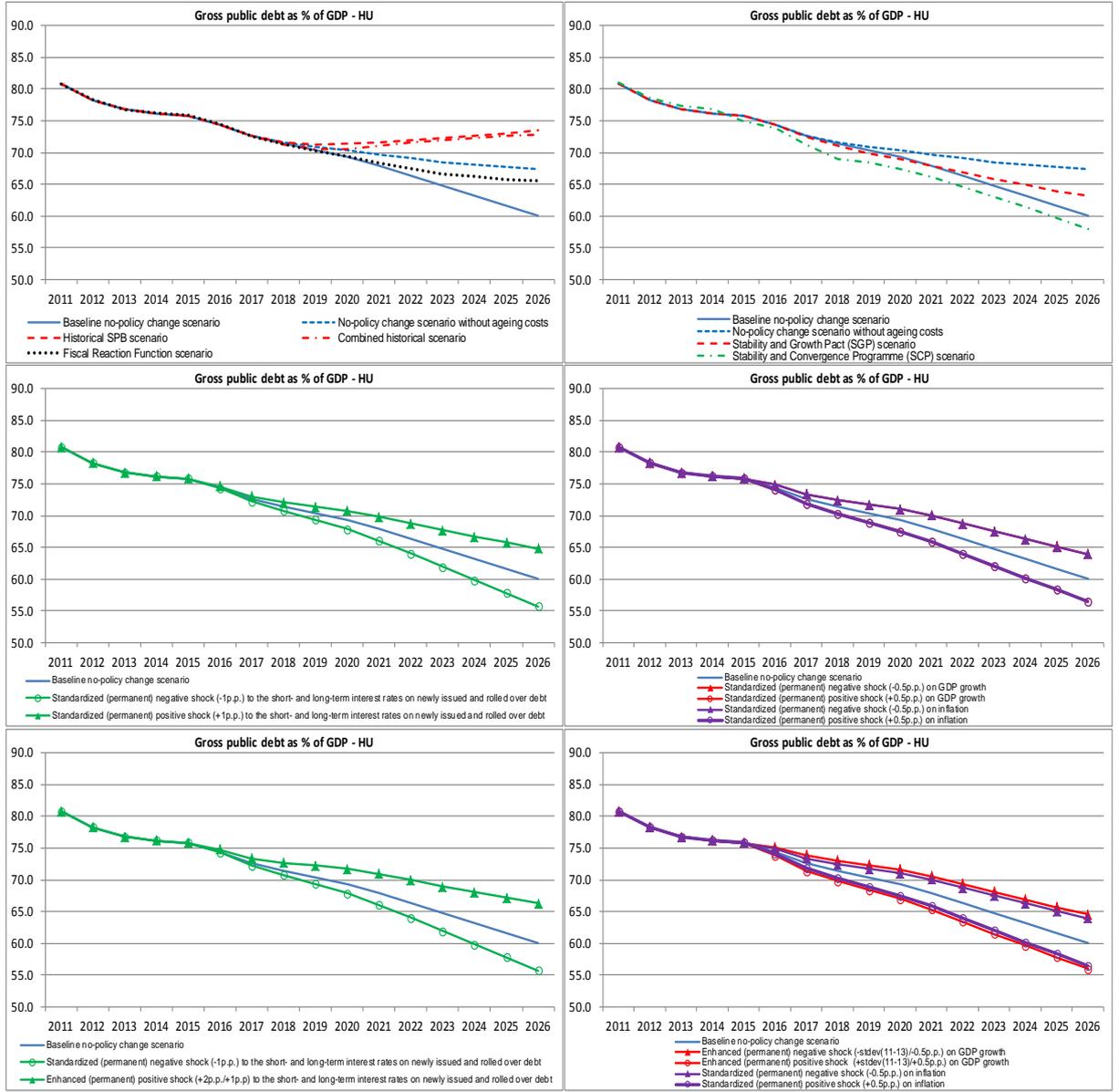
## Underlying macro-fiscal assumptions

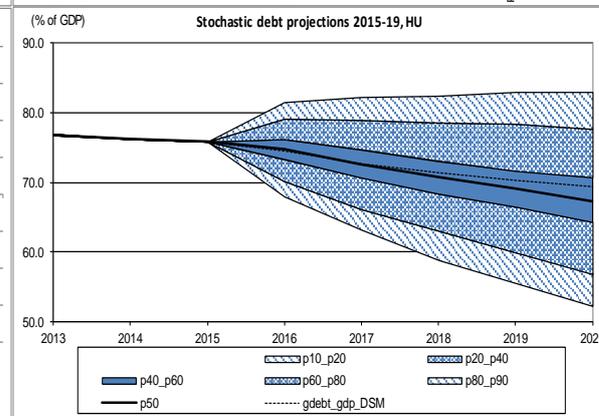
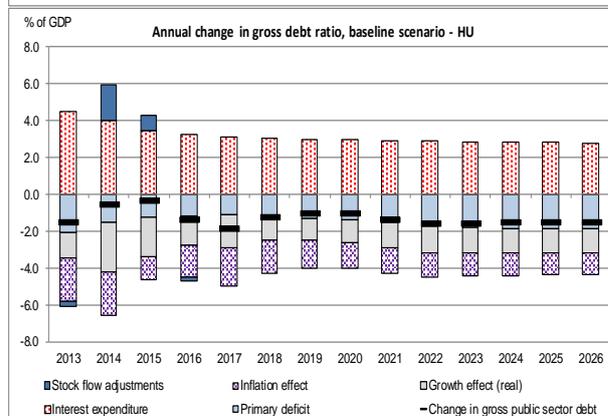
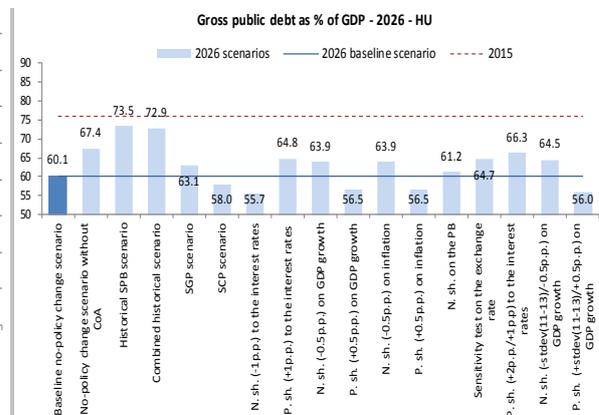
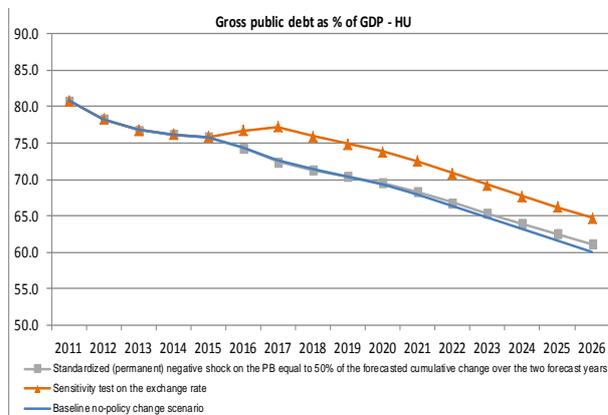
Macro-fiscal assumptions, Luxembourg													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.8	0.4	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.6	0.4	0.2	0.0
Structural primary balance (before CoA)	2.5	1.1	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	4.1	3.1	3.2	3.0	3.3	3.3	3.4	3.1	3.1	3.0	3.0	3.0	2.9
Potential GDP growth	2.9	2.6	2.7	2.8	3.0	3.0	3.1	3.1	3.1	3.0	3.0	3.0	2.9
Inflation rate	1.0	-0.2	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.7	1.7	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.5	2.6	2.6	2.6
<b>3. SGP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.8	0.4	0.9	0.9	1.1	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.1
Structural primary balance (before CoA)	2.5	1.1	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1
Real GDP growth	4.1	3.1	3.2	2.9	3.3	3.4	3.4	3.2	3.1	3.0	3.0	3.0	2.9
Potential GDP growth	2.9	2.6	2.7	2.7	3.0	3.1	3.1	3.2	3.1	3.0	3.0	3.0	2.9
Inflation rate	1.0	-0.2	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.7	1.7	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.5	2.5	2.5	2.5
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.0	0.3	1.0	0.9	1.2	1.1	0.9	0.8	0.6	0.5	0.3	0.1	-0.2
Structural primary balance (before CoA)	2.1	1.0	1.1	0.9	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Real GDP growth	3.0	3.8	3.6	3.3	3.0	2.8	3.0	3.1	3.1	3.0	3.1	3.0	2.8
Potential GDP growth	2.4	2.5	2.5	2.5	2.5	2.5	3.0	3.1	3.1	3.0	3.1	3.0	2.8
Inflation rate	1.5	-0.4	0.4	1.1	1.2	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.3	1.4	1.5	1.6	2.2	2.3
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.8	0.4	0.9	0.9	1.0	1.2	1.3	1.3	1.2	1.1	0.9	0.8	0.6
Structural primary balance (before CoA)	2.5	1.1	1.3	1.3	1.4	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	4.1	3.1	3.2	3.0	3.2	3.2	3.3	3.0	3.1	3.0	3.0	3.0	2.9
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.8	0.4	0.9	0.9	1.0	1.2	1.3	1.3	1.2	1.1	0.9	0.8	0.6
Structural primary balance (before CoA)	2.5	1.1	1.3	1.3	1.4	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.8
Real GDP growth	4.1	3.1	3.2	3.0	2.9	3.0	3.0	3.1	3.2	3.2	3.2	3.2	3.2
Implicit interest rate (nominal)	1.7	1.7	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.7	1.7	2.0	2.0	2.1	2.1	2.2	2.2	2.4	3.1	3.2	3.2	3.2
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.7	1.7	1.8	1.8	1.9	1.9	1.6	1.6	1.6	1.9	2.0	2.0	2.0
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.7	1.7	2.1	2.1	2.1	2.1	2.2	2.2	2.4	3.1	3.2	3.2	3.2
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	4.1	3.1	3.7	3.5	3.8	3.8	3.9	3.6	3.6	3.5	3.5	3.5	3.4
Potential GDP growth	2.9	2.6	3.2	3.3	3.5	3.5	3.6	3.6	3.6	3.5	3.5	3.5	3.4
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	4.1	3.1	2.7	2.5	2.8	2.8	2.9	2.6	2.6	2.5	2.5	2.5	2.4
Potential GDP growth	2.9	2.6	2.2	2.3	2.5	2.5	2.6	2.6	2.6	2.5	2.5	2.5	2.4
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	4.1	3.1	3.9	3.6	3.8	3.8	3.9	3.6	3.6	3.5	3.5	3.5	3.4
Potential GDP growth	2.9	2.6	3.4	3.4	3.5	3.5	3.6	3.6	3.6	3.5	3.5	3.5	3.4
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	4.1	3.1	2.5	2.3	2.8	2.8	2.9	2.6	2.6	2.5	2.5	2.5	2.4
Potential GDP growth	2.9	2.6	2.1	2.1	2.5	2.5	2.6	2.6	2.6	2.5	2.5	2.5	2.4
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.0	-0.2	2.1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.0	-0.2	1.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.8	0.4	0.7	0.8	0.8	0.8	0.8	0.7	0.6	0.5	0.3	0.1	-0.1
Structural primary balance (before CoA)	2.5	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	4.1	3.1	3.3	2.9	3.3	3.3	3.4	3.1	3.1	3.0	3.0	3.0	2.9
Potential GDP growth	2.9	2.6	2.9	2.7	3.0	3.0	3.1	3.1	3.1	3.0	3.0	3.0	2.9
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	1.7	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.5	2.6	2.6	2.6

# 15. Hungary

Public debt projections under baseline and alternative scenarios and sensitivity tests

HU - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	76.8	76.2	75.8	74.5	72.6	71.4	70.3	69.3	67.9	66.3	64.7	63.2	61.6	60.1
Changes in the ratio (-1+2+3) of which	-1.5	-0.6	-0.3	-1.4	-1.8	-1.3	-1.0	-1.1	-1.4	-1.6	-1.6	-1.5	-1.5	-1.5
(1) Primary balance (1.1+1.2+1.3)	2.0	1.5	1.2	1.2	1.1	1.2	1.3	1.4	1.5	1.7	1.8	1.8	1.9	1.9
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	3.1	1.5	1.2	0.7	0.9	1.0	1.2	1.4	1.5	1.7	1.8	1.8	1.9	1.9
(1.1.1) Structural Primary Balance (before CoA)	3.1	1.5	1.2	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
(1.1.2) Cost of ageing						-0.1	-0.4	-0.6	-0.7	-0.9	-1.1	-1.1	-1.2	-1.2
(1.1.3) Others (taxes and property incomes)						0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
(1.2) Cyclical component	-1.1	-0.3	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.1	0.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	0.8	-1.0	0.1	0.0	-0.7	-0.1	0.3	0.4	0.2	0.1	0.2	0.3	0.3	0.4
(2.1) Interest expenditure	4.5	4.0	3.5	3.3	3.1	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.8	2.8
(2.2) Growth effect	-1.4	-2.7	-2.1	-1.6	-1.8	-1.3	-1.2	-1.2	-1.4	-1.5	-1.4	-1.3	-1.3	-1.3
(2.3) Inflation effect	-2.3	-2.4	-1.3	-1.7	-2.1	-1.8	-1.6	-1.4	-1.3	-1.3	-1.3	-1.2	-1.2	-1.2
(3) Stock flow adjustments	-0.3	1.9	0.8	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-1.5	-2.5	-2.3	-2.6	-2.3	-2.1	-1.8	-1.6	-1.4	-1.2	-1.1	-1.0	-1.0	-0.9





### Sustainability indicators summary table

Long-term projections																
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030						
<b>Budgetary projections</b>																
Total cost of ageing (gross)	20.8	20.3	20.0	19.6	19.4	19.2	19.0	18.8	18.2	18.0						
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Property incomes	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	0.9	0.8						
<b>Sustainability indicators</b>																
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>										
<b>Overall index</b>		<b>0.60</b>		<b>0.16</b>		<b>0.43</b>										
Fiscal sub-index		0.32		0.14		0.35										
Financial competitiveness sub-index		0.72		0.16		0.45										
<b>S1 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							<b>-0.6</b>		<b>2.3</b>		<b>-0.1</b>		<b>-0.9</b>		<b>-0.4</b>	
of which Initial Budgetary position							-0.5		1.7		-0.4		-0.6		0.0	
Cost of delaying adjustment**							-0.1		0.5		0.0		-0.2		-0.1	
Debt requirement***							0.9		1.2		0.9		0.7		0.9	
Ageing costs							-1.0		-1.2		-0.6		-0.9		-1.3	
<b>Required structural primary balance related to S1</b>							<b>0.3</b>		<b>1.3</b>		<b>0.8</b>		<b>0.0</b>		<b>1.2</b>	
<b>S2 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							<b>1.5</b>		<b>3.3</b>		<b>4.4</b>		<b>1.1</b>		<b>0.5</b>	
of which Initial Budgetary position							0.5		1.5		0.5		-0.1		0.1	
Long term component							1.0		1.8		3.9		1.2		0.3	
of which Pensions							0.3		0.9		0.3		0.4		-0.2	
Health care							0.5		0.5		1.1		0.5		1.0	
Long-term care							0.3		0.3		2.7		0.3		0.0	
Others							-0.1		0.2		-0.1		0.0		-0.5	
<b>Required structural primary balance related to S2</b>							<b>2.4</b>		<b>2.3</b>		<b>5.3</b>		<b>2.0</b>		<b>2.1</b>	

### Risks related to the structure of public debt financing

Public debt structure - HU (2014):	Change in share of short-term public debt (p.p.): -1.1	Share of public debt by non-residents (%): 57.7 (2013)	Share of public debt in foreign currency (%): 39.7
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			
	HU	EU	
State guarantees (% GDP) (2013)	8.0	10.5	
of which One-off guarantees	7.7	10.2	
Standardised guarantees	0.3	0.4	
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	:	3.07
	Securities issued under liquidity schemes	:	0.45
	Special purpose entity	:	0.91
	Total	0.00	4.43

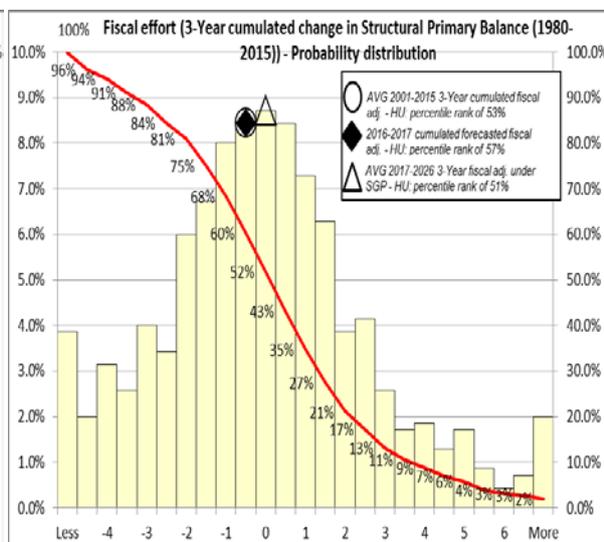
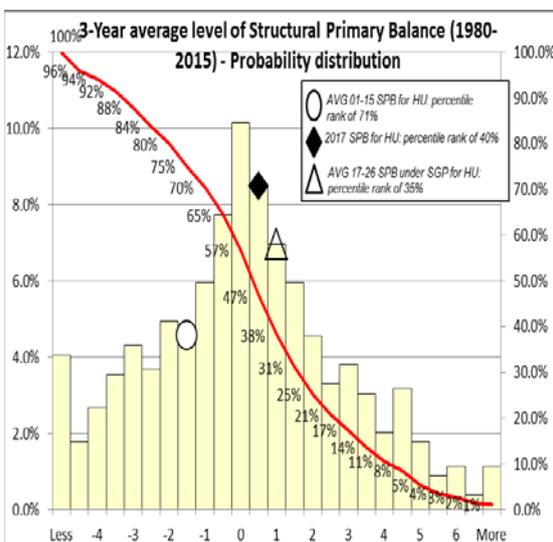
Government's contingent liability risks from banking sector - HU (2014):	Private sector credit flow (% GDP): -0.5	Bank loans-to-deposits ratio (%): n.a. ()	Share of non-performing loans (%): 14.2	Change in share of non-performing loans (p.p.): 0.2	Change in nominal house price index: 4.2	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.01%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, HU	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba1		Ba1	
S&P	BB+	B	BB+	B
Fitch	BBB-		BB+	B

Financial market information as of November 2015, HU		
Sovereign yield spreads(bp)*	2-year	231.3
	10-year	281
CDS (bp)	5-year	165.8

### Realism of baseline assumptions



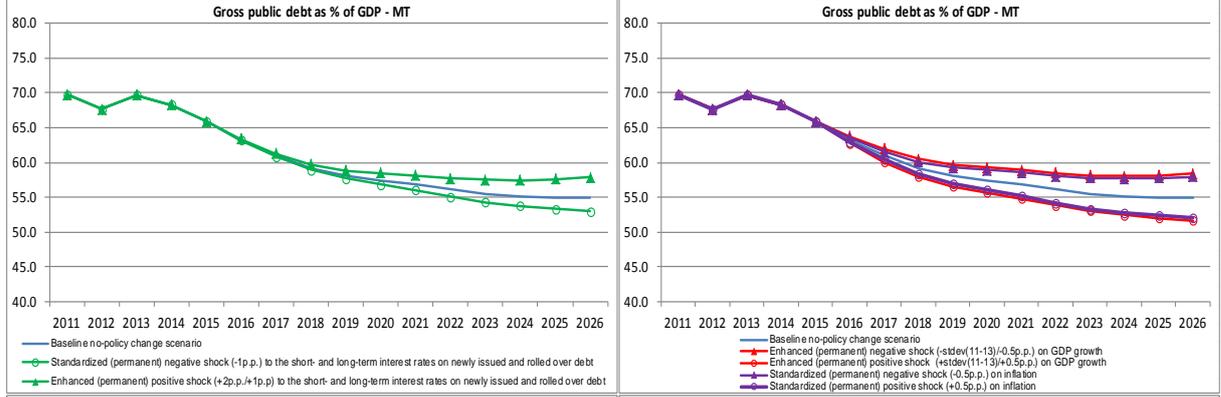
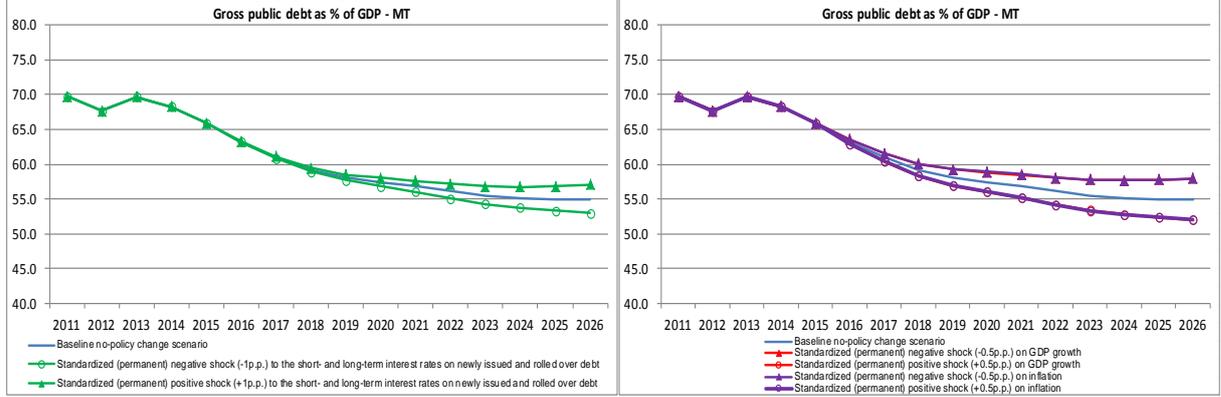
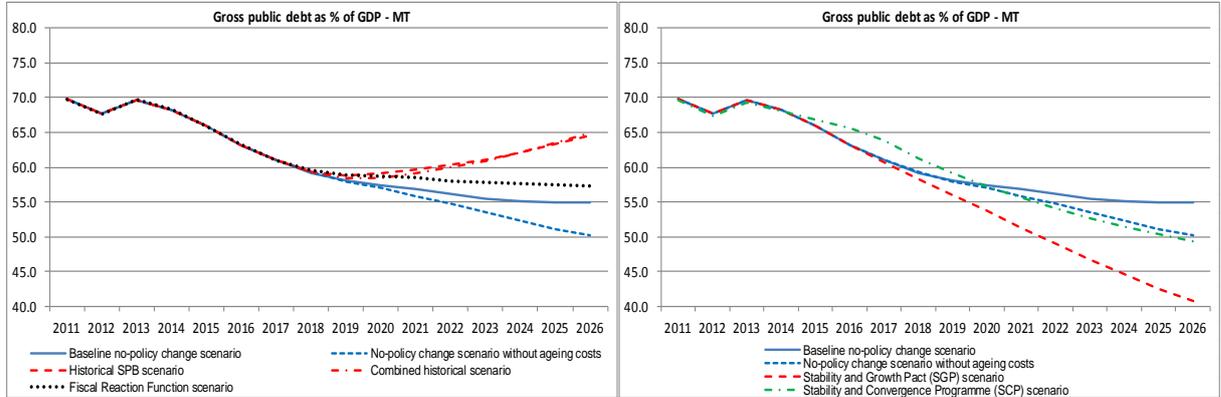
### Underlying macro-fiscal assumptions

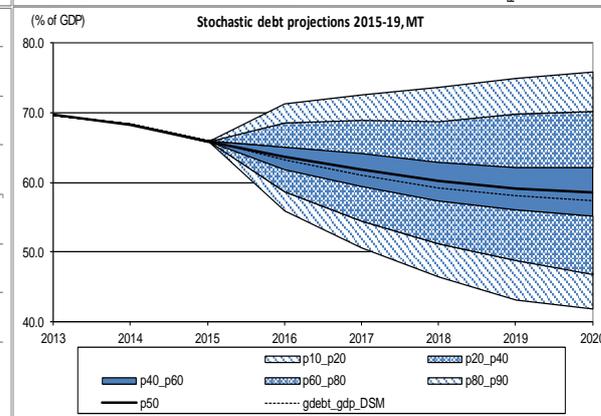
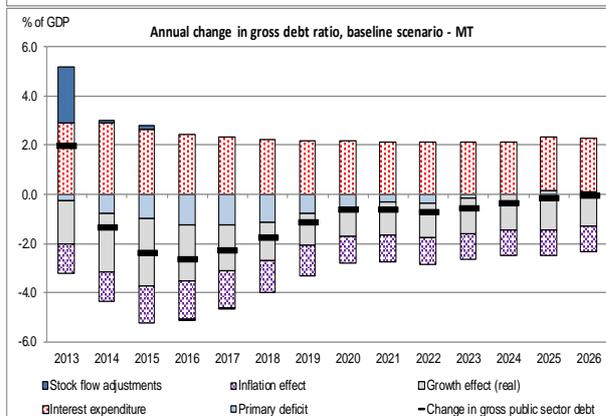
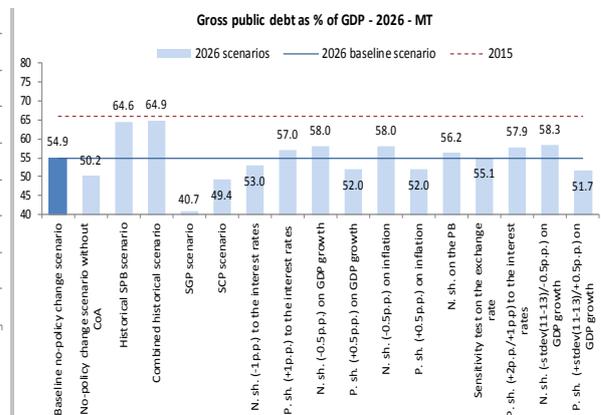
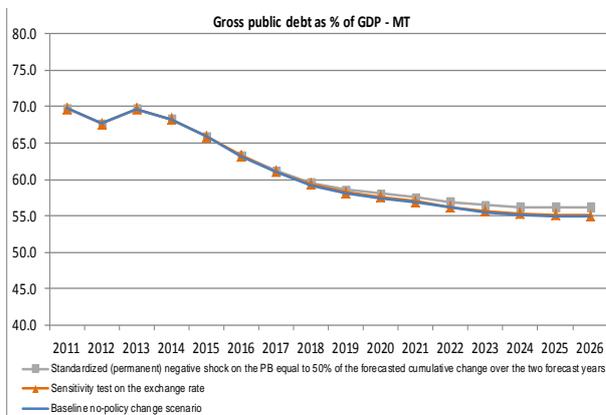
Macro-fiscal assumptions, Hungary													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	1.2	1.2	1.1	1.2	1.3	1.4	1.5	1.7	1.8	1.8	1.9	1.9
Structural primary balance (before CoA)	1.5	1.2	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	3.7	2.9	2.2	2.5	1.9	1.7	1.8	2.1	2.2	2.2	2.1	2.1	2.1
Potential GDP growth	1.9	2.1	2.1	2.3	2.1	1.9	2.0	2.1	2.2	2.2	2.1	2.1	2.1
Inflation rate	3.2	1.7	2.4	2.9	2.6	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	5.6	4.8	4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.6	4.7	4.7
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	1.2	1.2	1.1	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.7	0.6
Structural primary balance (before CoA)	1.5	1.2	0.7	0.9	1.0	0.8	0.6	0.4	0.1	-0.1	-0.2	-0.3	-0.4
Real GDP growth	3.7	2.9	2.2	2.5	1.8	1.8	2.0	2.3	2.5	2.3	2.2	2.2	2.2
Potential GDP growth	1.9	2.1	2.1	2.3	2.0	2.0	2.2	2.3	2.5	2.3	2.2	2.2	2.2
Inflation rate	3.2	1.7	2.4	2.9	2.6	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	5.6	4.8	4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.6	4.7	4.7
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	1.2	1.2	1.4	1.5	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Structural primary balance (before CoA)	1.5	1.2	0.7	1.1	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Real GDP growth	3.7	2.9	2.2	2.3	1.7	1.7	1.9	2.2	2.2	2.2	2.1	2.1	2.1
Potential GDP growth	1.9	2.1	2.1	2.1	1.9	1.9	2.0	2.2	2.2	2.2	2.1	2.1	2.1
Inflation rate	3.2	1.7	2.4	2.9	2.6	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	5.6	4.8	4.5	4.4	4.4	4.4	4.4	4.4	4.4	4.5	4.6	4.7	4.7
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	0.7	1.1	1.4	1.1	1.1	1.3	1.4	1.6	1.7	1.8	1.8	1.9
Structural primary balance (before CoA)	1.7	0.8	1.2	1.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	3.6	3.1	2.5	3.1	2.9	1.2	1.6	1.8	1.9	1.9	2.0	2.0	2.1
Potential GDP growth	1.6	1.9	2.2	2.3	2.5	1.4	1.6	1.8	1.9	1.9	2.0	2.0	2.1
Inflation rate	3.1	2.3	2.1	2.7	2.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	5.5	4.8	4.5	4.4	4.3	4.2	4.1	4.1	4.1	4.2	4.3	4.3	4.4
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	1.2	1.2	1.1	0.7	0.3	0.0	-0.4	-0.2	-0.1	-0.1	-0.1	0.0
Structural primary balance (before CoA)	1.5	1.2	0.7	0.9	0.4	-0.1	-0.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Real GDP growth	3.7	2.9	2.2	2.5	2.2	2.1	2.2	2.5	2.2	2.2	2.1	2.1	2.1
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	1.2	1.2	1.1	0.7	0.3	0.0	-0.4	-0.2	-0.1	-0.1	-0.1	0.0
Structural primary balance (before CoA)	1.5	1.2	0.7	0.9	0.4	-0.1	-0.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Real GDP growth	3.7	2.9	2.2	2.5	2.7	2.5	2.4	2.2	1.9	1.9	1.9	1.9	1.9
Implicit interest rate (nominal)	5.6	4.8	4.5	4.4	4.4	4.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	5.6	4.8	4.8	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.5	5.6	5.7
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	5.6	4.8	4.3	4.1	4.0	3.9	3.8	3.7	3.7	3.7	3.8	3.8	3.8
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	5.6	4.8	5.0	5.1	5.2	5.1	5.2	5.2	5.3	5.4	5.5	5.6	5.7
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.7	2.9	2.7	3.0	2.4	2.2	2.3	2.6	2.7	2.7	2.6	2.6	2.6
Potential GDP growth	1.9	2.1	2.6	2.8	2.6	2.4	2.5	2.6	2.7	2.7	2.6	2.6	2.6
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.7	2.9	1.7	2.0	1.4	1.2	1.3	1.6	1.7	1.7	1.6	1.6	1.6
Potential GDP growth	1.9	2.1	1.6	1.8	1.6	1.4	1.5	1.6	1.7	1.7	1.6	1.6	1.6
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.7	2.9	3.1	3.4	2.4	2.2	2.3	2.6	2.7	2.7	2.6	2.6	2.6
Potential GDP growth	1.9	2.1	3.0	3.2	2.6	2.4	2.5	2.6	2.7	2.7	2.6	2.6	2.6
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.7	2.9	1.3	1.6	1.4	1.2	1.3	1.6	1.7	1.7	1.6	1.6	1.6
Potential GDP growth	1.9	2.1	1.2	1.4	1.6	1.4	1.5	1.6	1.7	1.7	1.6	1.6	1.6
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	3.2	1.7	2.9	3.4	3.1	2.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	3.2	1.7	1.9	2.4	2.1	1.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	1.5	1.2	1.4	1.0	1.0	1.1	1.3	1.3	1.6	1.6	1.7	1.7	1.7
Structural primary balance (before CoA)	1.5	1.2	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	3.7	2.9	2.0	2.8	1.9	1.7	1.8	2.1	2.2	2.2	2.1	2.1	2.1
Potential GDP growth	1.9	2.1	1.9	2.6	2.1	1.9	2.0	2.1	2.2	2.2	2.1	2.1	2.1
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-4.9%	-4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	4.8	4.4	4.4	4.4	4.4	4.3	4.4	4.4	4.5	4.6	4.7	4.7

# 16. Malta

Public debt projections under baseline and alternative scenarios and sensitivity tests

MT - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	69.6	68.3	65.9	63.2	61.0	59.2	58.1	57.4	56.8	56.1	55.5	55.2	55.0	54.9
Changes in the ratio (-1+2+3) of which	2.0	-1.4	-2.4	-2.7	-2.3	-1.8	-1.1	-0.6	-0.6	-0.7	-0.5	-0.4	-0.2	-0.1
(1) Primary balance (1.1+1.2+1.3)	0.3	0.8	1.0	1.2	1.2	1.1	0.8	0.5	0.3	0.4	0.2	0.0	-0.2	-0.1
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.4	0.5	0.6	0.8	0.8	0.9	0.7	0.5	0.3	0.4	0.2	0.0	-0.2	-0.1
(1.1.1) Structural Primary Balance (before CoA)	0.4	0.5	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
(1.1.2) Cost of ageing						-0.1	0.2	0.3	0.5	0.4	0.6	0.8	1.0	0.9
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	-0.3	-0.1	0.3	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	0.0	-0.7	-1.6	-1.4	-1.0	-0.6	-0.3	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3	-0.1
(2.1) Interest expenditure	2.9	2.9	2.7	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2
(2.2) Growth effect	-1.7	-2.4	-2.8	-2.3	-1.9	-1.6	-1.3	-1.2	-1.4	-1.4	-1.4	-1.4	-1.4	-1.3
(2.3) Inflation effect	-1.2	-1.2	-1.5	-1.6	-1.5	-1.3	-1.2	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1
(3) Stock flow adjustments	2.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-2.5	-2.4	-2.1	-1.7	-1.5	-1.4	-1.5	-1.7	-1.9	-1.8	-2.0	-2.2	-2.3	-2.3





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	22.6	22.6	22.5	22.6	22.7	22.6	22.8	23.0	23.7	24.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>				
<b>Overall index</b>		<b>0.46</b>		<b>0.13</b>		<b>0.43</b>				
Fiscal sub-index		0.22		0.07		0.35				
Financial competitiveness sub-index		0.56		0.15		0.45				
<b>S1 indicator</b>										
		<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>
<b>Overall index</b>		<b>-0.2</b>		<b>2.0</b>		<b>0.1</b>		<b>-1.3</b>		<b>2.0</b>
of which Initial Budgetary position		-1.0		0.6		-1.0		-2.1		0.3
Cost of delaying adjustment**		0.0		0.4		0.0		-0.2		0.3
Debt requirement***		0.1		0.0		0.1		0.1		0.7
Ageing costs		0.8		1.0		1.1		0.9		0.5
<b>Required structural primary balance related to S1</b>		<b>0.6</b>		<b>1.4</b>		<b>1.0</b>		<b>1.0</b>		<b>2.3</b>
<b>S2 indicator</b>										
		<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>
<b>Overall index</b>		<b>4.6</b>		<b>6.4</b>		<b>6.2</b>		<b>3.5</b>		<b>5.8</b>
of which Initial Budgetary position		-0.1		2.0		-0.1		-1.4		1.0
Long term component		4.7		4.4		6.3		4.8		4.9
of which Pensions		1.9		1.9		1.9		2.1		3.0
Health care		1.5		1.3		2.1		1.5		2.4
Long-term care		0.9		0.8		1.9		0.9		0.0
Others		0.4		0.4		0.4		0.4		-0.5
<b>Required structural primary balance related to S2</b>		<b>5.4</b>		<b>5.8</b>		<b>7.0</b>		<b>5.8</b>		<b>6.2</b>

**Risks related to the structure of public debt financing**

<b>Public debt structure - MT (2014):</b>	Change in share of short-term public debt (p.p.): -1.8	Share of public debt by non-residents (%): 7.1 (2013)	Share of public debt in foreign currency (%): 0
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014		
	MT	EU
State guarantees (% GDP) (2013)	15.9	10.5
of which One-off guarantees	15.9	10.2
Standardised guarantees	0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	3.07
	Securities issued under liquidity schemes	0.45
	Special purpose entity	0.91
	Total	4.43

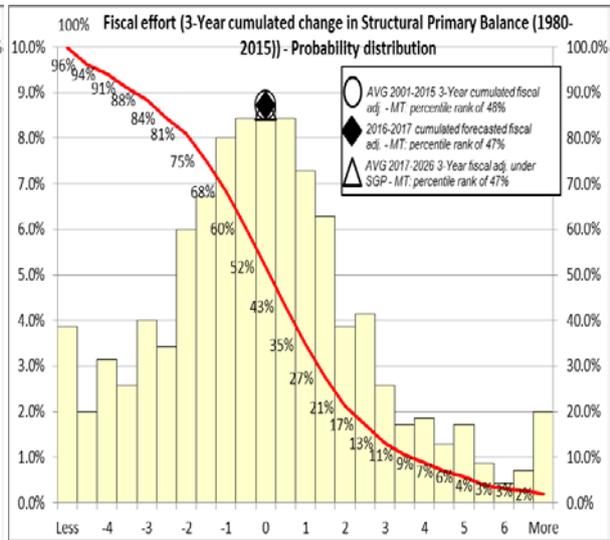
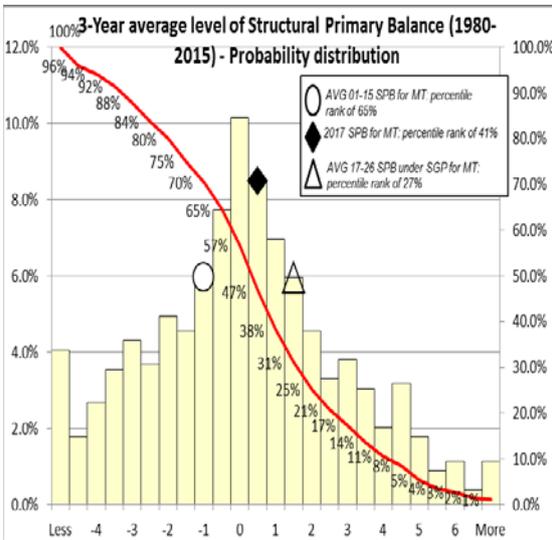
<b>Government's contingent liability risks from banking sector - MT (2014):</b>	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):
	7.8	73.5	3.2	1.2	2.6	bank recap. at 8% 0.04%      bank recap. at 10.5% 0.14%

**Financial market information**

Sovereign Ratings as of Nov 30 2015, MT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A3			
S&P	BBB+	A-2	BBB+	A-2
Fitch	A		A	F1

Financial market information as of November 2015, MT		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	107.3
CDS (bp)	5-year	n.a.

**Realism of baseline assumptions**



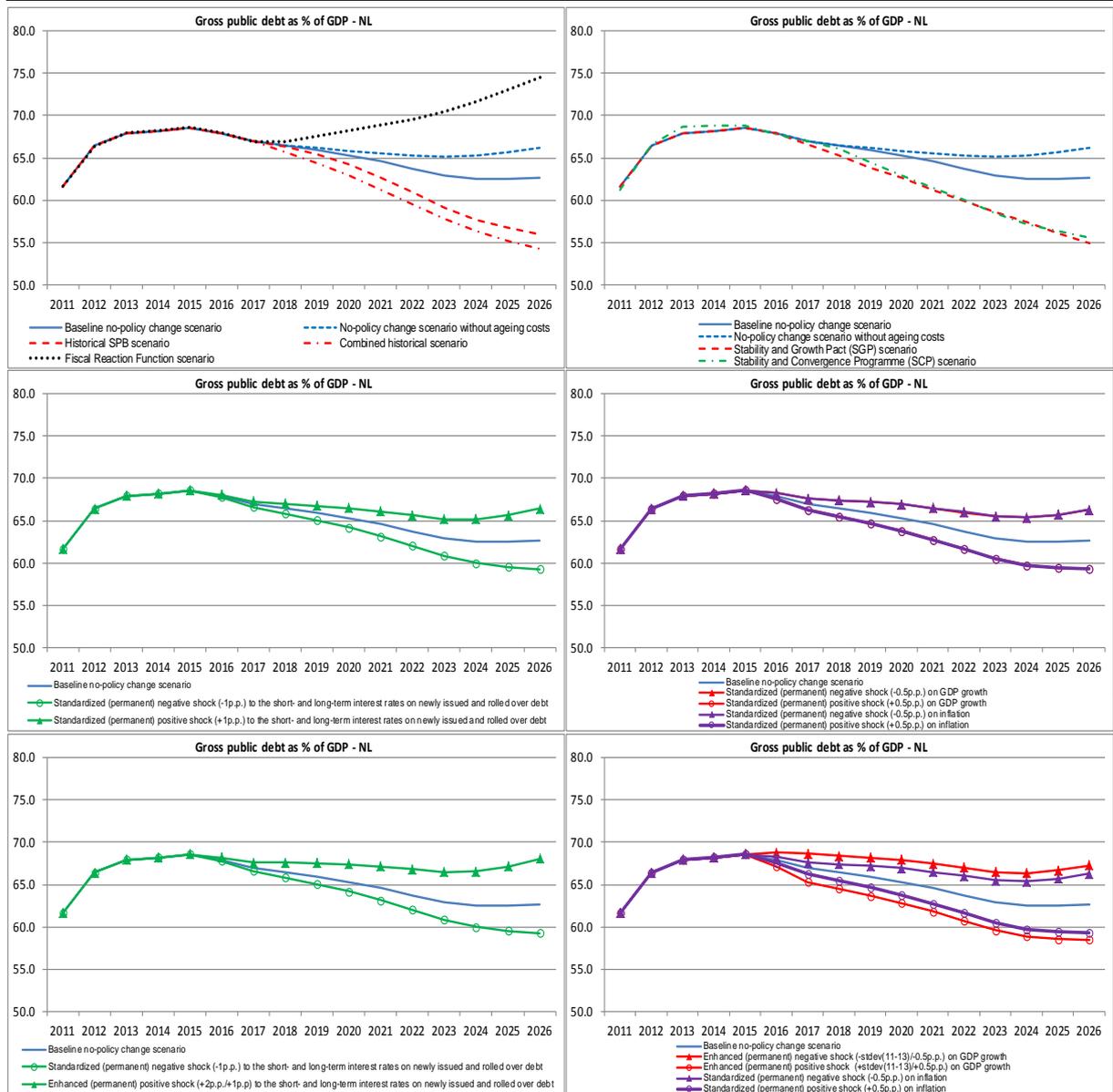
## Underlying macro-fiscal assumptions

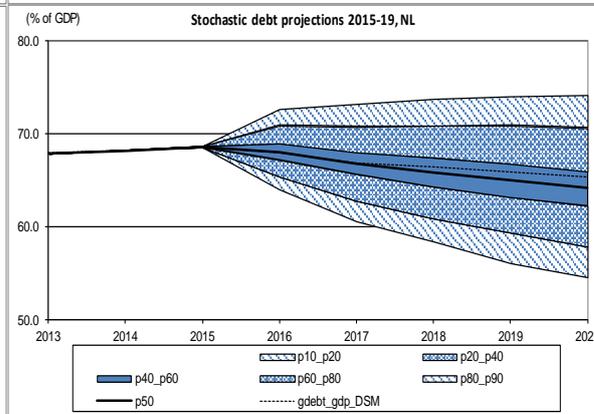
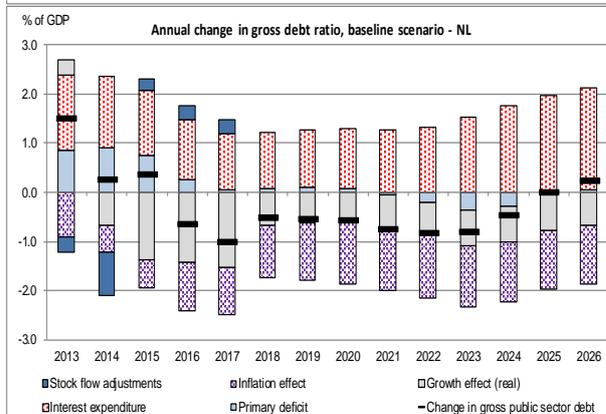
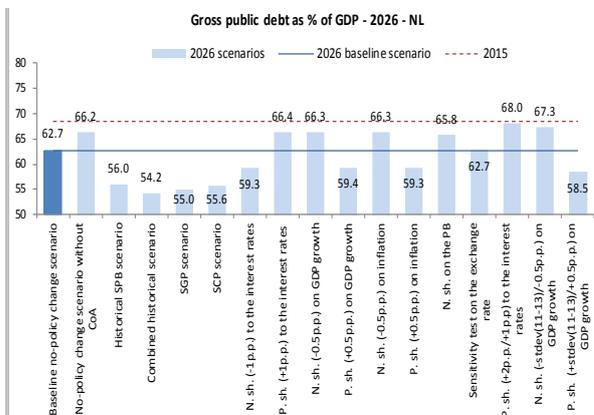
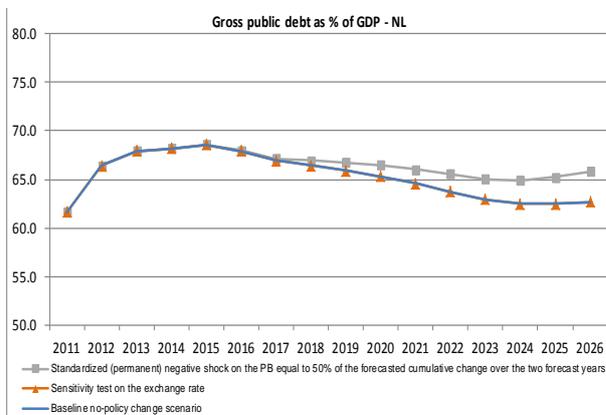
Macro-fiscal assumptions, Malta													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.0	1.2	1.2	1.1	0.8	0.5	0.3	0.4	0.2	0.0	-0.2	-0.1
Structural primary balance (before CoA)	0.5	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Real GDP growth	3.5	4.3	3.6	3.1	2.7	2.3	2.1	2.5	2.6	2.6	2.7	2.7	2.5
Potential GDP growth	3.0	3.6	3.4	3.3	2.9	2.6	2.4	2.5	2.6	2.6	2.7	2.7	2.5
Inflation rate	1.8	2.3	2.5	2.5	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.1	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.1	4.1	4.2
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.0	1.2	1.2	0.5	0.2	0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1
Structural primary balance (before CoA)	0.5	0.6	0.8	0.8	0.2	0.3	0.4	0.5	0.4	0.6	0.7	0.9	0.8
Real GDP growth	3.5	4.3	3.6	3.1	3.1	2.3	2.0	2.4	2.7	2.5	2.6	2.6	2.5
Potential GDP growth	3.0	3.6	3.4	3.3	3.3	2.5	2.3	2.4	2.7	2.5	2.6	2.6	2.5
Inflation rate	1.8	2.3	2.5	2.5	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.1	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.1	4.1	4.2
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.0	1.2	1.7	1.9	2.2	2.1	2.0	2.0	1.9	1.8	1.7	1.7
Structural primary balance (before CoA)	0.5	0.6	0.8	1.3	1.7	2.1	2.1	2.0	2.0	1.9	1.8	1.7	1.7
Real GDP growth	3.5	4.3	3.6	2.7	2.4	2.0	2.2	2.6	2.6	2.7	2.7	2.8	2.5
Potential GDP growth	3.0	3.6	3.4	2.9	2.6	2.2	2.4	2.6	2.6	2.7	2.7	2.8	2.5
Inflation rate	1.8	2.3	2.5	2.5	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.1	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.1	4.1
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.1	1.5	1.9	2.2	2.1	1.9	1.7	1.8	1.5	1.4	1.2	1.3
Structural primary balance (before CoA)	0.1	0.7	1.4	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Real GDP growth	3.5	3.4	3.1	2.8	2.8	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.0
Potential GDP growth	2.8	3.4	3.6	3.1	2.9	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.0
Inflation rate	1.7	1.3	2.1	2.4	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.1	4.1	4.0	4.1	4.2	4.2	4.3	4.4	4.4	4.4	4.4	4.4
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.0	1.2	1.2	0.8	0.1	-0.6	-1.1	-1.0	-1.2	-1.4	-1.6	-1.5
Structural primary balance (before CoA)	0.5	0.6	0.8	0.8	0.5	0.1	-0.2	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	3.5	4.3	3.6	3.1	2.9	2.6	2.4	2.8	2.6	2.6	2.7	2.7	2.5
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.0	1.2	1.2	0.8	0.1	-0.6	-1.1	-1.0	-1.2	-1.4	-1.6	-1.5
Structural primary balance (before CoA)	0.5	0.6	0.8	0.8	0.5	0.1	-0.2	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real GDP growth	3.5	4.3	3.6	3.1	3.2	3.1	2.9	2.7	2.5	2.5	2.5	2.5	2.5
Implicit interest rate (nominal)	4.4	4.1	3.9	3.9	3.9	3.9	4.0	4.1	4.1	4.2	4.2	4.3	4.3
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.4	4.1	4.0	4.1	4.1	4.2	4.2	4.3	4.4	4.4	4.5	4.6	4.8
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.4	4.1	3.8	3.8	3.7	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.4	4.1	4.1	4.2	4.3	4.3	4.4	4.5	4.5	4.6	4.7	4.8	4.9
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.5	4.3	4.1	3.6	3.2	2.8	2.6	3.0	3.1	3.1	3.2	3.2	3.0
Potential GDP growth	3.0	3.6	3.9	3.8	3.4	3.1	2.9	3.0	3.1	3.1	3.2	3.2	3.0
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.5	4.3	3.1	2.6	2.2	1.8	1.6	2.0	2.1	2.1	2.2	2.2	2.0
Potential GDP growth	3.0	3.6	2.9	2.8	2.4	2.1	1.9	2.0	2.1	2.1	2.2	2.2	2.0
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.5	4.3	4.4	3.9	3.2	2.8	2.6	3.0	3.1	3.1	3.2	3.2	3.0
Potential GDP growth	3.0	3.6	4.2	4.1	3.4	3.1	2.9	3.0	3.1	3.1	3.2	3.2	3.0
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.5	4.3	2.8	2.3	2.2	1.8	1.6	2.0	2.1	2.1	2.2	2.2	2.0
Potential GDP growth	3.0	3.6	2.5	2.4	2.4	2.1	1.9	2.0	2.1	2.1	2.2	2.2	2.0
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.8	2.3	3.0	3.0	2.8	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.8	2.3	2.0	2.0	1.8	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.8	1.0	1.1	1.1	1.0	0.6	0.4	0.2	0.3	0.0	-0.1	-0.3	-0.2
Structural primary balance (before CoA)	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	3.5	4.3	3.7	3.1	2.7	2.3	2.1	2.5	2.6	2.6	2.7	2.7	2.5
Potential GDP growth	3.0	3.6	3.5	3.2	2.9	2.6	2.4	2.5	2.6	2.6	2.7	2.7	2.5
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	4.1	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.1	4.1	4.2

## 17. The Netherlands

Public debt projections under baseline and alternative scenarios and sensitivity tests

NL - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>67.9</b>	<b>68.2</b>	<b>68.6</b>	<b>67.9</b>	<b>66.9</b>	<b>66.4</b>	<b>65.9</b>	<b>65.3</b>	<b>64.6</b>	<b>63.8</b>	<b>62.9</b>	<b>62.5</b>	<b>62.5</b>	<b>62.7</b>
Changes in the ratio (-1+2+3) of which	1.5	0.3	0.4	-0.6	-1.0	-0.5	-0.5	-0.6	-0.7	-0.8	-0.8	-0.5	0.0	0.2
<b>(1) Primary balance (1.1+1.2+1.3)</b>	<b>-0.9</b>	<b>-0.9</b>	<b>-0.8</b>	<b>-0.3</b>	<b>-0.1</b>	<b>-0.1</b>	<b>-0.1</b>	<b>-0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.4</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>
<b>(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)</b>	<b>0.6</b>	<b>0.9</b>	<b>0.3</b>	<b>-0.2</b>	<b>-0.4</b>	<b>-0.3</b>	<b>-0.2</b>	<b>-0.1</b>	<b>0.1</b>	<b>0.2</b>	<b>0.4</b>	<b>0.3</b>	<b>0.0</b>	<b>0.0</b>
(1.1.1) Structural Primary Balance (before CoA)	0.6	0.9	0.3	-0.2	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
(1.1.2) Cost of ageing						-0.1	-0.1	-0.2	-0.3	-0.4	-0.5	-0.3	-0.1	0.0
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3
<b>(1.2) Cyclical component</b>	<b>-2.0</b>	<b>-1.7</b>	<b>-1.0</b>	<b>-0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>0.1</b>	<b>0.0</b>						
<b>(1.3) One-off and other temporary measures</b>	<b>0.6</b>	<b>-0.1</b>	<b>0.0</b>	<b>0.3</b>	<b>0.0</b>									
<b>(2) Snowball effect (2.1+2.2+2.3)</b>	<b>0.9</b>	<b>0.2</b>	<b>-0.6</b>	<b>-1.2</b>	<b>-1.3</b>	<b>-0.6</b>	<b>-0.6</b>	<b>-0.6</b>	<b>-0.7</b>	<b>-0.6</b>	<b>-0.4</b>	<b>-0.2</b>	<b>0.1</b>	<b>0.2</b>
(2.1) Interest expenditure	1.5	1.4	1.3	1.2	1.1	1.1	1.2	1.2	1.3	1.3	1.5	1.8	2.0	2.1
(2.2) Growth effect	0.3	-0.7	-1.4	-1.4	-1.5	-0.7	-0.6	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
(2.3) Inflation effect	-0.9	-0.5	-0.6	-1.0	-1.0	-1.1	-1.2	-1.3	-1.3	-1.3	-1.2	-1.2	-1.2	-1.2
<b>(3) Stock flow adjustments</b>	<b>-0.3</b>	<b>-0.9</b>	<b>0.2</b>	<b>0.3</b>	<b>0.3</b>	<b>0.0</b>								
<b>Per memo</b>														
Structural balance	-0.9	-0.5	-1.1	-1.4	-1.5	-1.4	-1.4	-1.3	-1.2	-1.1	-1.2	-1.5	-1.9	-2.1





### Sustainability indicators summary table

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	25.4	26.2	25.8	25.7	25.4	25.3	25.3	25.2	25.3	26.3
Revenues from pensions taxation	2.8	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.2	3.7
Property incomes	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	2.7
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>				
<b>Overall index</b>		<b>0.31</b>		<b>0.19</b>		<b>0.43</b>				
Fiscal sub-index		0.67		0.17		0.35				
Financial competitiveness sub-index		0.17		0.20		0.45				
<b>S1 indicator</b>										
	<b>COM no-policy change scenario</b>	<b>Historical SPB scenario</b>	<b>AWG risk scenario</b>	<b>SCP scenario</b>	<b>2012 Sustainability Report</b>					
<b>Overall index</b>	<b>0.6</b>	<b>-0.6</b>	<b>0.8</b>	<b>-0.4</b>	<b>2.2</b>					
of which Initial Budgetary position	0.3	-0.5	0.3	-0.6	0.3					
Cost of delaying adjustment**	0.1	-0.1	0.1	-0.1	0.3					
Debt requirement***	0.5	0.3	0.5	0.5	0.6					
Ageing costs	-0.3	-0.3	-0.1	-0.2	1.0					
<b>Required structural primary balance related to S1</b>	<b>0.2</b>	<b>-0.1</b>	<b>0.4</b>	<b>0.2</b>	<b>2.4</b>					
<b>S2 indicator</b>										
	<b>COM no-policy change scenario</b>	<b>Historical SPB scenario</b>	<b>AWG risk scenario</b>	<b>SCP scenario</b>	<b>2012 Sustainability Report</b>					
<b>Overall index</b>	<b>4.5</b>	<b>3.5</b>	<b>5.3</b>	<b>3.6</b>	<b>5.9</b>					
of which Initial Budgetary position	2.3	0.7	2.3	1.2	2.0					
Long term component	2.3	2.8	3.1	2.4	4.0					
of which Pensions	0.1	0.2	0.1	0.2	1.0					
Health care	0.7	0.5	1.1	0.6	3.5					
Long-term care	2.7	2.6	3.0	2.7	0.0					
Others	-1.2	-0.6	-1.2	-1.1	-0.5					
<b>Required structural primary balance related to S2</b>	<b>4.2</b>	<b>4.1</b>	<b>4.9</b>	<b>4.2</b>	<b>6.1</b>					

### Risks related to the structure of public debt financing

Public debt structure - NL (2014):	Change in share of short-term public debt (p.p.): -0.5	Share of public debt by non-residents (%): 52.9 (2013)	Share of public debt in foreign currency (%): 1.5
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			
		NL	EU
State guarantees (% GDP) (2013)		7.2	10.5
of which One-off guarantees		6.8	10.2
Standardised guarantees		0.5	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	0.00	3.07
	Securities issued under liquidity schemes	0.00	0.45
	Special purpose entity	0.00	0.91
	Total	0.00	4.43

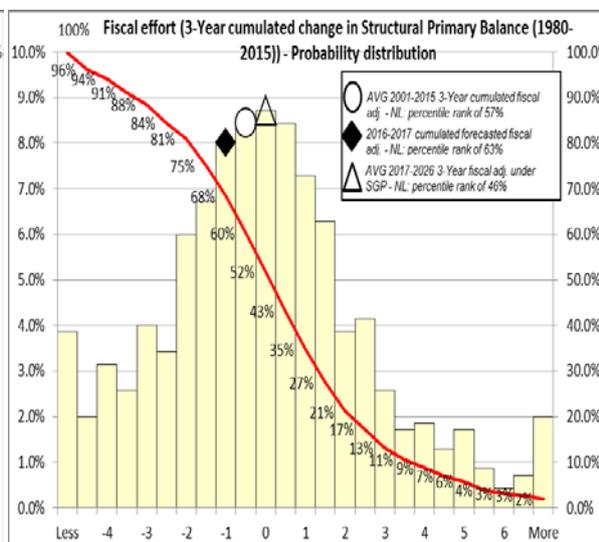
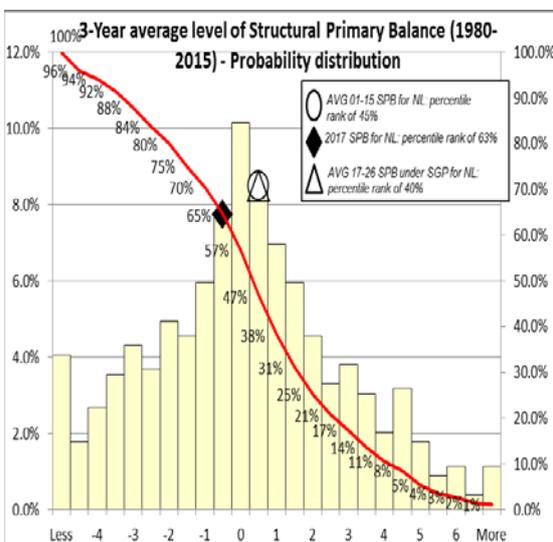
Government's contingent liability risks from banking sector - NL (2014):	Private sector credit flow (% GDP): -1.6	Bank loans-to-deposits ratio (%): 118.9	Share of non-performing loans (%): 3	Change in share of non-performing loans (p.p.): 0.2	Change in nominal house price index: 0.8	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.03%	bank recap. at 10.5% 0.06%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, NL	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	P-1
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	

Financial market information as of November 2015, NL		
Sovereign yield spreads(bp)*	2-year	1.9
	10-year	15
CDS (bp)	5-year	17.5

### Realism of baseline assumptions



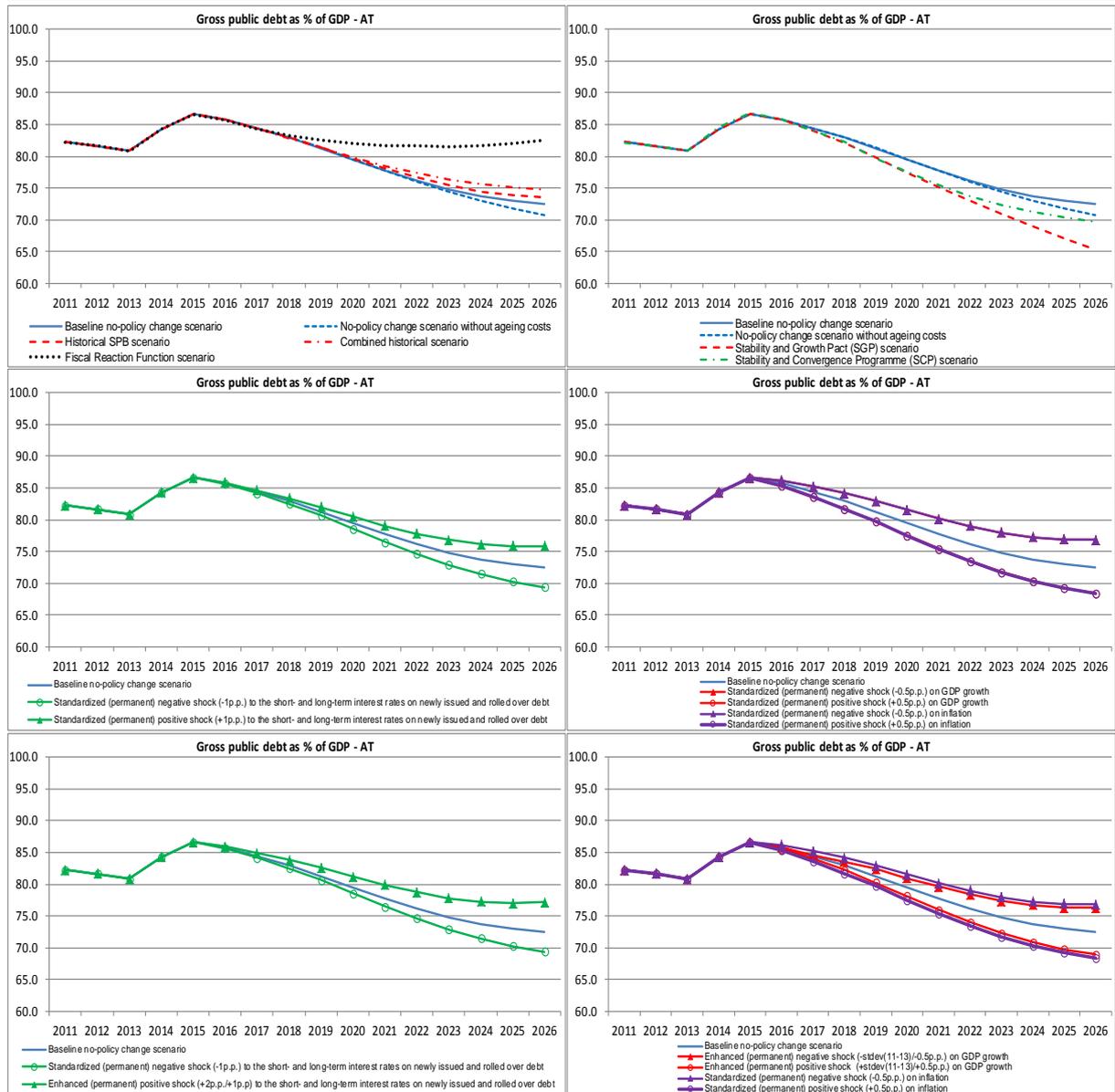
## Underlying macro-fiscal assumptions

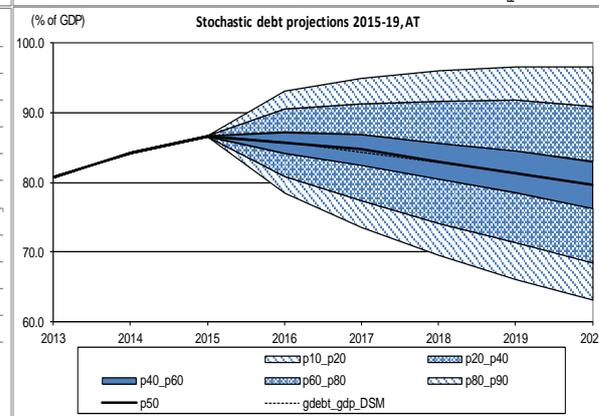
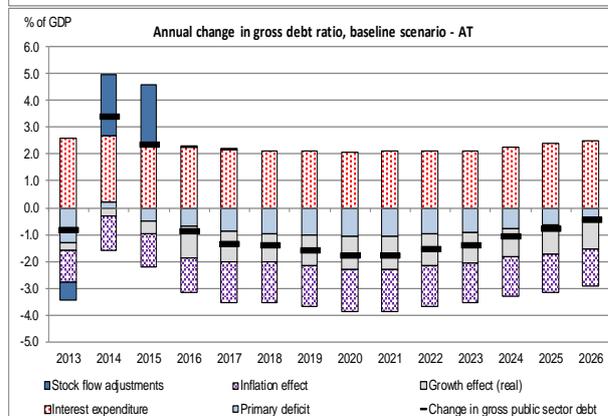
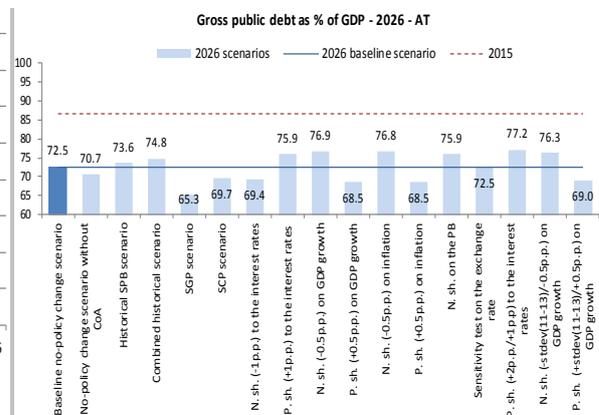
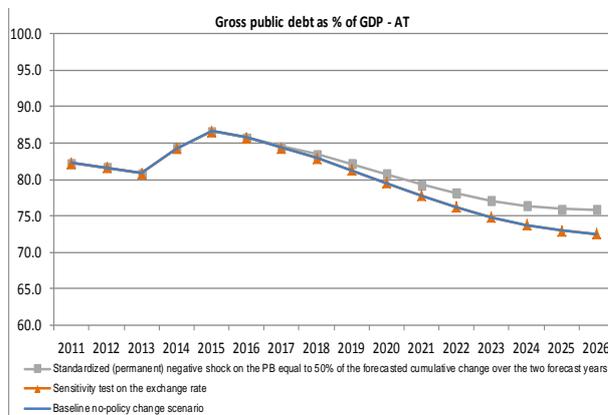
Macro-fiscal assumptions, Netherlands													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.3	-0.1	-0.1	-0.1	-0.1	0.1	0.2	0.4	0.3	0.0	0.0
Structural primary balance (before CoA)	0.9	0.3	-0.2	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	1.0	2.0	2.1	2.3	1.0	1.0	0.9	1.1	1.1	1.2	1.2	1.2	1.1
Potential GDP growth	0.5	0.9	1.1	1.3	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.1
Inflation rate	0.8	0.9	1.5	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	1.8	1.7	1.7	1.8	1.9	2.0	2.1	2.5	2.9	3.3	3.4
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.3	-0.1	-1.1	-1.3	-1.4	-1.4	-1.4	-1.4	-1.3	-1.2	-1.1
Structural primary balance (before CoA)	0.9	0.3	-0.2	-0.4	-1.4	-1.6	-1.7	-1.9	-2.0	-2.1	-1.9	-1.6	-1.4
Real GDP growth	1.0	2.0	2.1	2.3	1.8	1.1	1.0	1.2	1.2	1.3	1.1	1.0	1.0
Potential GDP growth	0.5	0.9	1.1	1.3	2.0	1.3	1.1	1.2	1.2	1.3	1.1	1.0	1.0
Inflation rate	0.8	0.9	1.5	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	1.8	1.7	1.7	1.8	1.9	2.0	2.2	2.5	3.0	3.4	3.5
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.3	0.7	0.9	0.8	0.7	0.7	0.8	0.9	1.1	1.3	1.3
Structural primary balance (before CoA)	0.9	0.3	-0.2	0.3	0.6	0.7	0.7	0.7	0.8	0.9	1.1	1.3	1.3
Real GDP growth	1.0	2.0	2.1	1.8	0.8	1.0	0.9	1.1	1.1	1.1	1.0	1.1	1.1
Potential GDP growth	0.5	0.9	1.1	0.7	1.0	1.1	1.0	1.1	1.1	1.1	1.0	1.1	1.1
Inflation rate	0.8	0.9	1.5	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	2.0	1.8	1.7	1.8	1.8	1.9	2.0	2.1	2.5	2.9	3.3	3.4
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.8	-0.6	0.1	0.5	0.5	0.7	0.8	0.8	0.9	1.0	0.8	0.5	0.4
Structural primary balance (before CoA)	1.2	0.8	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	0.8	1.7	1.8	1.6	1.6	1.3	1.1	1.1	1.1	1.2	1.2	1.1	1.0
Potential GDP growth	0.3	0.6	0.7	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.2	1.1	1.0
Inflation rate	1.0	1.0	0.8	0.9	0.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.2	1.9	1.8	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.5
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.3	-0.1	0.2	0.4	0.6	1.0	1.2	1.3	1.2	1.0	0.9
Structural primary balance (before CoA)	0.9	0.3	-0.2	-0.4	-0.1	0.1	0.3	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	1.0	2.0	2.1	2.3	0.8	0.8	0.7	0.9	1.1	1.2	1.2	1.2	1.1
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.3	-0.1	0.2	0.4	0.6	1.0	1.2	1.3	1.2	1.0	0.9
Structural primary balance (before CoA)	0.9	0.3	-0.2	-0.4	-0.1	0.1	0.3	0.6	0.6	0.6	0.6	0.6	0.6
Real GDP growth	1.0	2.0	2.1	2.3	1.9	1.7	1.4	1.2	1.4	1.4	1.4	1.4	1.4
Implicit interest rate (nominal)	2.2	2.0	1.8	1.7	1.8	1.9	2.1	2.2	2.3	2.7	3.0	3.1	3.2
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.2	2.0	2.0	2.1	2.1	2.3	2.4	2.5	2.7	3.1	3.6	4.1	4.3
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.2	2.0	1.7	1.4	1.4	1.4	1.4	1.5	1.6	1.9	2.2	2.5	2.6
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.2	2.0	2.2	2.4	2.5	2.5	2.6	2.8	2.9	3.3	3.8	4.2	4.4
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.0	2.0	2.6	2.8	1.5	1.5	1.4	1.6	1.6	1.7	1.7	1.7	1.6
Potential GDP growth	0.5	0.9	1.6	1.8	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.6
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.0	2.0	1.6	1.8	0.5	0.5	0.4	0.6	0.6	0.7	0.7	0.7	0.6
Potential GDP growth	0.5	0.9	0.6	0.8	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.6
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.0	2.0	3.4	3.6	1.5	1.5	1.4	1.6	1.6	1.7	1.7	1.7	1.6
Potential GDP growth	0.5	0.9	2.3	2.5	1.7	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.6
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	1.0	2.0	0.9	1.0	0.5	0.5	0.4	0.6	0.6	0.7	0.7	0.7	0.6
Potential GDP growth	0.5	0.9	-0.2	0.0	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.6
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.8	0.9	2.0	1.9	2.1	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.8	0.9	1.0	0.9	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3	-0.1	0.0	-0.1	-0.3	-0.4
Structural primary balance (before CoA)	0.9	0.3	-0.2	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
Real GDP growth	1.0	2.0	2.2	2.5	1.0	1.0	0.9	1.1	1.1	1.2	1.2	1.2	1.1
Potential GDP growth	0.5	0.9	1.1	1.5	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.1
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	2.0	1.8	1.7	1.7	1.8	1.9	2.0	2.1	2.5	2.9	3.3	3.4

## 18. Austria

Public debt projections under baseline and alternative scenarios and sensitivity tests

AT - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>80.8</b>	<b>84.2</b>	<b>86.6</b>	<b>85.7</b>	<b>84.3</b>	<b>82.9</b>	<b>81.3</b>	<b>79.5</b>	<b>77.7</b>	<b>76.2</b>	<b>74.8</b>	<b>73.7</b>	<b>73.0</b>	<b>72.5</b>
Changes in the ratio (-1+2+3) of which	-0.8	3.4	2.4	-0.9	-1.4	-1.4	-1.6	-1.8	-1.8	-1.6	-1.4	-1.1	-0.8	-0.4
(1) Primary balance (1.1+1.2+1.3)	1.3	-0.2	0.5	0.7	0.9	0.9	1.0	1.1	1.0	1.0	0.9	0.8	0.6	0.5
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	1.4	1.8	1.8	1.2	1.0	1.1	1.1	1.1	1.0	1.0	0.9	0.8	0.6	0.5
(1.1.1) Structural Primary Balance (before CoA)	1.4	1.8	1.8	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
(1.1.2) Cost of ageing						0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.6
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
(1.2) Cyclical component	-0.3	-0.5	-0.7	-0.4	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.2	-1.5	-0.6	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	1.1	0.9	0.6	-0.2	-0.5	-0.5	-0.6	-0.7	-0.7	-0.6	-0.5	-0.3	-0.1	0.1
(2.1) Interest expenditure	2.6	2.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.5
(2.2) Growth effect	-0.3	-0.3	-0.5	-1.2	-1.1	-1.1	-1.1	-1.2	-1.3	-1.2	-1.1	-1.1	-1.1	-1.0
(2.3) Inflation effect	-1.2	-1.3	-1.3	-1.3	-1.5	-1.5	-1.6	-1.6	-1.5	-1.5	-1.5	-1.4	-1.4	-1.4
(3) Stock flow adjustments	-0.6	2.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-1.2	-0.7	-0.6	-1.0	-1.1	-1.1	-1.0	-1.0	-1.1	-1.2	-1.2	-1.5	-1.8	-2.0





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	27.9	27.9	27.8	27.8	27.8	27.8	27.8	27.8	28.3	29.1
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.2
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	2009		2015		Critical threshold					
Overall index	0.20		0.07		0.43					
Fiscal sub-index	0.42		0.06		0.35					
Financial competitiveness sub-index	0.10		0.08		0.45					
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario		AWG risk scenario		SCP scenario		2012 Sustainability Report		
Overall index	1.3	2.3		1.6		1.1		2.6		
of which Initial Budgetary position	-1.2	-0.8		-1.2		-1.4		-0.3		
Cost of delaying adjustment**	0.2	0.5		0.2		0.2		0.4		
Debt requirement***	1.9	2.0		1.9		1.8		0.9		
Ageing costs	0.5	0.6		0.7		0.5		1.6		
Required structural primary balance related to S1	2.3	3.2		2.7		2.4		3.4		
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario		AWG risk scenario		SCP scenario		2012 Sustainability Report		
Overall index	2.7	2.9		4.2		2.5		4.1		
of which Initial Budgetary position	0.2	0.4		0.2		0.0		0.5		
Long term component	2.4	2.5		4.0		2.5		3.6		
of which Pensions	0.5	0.6		0.5		0.5		1.7		
Health care	0.9	0.8		1.4		0.9		1.9		
Long-term care	0.9	0.9		2.0		0.9		0.0		
Others	0.1	0.2		0.1		0.2		-0.1		
Required structural primary balance related to S2	3.7	3.8		5.2		3.8		4.9		

**Risks related to the structure of public debt financing**

<b>Public debt structure - AT (2014):</b>	<b>Change in share of short-term public debt (p.p.):</b> 0.9	<b>Share of public debt by non-residents (%):</b> 73.5 (2013)	<b>Share of public debt in foreign currency (%):</b> 1.1
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			AT	EU
State guarantees (% GDP) (2013)			35.0	10.5
of which One-off guarantees			35.0	10.2
Standardised guarantees			0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.03	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		0.00	0.91
	Total		0.03	4.43

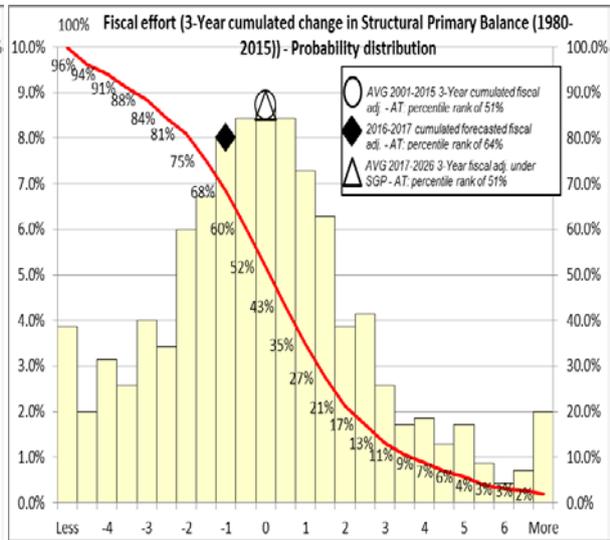
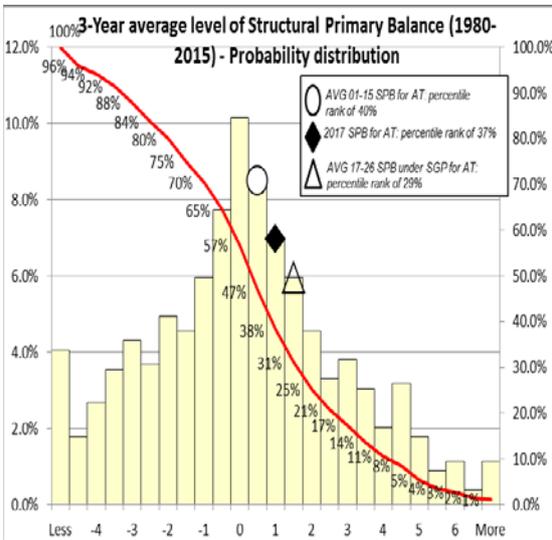
<b>Government's contingent liability risks from banking sector - AT (2014):</b>	<b>Private sector credit flow (% GDP):</b> 0.2	<b>Bank loans-to-deposits ratio (p.p.):</b> 122.4	<b>Share of non-performing loans (%):</b> 6.2	<b>Change in share of non-performing loans (p.p.):</b> 2	<b>Change in nominal house price index:</b> 3.5	<b>Probability of gov't cont. liabilities (&gt;3% of GDP) linked to banking losses and recap needs (SYMBOL):</b>
						bank recap. at 8%: 0.00% bank recap. at 10.5%: 0.00%

**Financial market information**

Sovereign Ratings as of Nov 30 2015, AT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	P-1
S&P	AA+	A-1+	AA+	A-1+
Fitch	AA+		AA+	F1+

Financial market information as of November 2015, AT		
Sovereign yield spreads(bp)*	2-year	8.7
	10-year	25
CDS (bp)	5-year	25.9

**Realism of baseline assumptions**



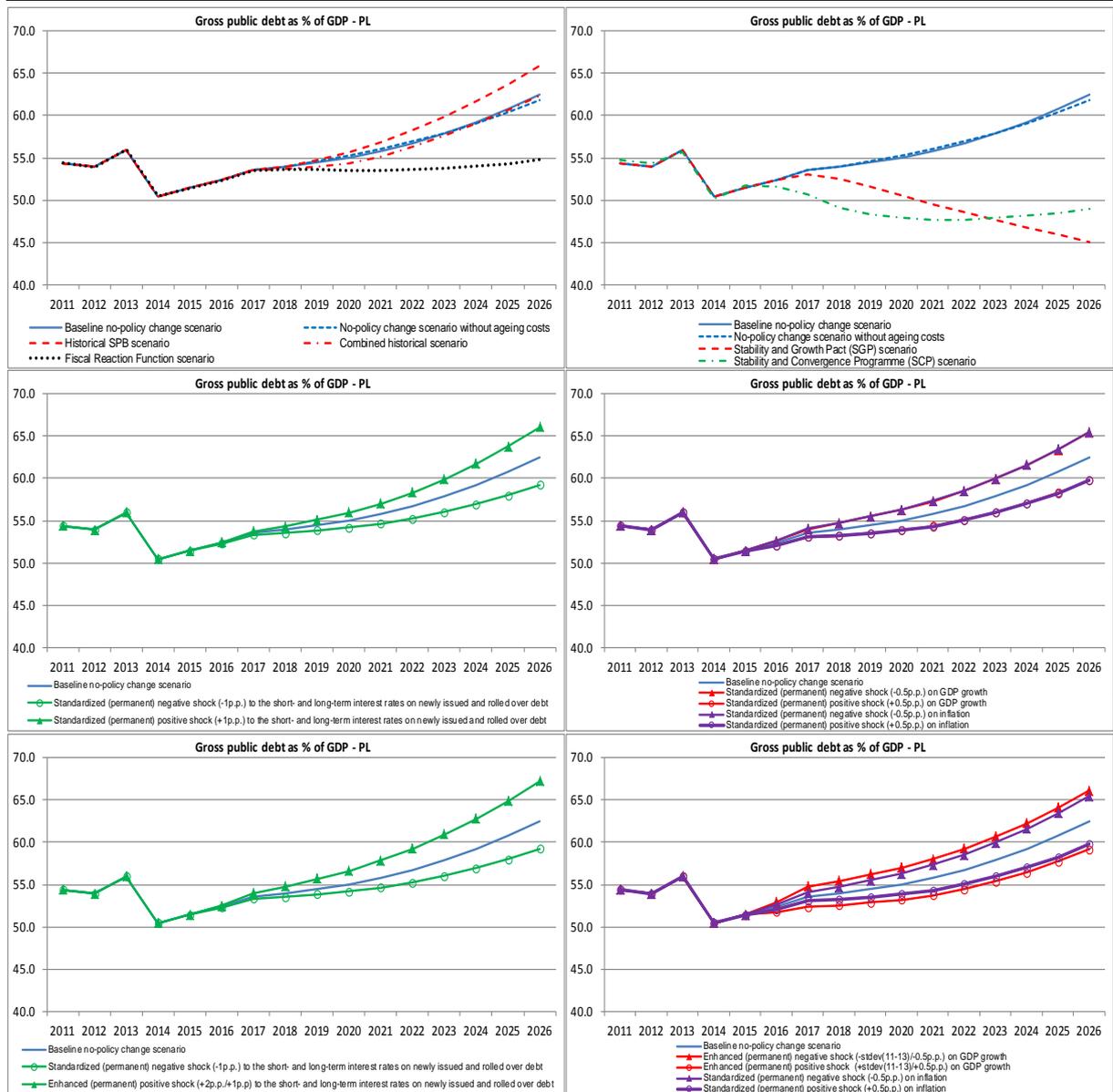
### Underlying macro-fiscal assumptions

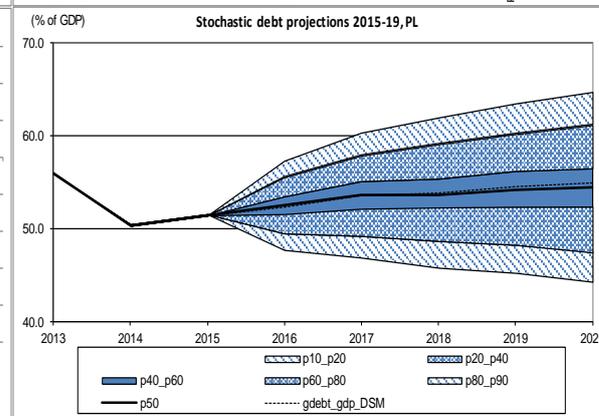
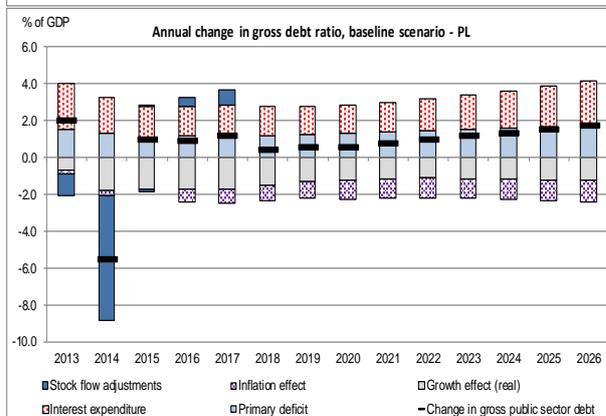
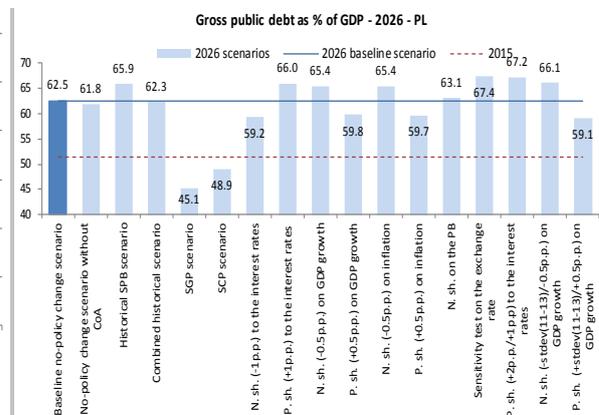
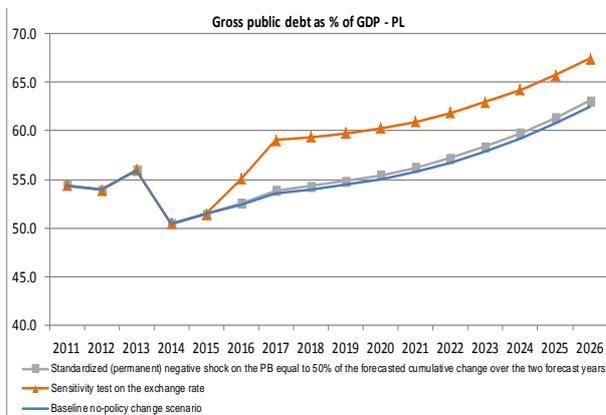
Macro-fiscal assumptions, Austria													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.5	0.7	0.9	0.9	1.0	1.1	1.0	1.0	0.9	0.8	0.6	0.5
Structural primary balance (before CoA)	1.8	1.8	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Real GDP growth	0.4	0.6	1.5	1.4	1.3	1.4	1.6	1.6	1.6	1.6	1.5	1.5	1.5
Potential GDP growth	0.9	0.8	0.9	1.0	1.2	1.3	1.5	1.6	1.6	1.6	1.5	1.5	1.5
Inflation rate	1.6	1.5	1.5	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.1	2.9	2.7	2.6	2.6	2.6	2.7	2.7	2.8	2.9	3.1	3.4	3.6
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.5	0.7	0.9	0.2	-0.2	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3
Structural primary balance (before CoA)	1.8	1.8	1.2	1.0	0.3	-0.2	-0.4	-0.4	-0.3	-0.3	-0.1	0.1	0.3
Real GDP growth	0.4	0.6	1.5	1.4	1.9	1.8	1.8	1.7	1.5	1.5	1.4	1.4	1.3
Potential GDP growth	0.9	0.8	0.9	1.0	1.8	1.6	1.6	1.7	1.5	1.5	1.4	1.4	1.3
Inflation rate	1.6	1.5	1.5	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.1	2.9	2.7	2.6	2.6	2.6	2.7	2.7	2.9	2.9	3.2	3.4	3.6
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.5	0.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.8
Structural primary balance (before CoA)	1.8	1.8	1.2	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.8
Real GDP growth	0.4	0.6	1.5	0.8	1.3	1.4	1.6	1.7	1.6	1.6	1.4	1.4	1.4
Potential GDP growth	0.9	0.8	0.9	0.5	1.2	1.3	1.5	1.7	1.6	1.6	1.4	1.4	1.4
Inflation rate	1.6	1.5	1.5	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.1	2.9	2.7	2.6	2.6	2.6	2.7	2.7	2.8	2.9	3.1	3.3	3.5
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.0	0.1	0.6	0.8	1.1	1.5	1.3	1.2	1.1	1.0	0.8	0.7	0.5
Structural primary balance (before CoA)	1.8	1.4	1.4	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	0.3	0.5	1.4	1.5	1.7	1.9	1.4	1.4	1.3	1.2	1.3	1.3	1.4
Potential GDP growth	1.0	0.9	1.0	1.1	1.2	1.3	1.4	1.4	1.3	1.2	1.3	1.3	1.4
Inflation rate	1.7	1.4	1.7	1.7	1.6	1.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.8	2.6	2.5	2.4	2.3	2.3	2.3	2.4	2.4	2.7	2.9	3.1	3.2
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.5	0.7	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.6	0.5	0.3
Structural primary balance (before CoA)	1.8	1.8	1.2	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	0.4	0.6	1.5	1.4	1.3	1.4	1.6	1.7	1.6	1.6	1.5	1.5	1.5
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.5	0.7	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.6	0.5	0.3
Structural primary balance (before CoA)	1.8	1.8	1.2	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Real GDP growth	0.4	0.6	1.5	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Implicit interest rate (nominal)	3.1	2.9	2.7	2.6	2.6	2.7	2.8	3.0	3.1	3.2	3.4	3.5	3.6
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.1	2.9	2.8	2.8	2.8	3.0	3.1	3.2	3.3	3.4	3.7	4.0	4.3
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.1	2.9	2.6	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.6	2.8	2.9
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.1	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.5	3.5	3.8	4.1	4.4
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.4	0.6	2.0	1.9	1.8	1.9	2.1	2.1	2.1	2.1	2.0	2.0	2.0
Potential GDP growth	0.9	0.8	1.4	1.5	1.7	1.8	2.0	2.1	2.1	2.1	2.0	2.0	2.0
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.4	0.6	1.0	0.9	0.8	0.9	1.1	1.1	1.1	1.1	1.0	1.0	1.0
Potential GDP growth	0.9	0.8	0.4	0.5	0.7	0.8	1.0	1.1	1.1	1.1	1.0	1.0	1.0
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.4	0.6	1.6	1.5	1.8	1.9	2.1	2.1	2.1	2.1	2.0	2.0	2.0
Potential GDP growth	0.9	0.8	1.1	1.2	1.7	1.8	2.0	2.1	2.1	2.1	2.0	2.0	2.0
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.4	0.6	1.3	1.2	0.8	0.9	1.1	1.1	1.1	1.1	1.0	1.0	1.0
Potential GDP growth	0.9	0.8	0.8	0.9	0.7	0.8	1.0	1.1	1.1	1.1	1.0	1.0	1.0
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.6	1.5	2.0	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.6	1.5	1.0	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.2	0.5	0.6	0.5	0.6	0.6	0.7	0.7	0.6	0.5	0.4	0.3	0.1
Structural primary balance (before CoA)	1.8	1.8	1.2	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	0.4	0.6	1.5	1.6	1.3	1.4	1.6	1.6	1.6	1.6	1.5	1.5	1.5
Potential GDP growth	0.9	0.8	0.9	1.3	1.2	1.3	1.5	1.6	1.6	1.6	1.5	1.5	1.5
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	2.9	2.7	2.6	2.6	2.6	2.7	2.7	2.8	2.9	3.1	3.4	3.6

## 19. Poland

Public debt projections under baseline and alternative scenarios and sensitivity tests

PL - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	55.9	50.4	51.4	52.4	53.5	53.9	54.5	55.0	55.8	56.8	57.9	59.3	60.8	62.5
Changes in the ratio (-1+2+3) of which	2.0	-5.5	1.0	0.9	1.2	0.4	0.5	0.6	0.8	1.0	1.2	1.3	1.5	1.7
(1) Primary balance (1.1+1.2+1.3)	-1.5	-1.4	-1.0	-1.2	-1.3	-1.2	-1.3	-1.3	-1.4	-1.5	-1.6	-1.6	-1.7	-1.8
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	-0.9	-0.7	-1.2	-1.0	-1.3	-1.3	-1.3	-1.3	-1.4	-1.5	-1.6	-1.6	-1.7	-1.8
(1.1.1) Structural Primary Balance (before CoA)	-0.9	-0.7	-1.2	-1.0	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
(1.1.2) Cost of ageing						-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2
(1.1.3) Others (taxes and property incomes)						0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
(1.2) Cyclical component	-0.6	-0.4	-0.2	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	-0.2	0.4	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	1.6	-0.1	0.1	-0.7	-0.9	-0.8	-0.7	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	0.0
(2.1) Interest expenditure	2.5	1.9	1.8	1.7	1.6	1.5	1.5	1.5	1.6	1.7	1.8	2.0	2.2	2.4
(2.2) Growth effect	-0.7	-1.8	-1.7	-1.7	-1.7	-1.5	-1.3	-1.2	-1.1	-1.1	-1.1	-1.2	-1.2	-1.3
(2.3) Inflation effect	-0.2	-0.2	0.1	-0.7	-0.8	-0.9	-0.9	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-1.2
(3) Stock flow adjustments	-1.1	-6.8	-0.1	0.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-3.4	-2.6	-3.0	-2.6	-2.9	-2.8	-2.8	-2.8	-3.0	-3.2	-3.4	-3.6	-3.9	-4.2





**Sustainability indicators summary table**

Long-term projections																
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030						
<b>Budgetary projections</b>																
Total cost of ageing (gross)	20.9	20.6	20.5	20.4	20.3	20.2	20.2	20.2	20.5	20.6						
Revenues from pensions taxation	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2						
Property incomes	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1	1.0						
<b>Sustainability indicators</b>																
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>										
<b>Overall index</b>		<b>0.56</b>		<b>0.27</b>		<b>0.43</b>										
Fiscal sub-index		0.32		0.17		0.35										
Financial competitiveness sub-index		0.66		0.32		0.45										
<b>S1 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							<b>1.0</b>		<b>2.4</b>		<b>1.4</b>		<b>-0.8</b>		<b>0.1</b>	
of which Initial Budgetary position							1.2		2.0		1.2		-0.1		-0.2	
Cost of delaying adjustment**							0.1		0.5		0.2		-0.1		0.0	
Debt requirement***							-0.5		-0.4		-0.5		-0.9		-0.2	
Ageing costs							0.2		0.2		0.5		0.2		0.6	
<b>Required structural primary balance related to S1</b>							<b>-0.3</b>		<b>0.6</b>		<b>0.1</b>		<b>-0.6</b>		<b>1.1</b>	
<b>S2 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							<b>3.5</b>		<b>4.2</b>		<b>4.7</b>		<b>1.9</b>		<b>1.5</b>	
of which Initial Budgetary position							2.4		3.0		2.4		0.8		0.4	
Long term component							1.1		1.2		2.3		1.2		1.1	
of which Pensions							-0.2		-0.1		-0.2		-0.2		-0.6	
Health care							0.8		0.8		1.5		0.8		1.7	
Long-term care							0.6		0.5		1.2		0.6		0.0	
Others							-0.1		0.0		-0.1		0.0		-0.1	
<b>Required structural primary balance related to S2</b>							<b>2.2</b>		<b>2.4</b>		<b>3.4</b>		<b>2.1</b>		<b>2.5</b>	

### Risks related to the structure of public debt financing

Public debt structure - PL (2014):	Change in share of short-term public debt (p.p.): 0	Share of public debt by non-residents (%): 50.1 (2013)	Share of public debt in foreign currency (%): 35.2
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014		
	PL	EU
State guarantees (% GDP) (2013)	6.8	10.5
of which One-off guarantees	6.5	10.2
Standardised guarantees	0.3	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	3.07
	Securities issued under liquidity schemes	0.45
	Special purpose entity	0.91
	Total	4.43

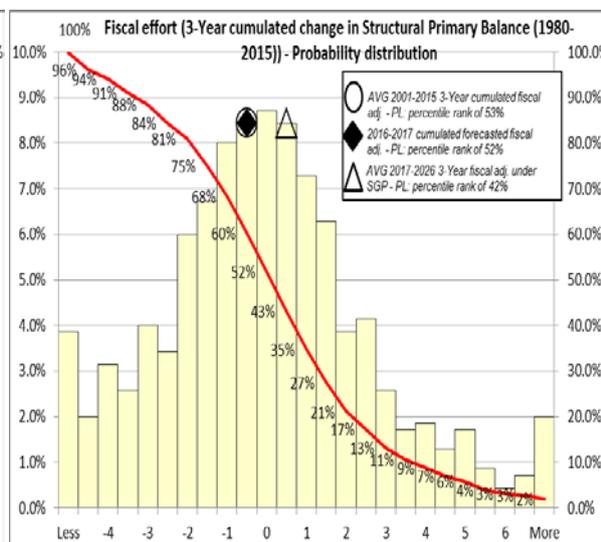
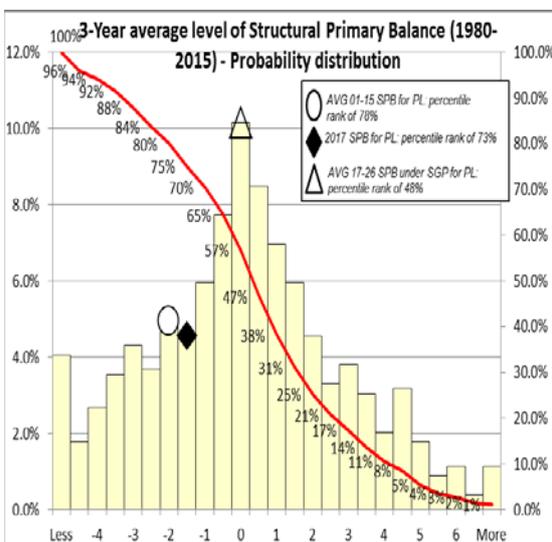
Government's contingent liability risks from banking sector - PL (2014):	Private sector credit flow (% GDP): 4.7	Bank loans-to-deposits ratio (%): n.a. ()	Share of non-performing loans (%): 5.4	Change in share of non-performing loans (p.p.): -0.6	Change in nominal house price index: 1	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, PL	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A2	P-1	A2	P-1
S&P	A	A-1	A-	A-2
Fitch	A		A-	

Financial market information as of November 2015, PL		
Sovereign yield spreads(bp)*	2-year	201.8
	10-year	220
CDS (bp)	5-year	72.9

### Realism of baseline assumptions



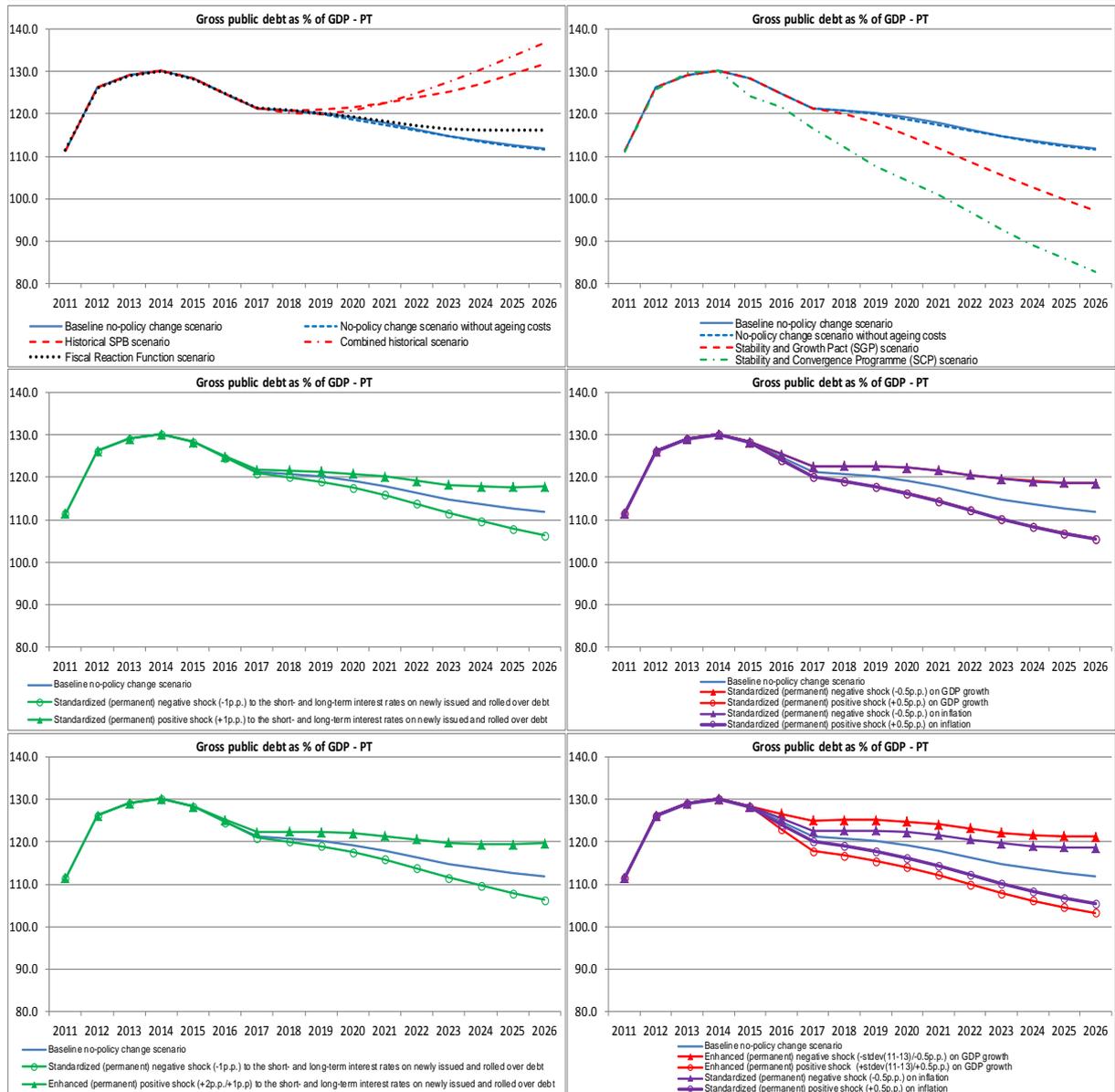
Underlying macro-fiscal assumptions

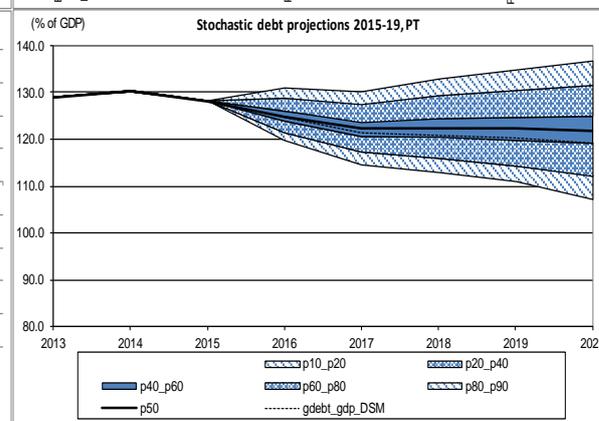
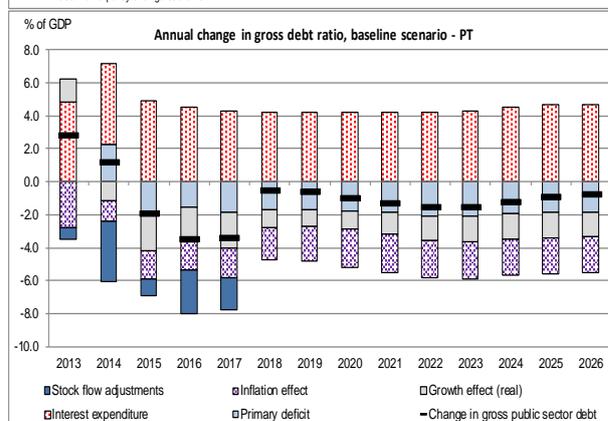
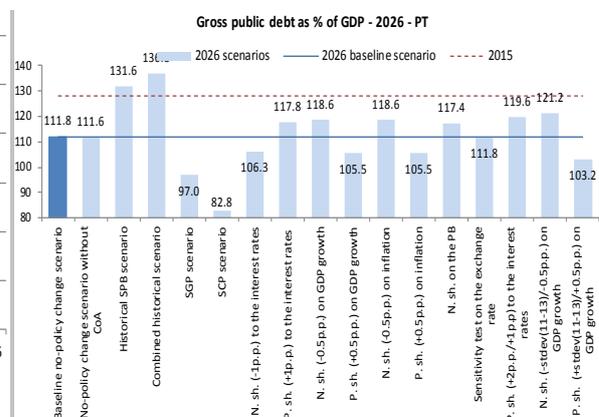
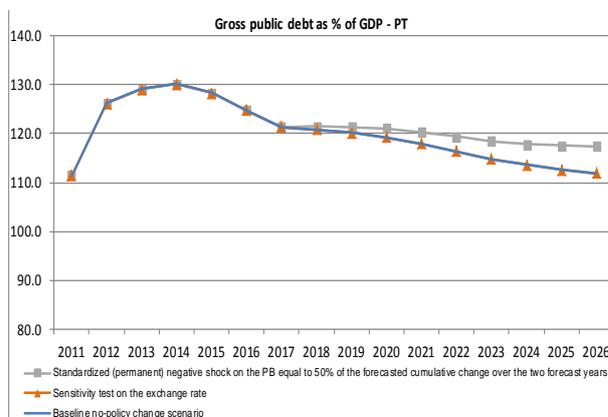
Macro-fiscal assumptions, Poland													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.4	-1.0	-1.2	-1.3	-1.2	-1.3	-1.3	-1.4	-1.5	-1.6	-1.6	-1.7	-1.8
Structural primary balance (before CoA)	-0.7	-1.2	-1.0	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.3	3.5	3.5	3.5	2.9	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1
Potential GDP growth	3.1	3.1	3.2	3.2	2.9	2.5	2.4	2.2	2.1	2.1	2.1	2.1	2.1
Inflation rate	0.4	-0.1	1.3	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	3.4	3.1	3.0	2.9	2.9	3.0	3.2	3.4	3.6	3.9	4.1
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.4	-1.0	-1.2	-1.3	-0.8	-0.6	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Structural primary balance (before CoA)	-0.7	-1.2	-1.0	-1.3	-0.9	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1	0.0
Real GDP growth	3.3	3.5	3.5	3.5	2.5	2.3	2.2	2.1	2.0	2.0	2.0	2.1	2.1
Potential GDP growth	3.1	3.1	3.2	3.2	2.6	2.3	2.3	2.1	2.0	2.0	2.0	2.1	2.1
Inflation rate	0.4	-0.1	1.3	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	3.4	3.1	3.0	3.0	2.9	3.0	3.2	3.4	3.6	3.8	4.1
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.4	-1.0	-1.2	-0.5	-0.1	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.8
Structural primary balance (before CoA)	-0.7	-1.2	-1.0	-0.6	-0.1	0.3	0.5	0.5	0.5	0.6	0.6	0.7	0.8
Real GDP growth	3.3	3.5	3.5	2.9	2.5	2.1	2.2	2.1	2.0	2.0	2.0	2.1	2.1
Potential GDP growth	3.1	3.1	3.2	2.7	2.6	2.2	2.3	2.1	2.0	2.0	2.0	2.1	2.1
Inflation rate	0.4	-0.1	1.3	1.5	1.7	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.6	3.4	3.1	3.0	2.9	2.9	3.0	3.2	3.4	3.6	3.9	4.2
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.2	-1.0	-0.8	-0.3	0.4	0.2	0.2	0.1	0.0	-0.1	-0.1	-0.2	-0.3
Structural primary balance (before CoA)	-0.7	-0.6	-0.4	-0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Real GDP growth	3.4	3.4	3.8	3.9	4.0	2.6	2.2	2.1	2.1	2.1	2.1	2.2	2.2
Potential GDP growth	3.2	3.3	3.4	3.7	4.0	2.4	2.2	2.1	2.1	2.1	2.1	2.2	2.2
Inflation rate	0.6	0.5	1.3	1.7	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.9	3.4	3.0	2.9	3.1	3.4	3.6	4.0	4.2	4.4	4.5	4.6	4.6
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.4	-1.0	-1.2	-1.3	-1.3	-1.5	-1.7	-1.8	-1.9	-2.0	-2.1	-2.2	-2.2
Structural primary balance (before CoA)	-0.7	-1.2	-1.0	-1.3	-1.4	-1.5	-1.7	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Real GDP growth	3.3	3.5	3.5	3.5	3.0	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.4	-1.0	-1.2	-1.3	-1.3	-1.5	-1.7	-1.8	-1.9	-2.0	-2.1	-2.2	-2.2
Structural primary balance (before CoA)	-0.7	-1.2	-1.0	-1.3	-1.4	-1.5	-1.7	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Real GDP growth	3.3	3.5	3.5	3.5	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Implicit interest rate (nominal)	3.6	3.6	3.4	3.1	3.1	3.1	3.3	3.8	4.1	4.3	4.5	4.7	4.8
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.6	3.5	3.4	3.4	3.4	3.4	3.7	3.9	4.1	4.4	4.7	5.0
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.6	3.2	2.9	2.6	2.5	2.4	2.4	2.5	2.6	2.8	3.0	3.3
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.9	4.1	4.3	4.6	4.8	5.1
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.3	3.5	4.0	4.0	3.4	3.0	2.8	2.7	2.6	2.6	2.6	2.6	2.6
Potential GDP growth	3.1	3.1	3.7	3.7	3.4	3.0	2.9	2.7	2.6	2.6	2.6	2.6	2.6
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.3	3.5	3.0	3.0	2.4	2.0	1.8	1.7	1.6	1.6	1.6	1.6	1.6
Potential GDP growth	3.1	3.1	2.7	2.7	2.4	2.0	1.9	1.7	1.6	1.6	1.6	1.6	1.6
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.3	3.5	4.7	4.7	3.4	3.0	2.8	2.7	2.6	2.6	2.6	2.6	2.6
Potential GDP growth	3.1	3.1	4.4	4.5	3.4	3.0	2.9	2.7	2.6	2.6	2.6	2.6	2.6
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.3	3.5	2.2	2.2	2.4	2.0	1.8	1.7	1.6	1.6	1.6	1.6	1.6
Potential GDP growth	3.1	3.1	1.9	2.0	2.4	2.0	1.9	1.7	1.6	1.6	1.6	1.6	1.6
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.4	-0.1	1.8	2.0	2.2	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.4	-0.1	0.8	1.0	1.2	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.4	-1.0	-1.5	-1.3	-1.3	-1.3	-1.3	-1.4	-1.5	-1.6	-1.7	-1.7	-1.8
Structural primary balance (before CoA)	-0.7	-1.2	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.3	3.5	3.7	3.3	2.9	2.5	2.3	2.2	2.1	2.1	2.1	2.1	2.1
Potential GDP growth	3.1	3.1	3.4	3.0	2.9	2.5	2.4	2.2	2.1	2.1	2.1	2.1	2.1
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-7.7%	-7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.6	3.2	3.1	3.0	2.9	2.9	3.0	3.2	3.4	3.6	3.8	4.1

## 20. Portugal

Public debt projections under baseline and alternative scenarios and sensitivity tests

PT - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>129.0</b>	<b>130.2</b>	<b>128.2</b>	<b>124.7</b>	<b>121.3</b>	<b>120.8</b>	<b>120.2</b>	<b>119.2</b>	<b>117.9</b>	<b>116.3</b>	<b>114.8</b>	<b>113.6</b>	<b>112.6</b>	<b>111.8</b>
Changes in the ratio (-1+2+3) of which	2.8	1.2	-2.0	-3.5	-3.4	-0.5	-0.6	-1.0	-1.3	-1.6	-1.6	-1.2	-1.0	-0.8
(1) Primary balance (1.1+1.2+1.3)	0.0	-2.3	2.0	1.6	1.8	1.7	1.7	1.8	1.9	2.0	2.1	1.9	1.9	1.8
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	2.3	3.5	3.1	2.2	1.9	1.8	1.7	1.8	1.9	2.0	2.1	1.9	1.9	1.8
(1.1.1) Structural Primary Balance (before CoA)	2.3	3.5	3.1	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
(1.1.2) Cost of ageing						0.1	0.2	0.2	0.0	-0.1	-0.1	0.0	0.1	0.1
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	-2.6	-2.0	-1.2	-0.6	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.3	-3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	3.5	2.5	1.0	0.7	0.3	1.2	1.1	0.8	0.6	0.5	0.5	0.7	0.9	1.1
(2.1) Interest expenditure	4.9	4.9	4.9	4.5	4.3	4.2	4.2	4.2	4.2	4.3	4.3	4.5	4.7	4.7
(2.2) Growth effect	1.4	-1.2	-2.2	-2.1	-2.2	-1.1	-1.0	-1.1	-1.3	-1.5	-1.5	-1.6	-1.5	-1.5
(2.3) Inflation effect	-2.8	-1.2	-1.7	-1.7	-1.8	-1.9	-2.1	-2.3	-2.3	-2.3	-2.3	-2.2	-2.2	-2.2
(3) Stock flow adjustments	-0.7	-3.6	-1.0	-2.6	-1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-2.5	-1.4	-1.8	-2.3	-2.4	-2.4	-2.5	-2.5	-2.4	-2.2	-2.3	-2.6	-2.8	-2.9





### Sustainability indicators summary table

#### Long-term projections

	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	27.0	26.8	26.6	26.8	27.0	27.2	27.2	27.2	27.1	27.3
Revenues from pensions taxation	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
Property incomes	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

#### Sustainability indicators

S0 indicator	2009	2015	Critical threshold
Overall index	0.80	0.24	0.43
Fiscal sub-index	0.93	0.23	0.35
Financial competitiveness sub-index	0.75	0.25	0.45

S1 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report
Overall index	4.7	13.1	5.1	1.4	:
of which Initial Budgetary position	-0.5	3.6	-0.5	-2.9	:
Cost of delaying adjustment**	0.8	3.1	0.8	0.3	:
Debt requirement***	4.4	6.4	4.4	4.2	:
Ageing costs	0.1	0.0	0.3	-0.2	:
Required structural primary balance related to S1	6.6	12.1	7.0	4.5	:

S2 indicator	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report
Overall index	0.7	4.0	2.4	-0.6	:
of which Initial Budgetary position	0.2	3.5	0.2	-0.9	:
Long term component	0.5	0.5	2.1	0.3	:
of which Pensions	-0.2	-0.6	-0.2	-0.5	:
Health care	1.7	1.6	2.4	1.7	:
Long-term care	0.2	0.2	1.2	0.2	:
Others	-1.3	-0.7	-1.3	-1.1	:
Required structural primary balance related to S2	2.7	3.0	4.3	2.5	:

### Risks related to the structure of public debt financing

Public debt structure - PT (2014):	Change in share of short-term public debt (p.p.): 3.7	Share of public debt by non-residents (%): 66.4 (2013)	Share of public debt in foreign currency (%): 14.3
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			PT	EU
State guarantees (% GDP) (2013)			12.0	10.5
of which One-off guarantees			12.0	10.2
Standardised guarantees			.	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		3.63	3.07
	Securities issued under liquidity schemes		0.00	0.45
	Special purpose entity		0.00	0.91
	Total		3.63	4.43

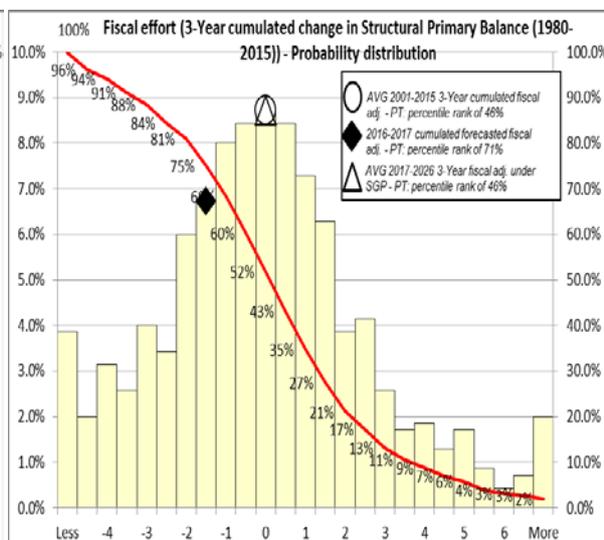
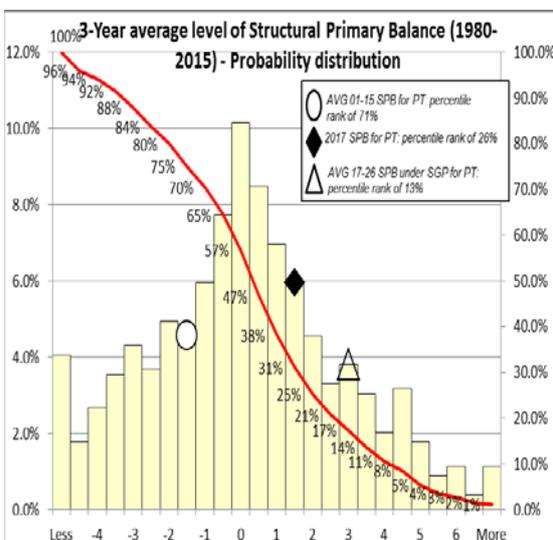
Government's contingent liability risks from banking sector - PT (2014):	Private sector credit flow (% GDP):	Bank loans-to-deposits ratio (%):	Share of non-performing loans (%):	Change in share of non-performing loans (p.p.):	Change in nominal house price index:	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
	-8.7	130.8	12.7	4.9	4.3	bank recap. at 8% 0.02%	bank recap. at 10.5% 0.07%

### Financial market information

Sovereign Ratings as of Nov 30 2015, PT	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Ba1	(P/NP)	Ba1	
S&P	BB+u	Bu	BB+u	Bu
Fitch	WD		BB+	WD

Financial market information as of November 2015, PT		
Sovereign yield spreads(bp)*	2-year	55.7
	10-year	185
CDS (bp)	5-year	167.2

### Realism of baseline assumptions



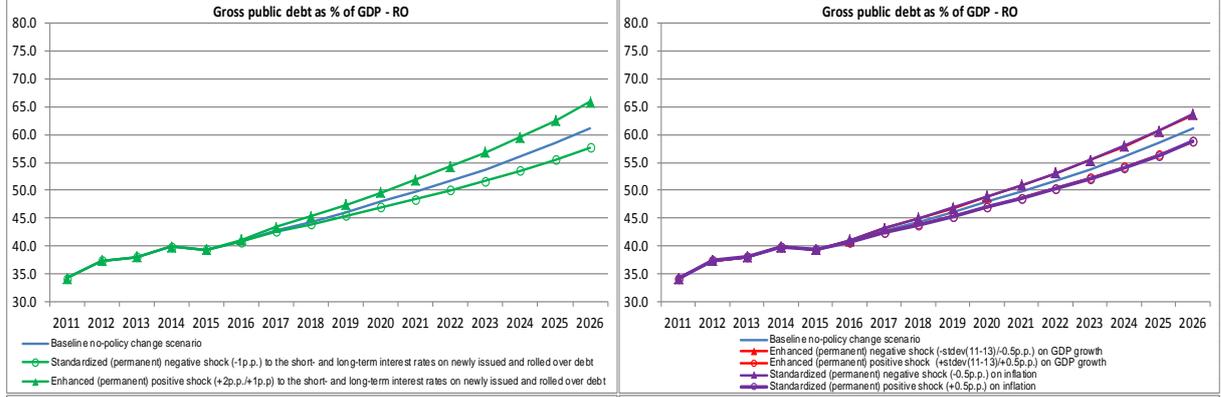
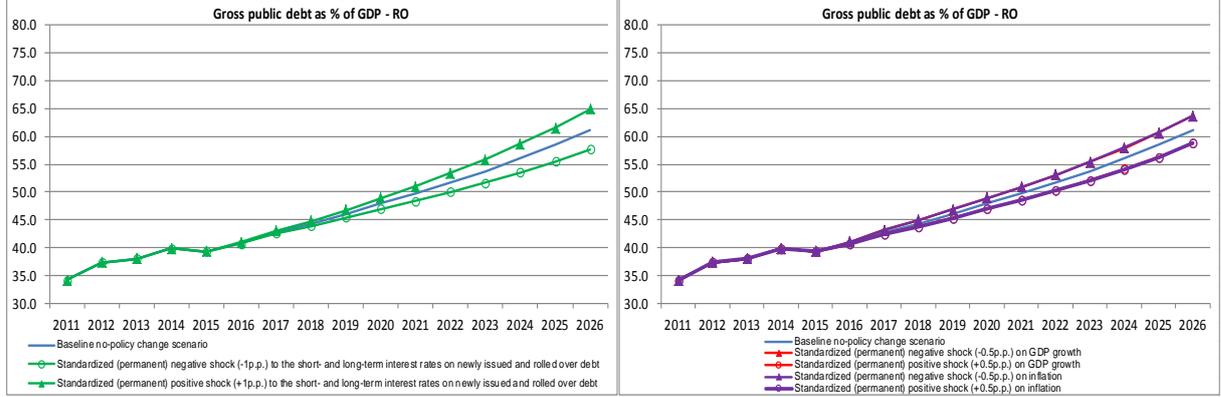
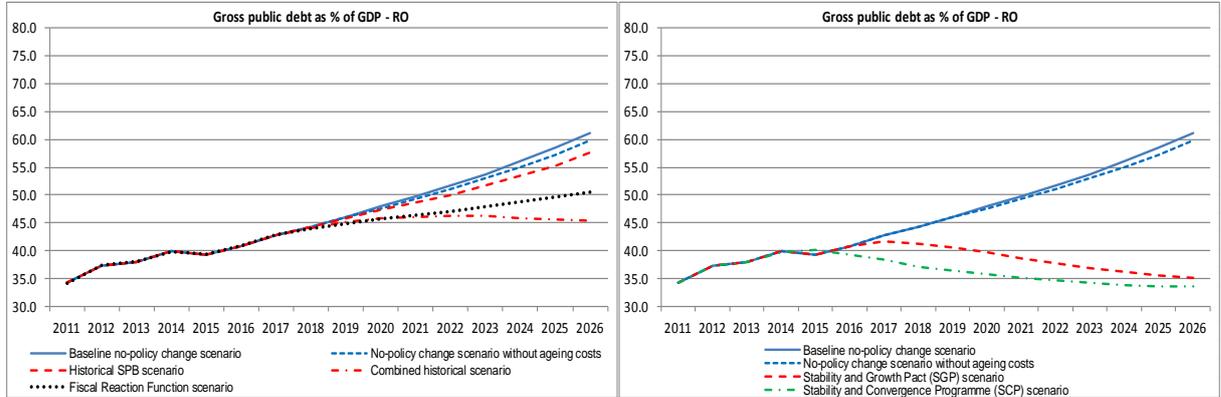
### Underlying macro-fiscal assumptions

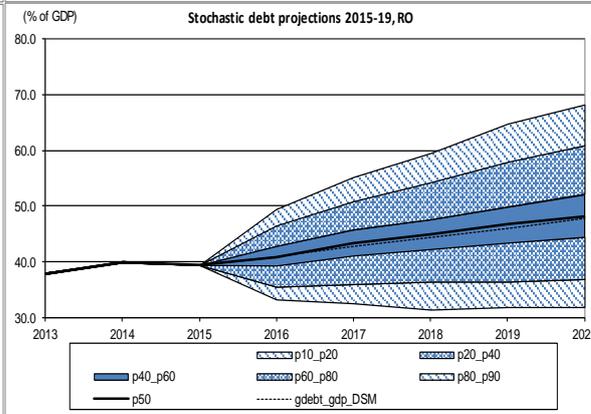
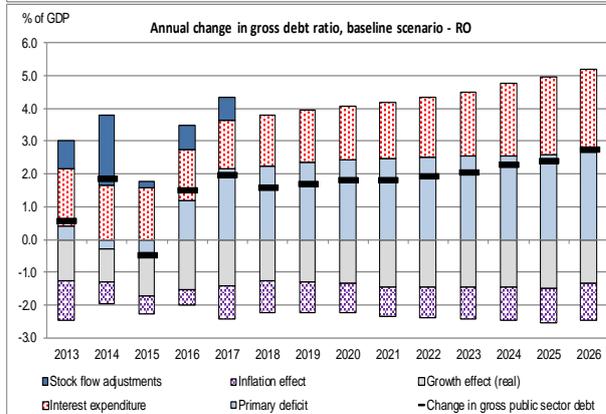
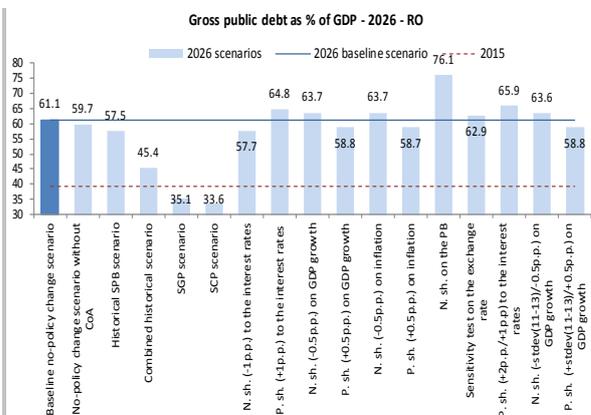
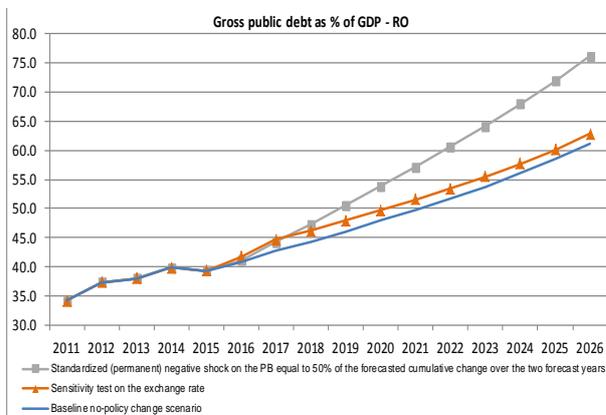
Macro-fiscal assumptions, Portugal													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.3	2.0	1.6	1.8	1.7	1.7	1.8	1.9	2.0	2.1	1.9	1.9	1.8
Structural primary balance (before CoA)	3.5	3.1	2.2	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	0.9	1.7	1.7	1.8	0.9	0.8	0.9	1.1	1.3	1.4	1.4	1.4	1.3
Potential GDP growth	-0.4	0.1	0.5	0.8	0.9	0.8	0.8	1.1	1.3	1.4	1.4	1.4	1.3
Inflation rate	1.0	1.3	1.4	1.5	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.9	3.9	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.9	4.1	4.2	4.3
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.3	2.0	1.6	1.8	1.8	1.6	1.4	1.3	1.3	1.2	1.1	1.1	1.0
Structural primary balance (before CoA)	3.5	3.1	2.2	1.9	2.0	1.8	1.6	1.4	1.1	1.0	1.1	1.1	1.1
Real GDP growth	0.9	1.7	1.7	1.8	0.9	1.0	1.1	1.3	1.5	1.5	1.3	1.4	1.3
Potential GDP growth	-0.4	0.1	0.5	0.8	0.8	0.9	1.0	1.3	1.5	1.5	1.3	1.4	1.3
Inflation rate	1.0	1.3	1.4	1.5	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.9	3.9	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.9	4.1	4.2	4.3
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.3	2.0	1.6	2.5	3.0	3.7	3.7	3.6	3.6	3.6	3.7	3.7	3.7
Structural primary balance (before CoA)	3.5	3.1	2.2	2.6	3.1	3.7	3.7	3.6	3.6	3.6	3.7	3.7	3.7
Real GDP growth	0.9	1.7	1.7	1.3	0.6	0.4	0.9	1.2	1.3	1.4	1.3	1.4	1.4
Potential GDP growth	-0.4	0.1	0.5	0.3	0.5	0.4	0.9	1.2	1.3	1.4	1.3	1.4	1.4
Inflation rate	1.0	1.3	1.4	1.5	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.9	3.9	3.6	3.6	3.6	3.6	3.6	3.7	3.8	3.9	4.1	4.2	4.3
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	0.5	2.3	2.4	3.0	3.2	3.7	3.1	3.3	3.4	3.5	3.3	3.2	3.2
Structural primary balance (before CoA)	4.2	4.0	3.4	3.3	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Real GDP growth	0.9	1.6	2.0	2.4	2.4	2.4	1.3	1.6	1.8	1.9	1.9	1.7	1.5
Potential GDP growth	-0.3	0.2	0.8	1.1	1.3	1.4	1.3	1.5	1.8	1.9	1.9	1.7	1.5
Inflation rate	1.2	1.3	1.4	1.4	1.4	1.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.9	3.9	3.6	3.5	3.4	3.3	3.2	3.3	3.3	3.3	3.4	3.7	3.8
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.3	2.0	1.6	1.8	1.0	0.2	-0.5	-1.1	-0.9	-0.9	-1.1	-1.1	-1.1
Structural primary balance (before CoA)	3.5	3.1	2.2	1.9	1.2	0.4	-0.3	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1
Real GDP growth	0.9	1.7	1.7	1.8	1.5	1.4	1.5	1.7	1.3	1.4	1.4	1.4	1.3
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.3	2.0	1.6	1.8	1.0	0.2	-0.5	-1.1	-0.9	-0.9	-1.1	-1.1	-1.1
Structural primary balance (before CoA)	3.5	3.1	2.2	1.9	1.2	0.4	-0.3	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1
Real GDP growth	0.9	1.7	1.7	1.8	2.1	1.8	1.4	1.1	0.6	0.6	0.6	0.6	0.6
Implicit interest rate (nominal)	3.9	3.9	3.6	3.6	3.6	3.6	3.7	3.8	3.9	4.0	4.1	4.1	4.2
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.9	3.9	3.8	3.8	3.8	3.9	4.0	4.1	4.2	4.4	4.7	5.0	5.1
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.9	3.9	3.5	3.4	3.3	3.2	3.2	3.2	3.3	3.3	3.4	3.5	3.6
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.9	3.9	3.9	4.0	4.1	4.1	4.1	4.2	4.3	4.5	4.8	5.0	5.1
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.9	1.7	2.2	2.3	1.4	1.3	1.4	1.6	1.8	1.9	1.9	1.9	1.8
Potential GDP growth	-0.4	0.1	1.0	1.3	1.4	1.3	1.3	1.6	1.8	1.9	1.9	1.9	1.8
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.9	1.7	1.2	1.3	0.4	0.3	0.4	0.6	0.8	0.9	0.9	0.9	0.8
Potential GDP growth	-0.4	0.1	0.0	0.3	0.4	0.3	0.3	0.6	0.8	0.9	0.9	0.9	0.8
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.9	1.7	3.1	3.3	1.4	1.3	1.4	1.6	1.8	1.9	1.9	1.9	1.8
Potential GDP growth	-0.4	0.1	2.0	2.3	1.4	1.3	1.3	1.6	1.8	1.9	1.9	1.9	1.8
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	0.9	1.7	0.2	0.4	0.4	0.3	0.4	0.6	0.8	0.9	0.9	0.9	0.8
Potential GDP growth	-0.4	0.1	-1.0	-0.6	0.4	0.3	0.3	0.6	0.8	0.9	0.9	0.9	0.8
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.0	1.3	1.9	2.0	2.1	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.0	1.3	0.9	1.0	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.3	2.0	1.6	1.2	1.1	1.1	1.2	1.3	1.4	1.5	1.3	1.3	1.2
Structural primary balance (before CoA)	3.5	3.1	2.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Real GDP growth	0.9	1.7	1.6	2.3	0.9	0.8	0.9	1.1	1.3	1.4	1.4	1.4	1.3
Potential GDP growth	-0.4	0.1	0.5	1.3	0.9	0.8	0.8	1.1	1.3	1.4	1.4	1.4	1.3
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.9	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.9	4.1	4.2	4.3

## 21. Romania

Public debt projections under baseline and alternative scenarios and sensitivity tests

RO - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	38.0	39.9	39.4	40.9	42.8	44.4	46.1	47.9	49.7	51.7	53.7	56.0	58.4	61.1
Changes in the ratio (-1+2+3) of which	0.6	1.9	-0.5	1.5	2.0	1.6	1.7	1.8	1.8	1.9	2.1	2.3	2.4	2.7
(1) Primary balance (1.1+1.2+1.3)	-0.4	0.3	0.4	-1.2	-2.2	-2.3	-2.4	-2.4	-2.5	-2.5	-2.5	-2.6	-2.6	-2.7
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.7	1.0	0.8	-1.2	-2.3	-2.4	-2.4	-2.4	-2.5	-2.5	-2.5	-2.6	-2.6	-2.7
(1.1.1) Structural Primary Balance (before CoA)	0.7	1.0	0.8	-1.2	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
(1.1.2) Cost of ageing						0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1
(1.2) Cyclical component	-1.1	-0.8	-0.4	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	-0.7	0.0	-0.3	-0.5	-0.9	-0.7	-0.6	-0.6	-0.6	-0.5	-0.4	-0.3	-0.2	0.1
(2.1) Interest expenditure	1.7	1.7	1.6	1.5	1.5	1.5	1.6	1.6	1.7	1.8	2.0	2.2	2.4	2.5
(2.2) Growth effect	-1.3	-1.0	-1.3	-1.5	-1.4	-1.3	-1.3	-1.4	-1.4	-1.4	-1.4	-1.4	-1.5	-1.3
(2.3) Inflation effect	-1.2	-0.6	-0.5	-0.5	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-1.0	-1.0	-1.1	-1.1
(3) Stock flow adjustments	0.9	2.1	0.2	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-1.1	-0.6	-0.8	-2.7	-3.8	-3.9	-4.0	-4.1	-4.2	-4.3	-4.5	-4.8	-5.0	-5.2





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	15.5	15.5	15.7	15.6	15.7	15.7	15.7	15.8	15.9	16.2
Revenues from pensions taxation	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Property incomes	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	0.76	0.14	0.43	Critical threshold						
Fiscal sub-index	0.45	0.07	0.35							
Financial competitiveness sub-index	0.87	0.18	0.45							
<b>S1 indicator</b>										
Overall index	1.4	1.4	1.7	2.5	2.1	2.5	2.5	2.5	2.5	2.5
of which Initial Budgetary position	2.2	2.0	2.2	-0.5	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Cost of delaying adjustment**	0.2	0.3	0.3	-0.4	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Debt requirement***	-1.3	-1.2	-1.3	-1.8	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4
Ageing costs	0.3	0.3	0.5	0.2	0.4	0.4	0.4	0.4	0.4	0.4
Required structural primary balance related to S1	-0.9	-0.4	-0.6	-1.8	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7
<b>S2 indicator</b>										
Overall index	4.4	4.2	6.4	1.5	3.7	3.7	3.7	3.7	3.7	3.7
of which Initial Budgetary position	2.9	2.8	2.9	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Long term component	1.5	1.4	3.5	1.5	3.6	3.6	3.6	3.6	3.6	3.6
of which Pensions	0.1	0.0	0.1	0.1	2.4	2.4	2.4	2.4	2.4	2.4
Health care	0.6	0.5	1.1	0.6	1.3	1.3	1.3	1.3	1.3	1.3
Long-term care	0.6	0.5	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Others	0.3	0.3	0.3	0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Required structural primary balance related to S2	2.1	2.4	4.1	2.2	4.4	4.4	4.4	4.4	4.4	4.4

**Risks related to the structure of public debt financing**

Public debt structure - RO (2014):	Change in share of short-term public debt (p.p.): 0.5	Share of public debt by non-residents (%): 54.5 (2013)	Share of public debt in foreign currency (%): 57
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			
	RO	EU	
State guarantees (% GDP) (2013)	2.2	10.5	
of which One-off guarantees	0.8	10.2	
Standardised guarantees	1.3	0.4	
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	:	3.07
	Securities issued under liquidity schemes	:	0.45
	Special purpose entity	:	0.91
	Total	0.00	4.43

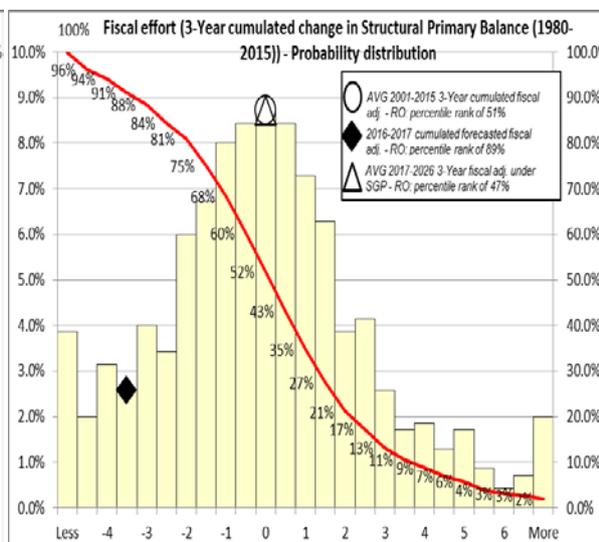
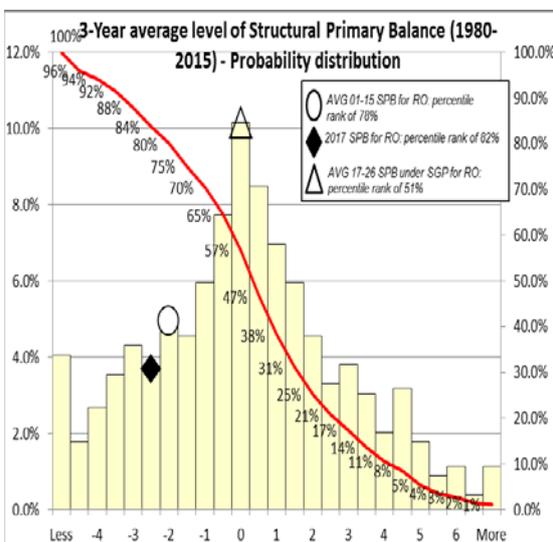
Government's contingent liability risks from banking sector - RO (2014):	Private sector credit flow (% GDP): -2.4	Bank loans-to-deposits ratio (%): 104.5 (2013)	Share of non-performing loans (%): 15.8	Change in share of non-performing loans (p.p.): -2	Change in nominal house price index: -2.4	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, RO	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's			Baa3	
S&P	BBB-	A-3	BBB-	A-3
Fitch	BBB		BBB-	F3

Financial market information as of November 2015, RO		
Sovereign yield spreads(bp)*	2-year	164.6
	10-year	306
CDS (bp)	5-year	122.5

**Realism of baseline assumptions**



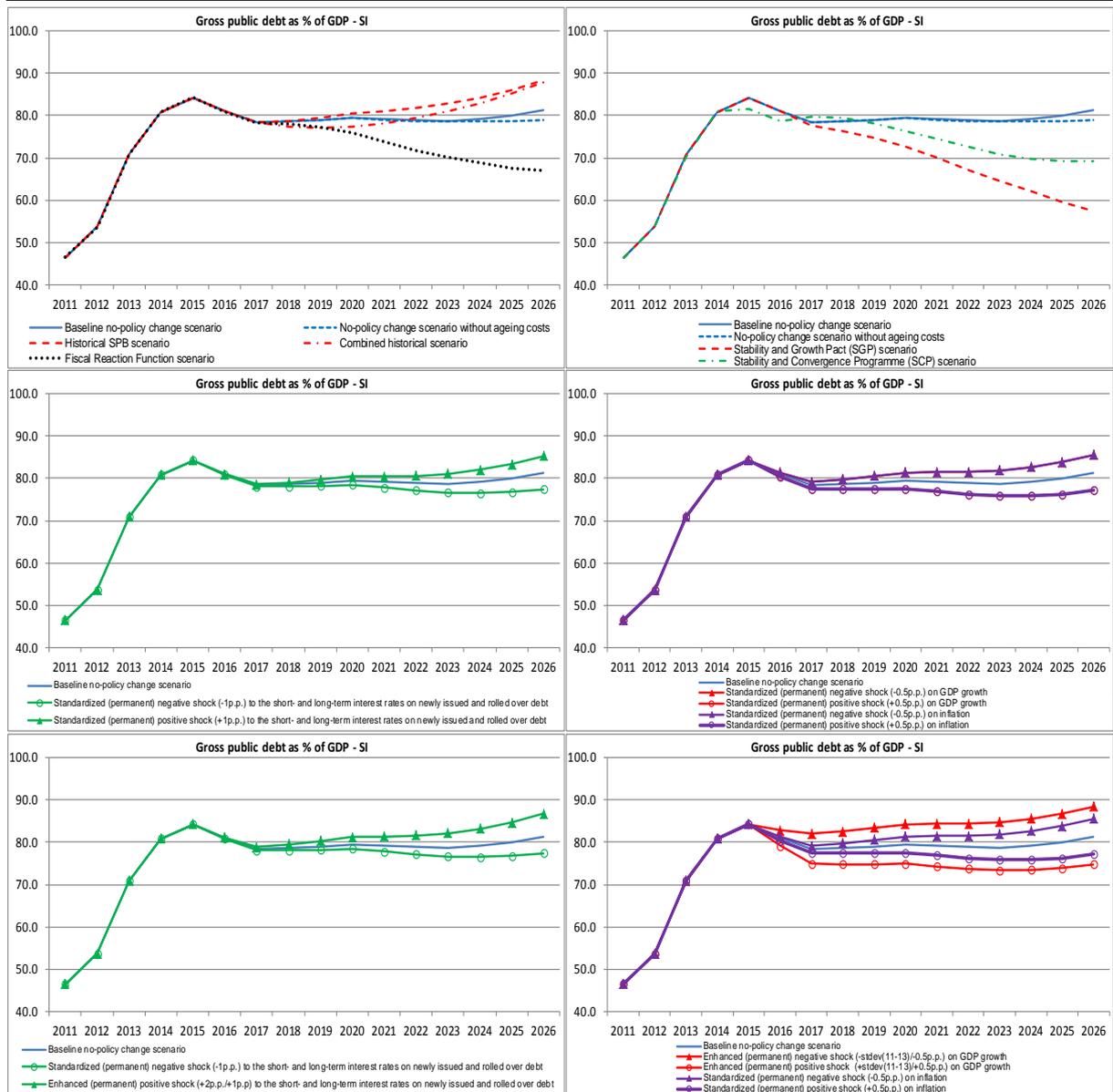
### Underlying macro-fiscal assumptions

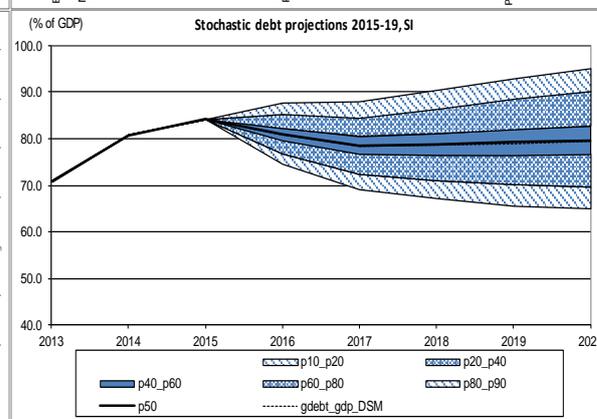
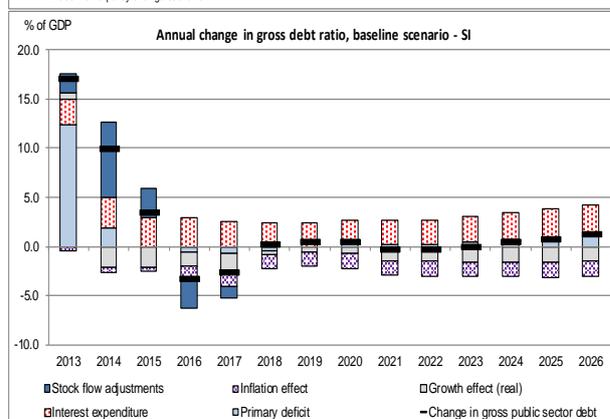
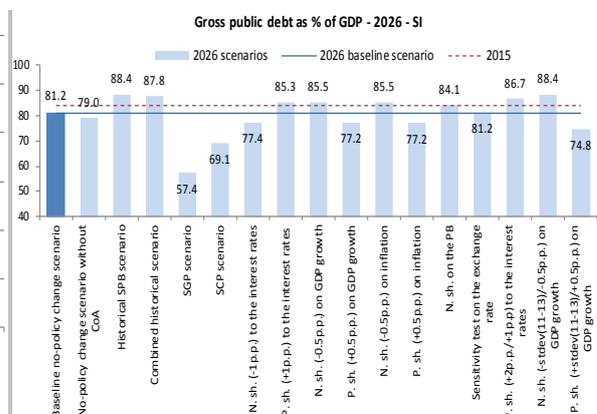
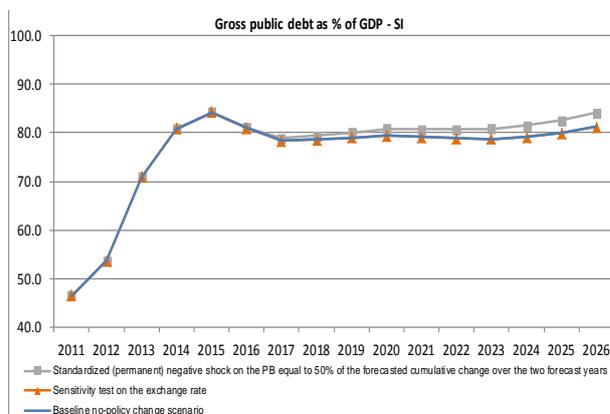
Macro-fiscal assumptions, Romania													
<b>1. Baseline no-policy change scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.3	0.4	-1.2	-2.2	-2.3	-2.4	-2.4	-2.5	-2.5	-2.5	-2.6	-2.6	-2.7
Structural primary balance (before CoA)	1.0	0.8	-1.2	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
Real GDP growth	2.8	3.5	4.1	3.6	3.1	3.1	3.1	3.2	3.0	2.9	2.8	2.8	2.4
Potential GDP growth	1.8	2.4	2.8	3.1	3.2	3.2	3.2	3.2	3.0	2.9	2.8	2.8	2.4
Inflation rate	1.8	1.4	1.2	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.6	4.2	4.1	3.9	3.8	3.8	3.7	3.8	3.9	4.0	4.3	4.4	4.5
<b>2. Fiscal reaction function institutional scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.3	0.4	-1.2	-2.2	-1.7	-1.5	-1.3	-1.3	-1.2	-1.1	-1.1	-1.0	-0.9
Structural primary balance (before CoA)	1.0	0.8	-1.2	-2.3	-1.8	-1.4	-1.2	-1.1	-1.0	-0.9	-0.8	-0.7	-0.6
Real GDP growth	2.8	3.5	4.1	3.6	2.7	2.8	2.9	3.1	3.0	2.8	2.7	2.7	2.3
Potential GDP growth	1.8	2.4	2.8	3.1	2.8	3.0	3.1	3.1	3.0	2.8	2.7	2.7	2.3
Inflation rate	1.8	1.4	1.2	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.6	4.2	4.1	3.9	3.8	3.8	3.7	3.8	3.9	4.0	4.3	4.4	4.5
<b>3. SCP scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.3	0.4	-1.2	-0.6	-0.1	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.6
Structural primary balance (before CoA)	1.0	0.8	-1.2	-0.7	-0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.6
Real GDP growth	2.8	3.5	4.1	2.4	2.7	2.7	2.9	3.2	3.0	2.9	2.7	2.8	2.4
Potential GDP growth	1.8	2.4	2.8	1.9	2.9	2.9	3.1	3.2	3.0	2.9	2.7	2.8	2.4
Inflation rate	1.8	1.4	1.2	2.6	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.6	4.2	4.1	3.9	3.8	3.8	3.7	3.8	3.9	4.0	4.3	4.5	4.6
<b>4. SCP scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.1	0.1	0.4	0.5	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.4
Structural primary balance (before CoA)	0.7	0.5	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Real GDP growth	2.8	3.2	3.4	3.7	4.0	2.8	2.8	2.7	2.6	2.5	2.5	2.2	2.0
Potential GDP growth	1.9	2.5	2.9	3.1	3.2	2.7	2.8	2.7	2.6	2.5	2.5	2.2	2.0
Inflation rate	1.8	1.8	2.3	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.4	4.1	4.3	4.2	4.5	4.7	4.8	4.9	4.9	5.0	5.0	5.0	5.0
<b>5. Historical SPB scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.3	0.4	-1.2	-2.2	-2.1	-2.1	-2.1	-2.0	-2.0	-2.0	-2.1	-2.1	-2.2
Structural primary balance (before CoA)	1.0	0.8	-1.2	-2.3	-2.2	-2.1	-1.9	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Real GDP growth	2.8	3.5	4.1	3.6	3.0	3.0	3.0	3.1	3.0	2.9	2.8	2.8	2.4
<b>6. Combined historical scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.3	0.4	-1.2	-2.2	-2.1	-2.1	-2.1	-2.0	-2.0	-2.0	-2.1	-2.1	-2.2
Structural primary balance (before CoA)	1.0	0.8	-1.2	-2.3	-2.2	-2.1	-1.9	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8
Real GDP growth	2.8	3.5	4.1	3.6	3.4	3.4	3.3	3.3	3.4	3.4	3.4	3.4	3.4
Implicit interest rate (nominal)	4.6	4.2	4.1	3.9	3.6	3.2	2.2	1.6	1.2	0.8	0.1	-0.1	-0.2
<b>7. Higher IR scenario (standard DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Implicit interest rate (nominal)	4.6	4.2	4.4	4.3	4.3	4.3	4.4	4.5	4.7	4.9	5.2	5.4	5.5
<b>8. Lower IR scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Implicit interest rate (nominal)	4.6	4.2	3.8	3.5	3.3	3.2	3.0	3.0	3.1	3.1	3.4	3.5	3.6
<b>9. Higher IR scenario (enhanced DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Implicit interest rate (nominal)	4.6	4.2	4.7	4.7	4.8	4.7	4.7	4.7	4.8	5.0	5.3	5.4	5.5
<b>10. Higher growth scenario (standard DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	2.8	3.5	4.6	4.1	3.6	3.6	3.6	3.7	3.5	3.4	3.3	3.3	2.9
Potential GDP growth	1.8	2.4	3.3	3.6	3.7	3.7	3.7	3.7	3.5	3.4	3.3	3.3	2.9
<b>11. Lower growth scenario (standard DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	2.8	3.5	3.6	3.1	2.6	2.6	2.6	2.7	2.5	2.4	2.3	2.3	1.9
Potential GDP growth	1.8	2.4	2.3	2.6	2.7	2.7	2.7	2.7	2.5	2.4	2.3	2.3	1.9
<b>12. Higher growth scenario (enhanced DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	2.8	3.5	4.5	4.0	3.6	3.6	3.6	3.7	3.5	3.4	3.3	3.3	2.9
Potential GDP growth	1.8	2.4	3.2	3.5	3.7	3.7	3.7	3.7	3.5	3.4	3.3	3.3	2.9
<b>13. Lower growth scenario (enhanced DSA)</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Real GDP growth	2.8	3.5	3.6	3.2	2.6	2.6	2.6	2.7	2.5	2.4	2.3	2.3	1.9
Potential GDP growth	1.8	2.4	2.4	2.6	2.7	2.7	2.7	2.7	2.5	2.4	2.3	2.3	1.9
<b>14. Higher inflation scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Inflation rate	1.8	1.4	1.7	3.1	2.9	2.7	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Inflation rate	1.8	1.4	0.7	2.1	1.9	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Primary balance	0.3	0.4	-1.5	-3.7	-3.8	-3.9	-4.0	-4.1	-4.1	-4.1	-4.1	-4.2	-4.2
Structural primary balance (before CoA)	1.0	0.8	-1.5	-3.9	-3.9	-3.9	-3.9	-3.9	-3.9	-3.9	-3.9	-3.9	-3.9
Real GDP growth	2.8	3.5	4.3	4.5	3.1	3.1	3.1	3.2	3.0	2.9	2.8	2.8	2.4
Potential GDP growth	1.8	2.4	3.0	4.0	3.2	3.2	3.2	3.2	3.0	2.9	2.8	2.8	2.4
<b>17. Exchange rate depreciation scenario</b>	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Exchange rate depreciation	0.0%	0.0%	-5.4%	-5.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	4.2	4.0	3.9	3.8	3.7	3.7	3.8	3.9	4.0	4.3	4.4	4.5

## 22. Slovenia

### Public debt projections under baseline and alternative scenarios and sensitivity tests

SI - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>70.8</b>	<b>80.8</b>	<b>84.2</b>	<b>80.9</b>	<b>78.3</b>	<b>78.5</b>	<b>78.9</b>	<b>79.4</b>	<b>79.1</b>	<b>78.8</b>	<b>78.7</b>	<b>79.1</b>	<b>79.9</b>	<b>81.2</b>
Changes in the ratio (-1+2+3) of which	17.1	10.0	3.4	-3.3	-2.6	0.2	0.4	0.5	-0.3	-0.3	0.0	0.4	0.8	1.3
(1) Primary balance (1.1+1.2+1.3)	-12.4	-1.9	0.0	0.5	0.6	0.4	0.0	-0.3	-0.3	-0.3	-0.5	-0.7	-1.0	-1.2
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.4	0.4	0.3	0.4	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	-0.5	-0.7	-1.0	-1.2
(1.1.1) Structural Primary Balance (before CoA)	0.4	0.4	0.3	0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
(1.1.2) Cost of ageing						0.0	0.1	0.0	0.0	0.0	0.2	0.4	0.7	0.9
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1
(1.2) Cyclical component	-2.3	-1.2	-0.3	0.2	0.9	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	-10.5	-1.1	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	2.7	0.5	0.5	0.2	-0.8	0.6	0.4	0.2	-0.5	-0.5	-0.5	-0.3	-0.2	0.1
(2.1) Interest expenditure	2.6	3.2	3.0	2.9	2.6	2.5	2.4	2.4	2.4	2.5	2.6	2.8	3.0	3.1
(2.2) Growth effect	0.6	-2.1	-2.1	-1.5	-2.0	-0.4	-0.5	-0.7	-1.4	-1.5	-1.5	-1.5	-1.6	-1.4
(2.3) Inflation effect	-0.5	-0.6	-0.4	-1.2	-1.4	-1.4	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
(3) Stock flow adjustments	2.0	7.6	3.0	-3.0	-1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-2.2	-2.7	-2.7	-2.5	-2.9	-2.7	-2.7	-2.7	-2.7	-2.7	-3.0	-3.5	-3.9	-4.3





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	24.7	24.6	24.6	24.6	24.6	24.6	24.7	24.6	25.3	26.7
Revenues from pensions taxation	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Property incomes	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6
<b>Sustainability indicators</b>										
<b>S0 indicator</b>		2009		2015		Critical threshold				
<b>Overall index</b>		0.58		0.08		0.43				
Fiscal sub-index		0.76		0.07		0.35				
Financial competitiveness sub-index		0.52		0.08		0.45				
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
<b>Overall index</b>	3.0	6.5	3.3	1.5	3.2					
of which Initial Budgetary position	0.5	1.9	0.5	-1.1	1.1					
Cost of delaying adjustment**	0.5	1.5	0.5	0.3	0.5					
Debt requirement***	1.4	2.3	1.4	1.6	0.1					
Ageing costs	0.7	0.9	0.9	0.7	1.4					
<b>Required structural primary balance related to S1</b>	2.7	5.3	3.1	2.6	3.2					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
<b>Overall index</b>	6.8	8.2	8.2	5.6	7.6					
of which Initial Budgetary position	1.3	2.4	1.3	0.0	1.1					
Long term component	5.5	5.8	6.9	5.6	6.6					
of which Pensions	3.2	3.6	3.2	3.4	4.6					
Health care	0.9	0.8	1.4	0.8	1.7					
Long-term care	1.0	1.0	1.9	1.0	0.0					
Others	0.4	0.4	0.4	0.4	0.2					
<b>Required structural primary balance related to S2</b>	6.5	6.9	7.9	6.7	7.7					

### Risks related to the structure of public debt financing

Public debt structure - SI (2014):	Change in share of short-term public debt (p.p.): 1.1	Share of public debt by non-residents (%): 62 (2013)	Share of public debt in foreign currency (%): 0.1
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			SI	EU
State guarantees (% GDP) (2013)			17.8	10.5
of which One-off guarantees			17.8	10.2
Standardised guarantees			0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.32	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		:	0.91
	Total		0.32	4.43

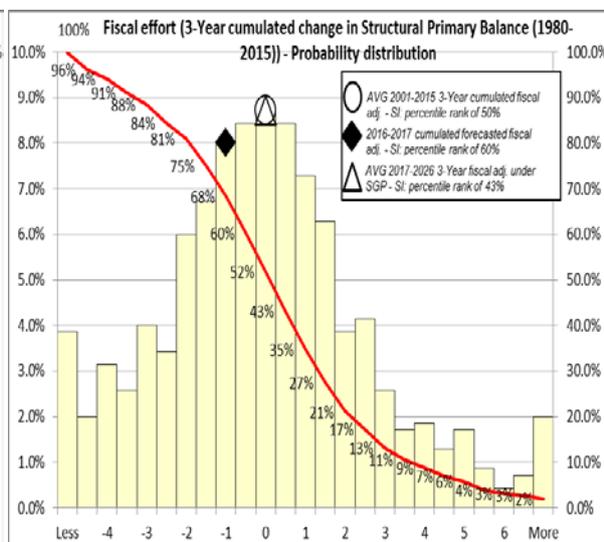
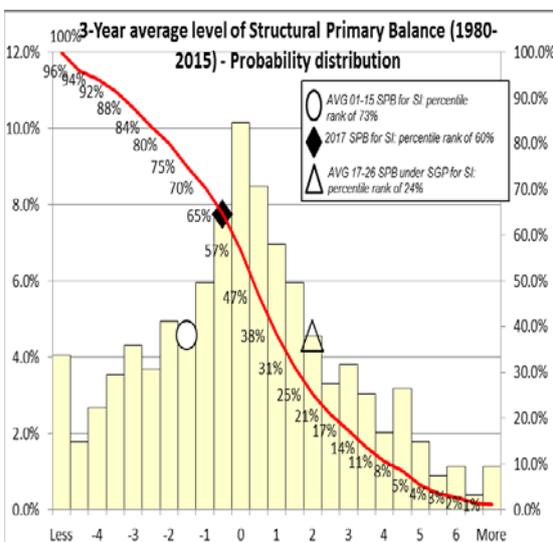
PGovernment's contingent liability risks from banking sector - SI (2014):	Private sector credit flow (% GDP): -4.6	Bank loans-to-deposits ratio (%): 116	Share of non-performing loans (%): 16.6	Change in share of non-performing loans (p.p.): -0.6	Change in nominal house price index: -6.6	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL):	
						bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%

### Financial market information

Sovereign Ratings as of Nov 30 2015, SI	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Baa3		Baa3	
S&P	A-	A-2	A-	A-2
Fitch	BBB+		BBB+	

Financial market information as of November 2015, SI		
Sovereign yield spreads(bp)*	2-year	n.a.
	10-year	120.4
CDS (bp)	5-year	119.4

### Realism of baseline assumptions



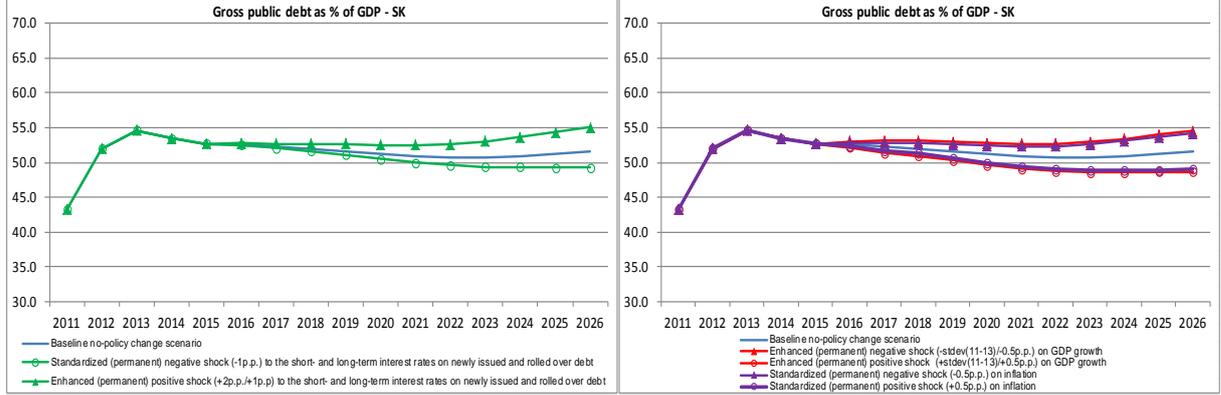
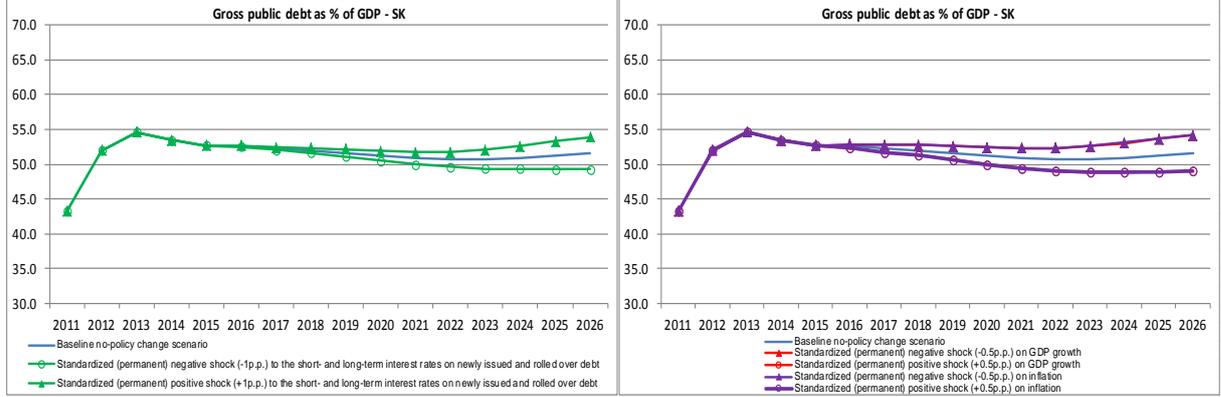
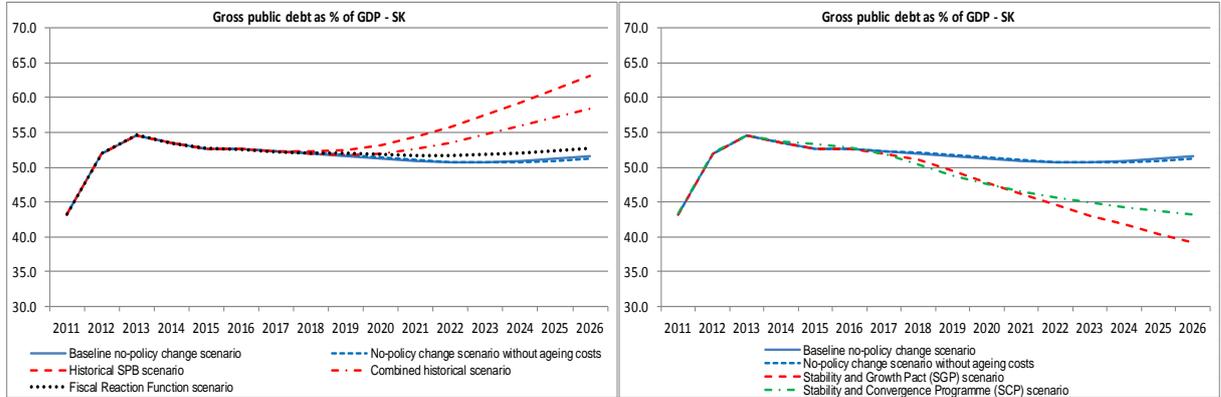
## Underlying macro-fiscal assumptions

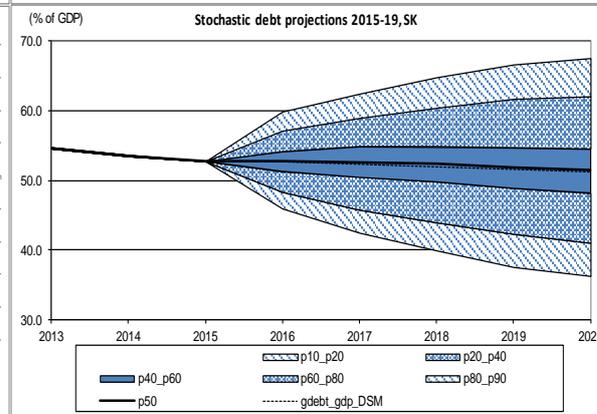
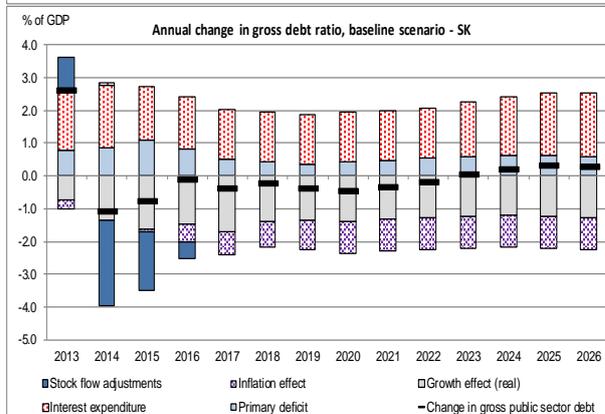
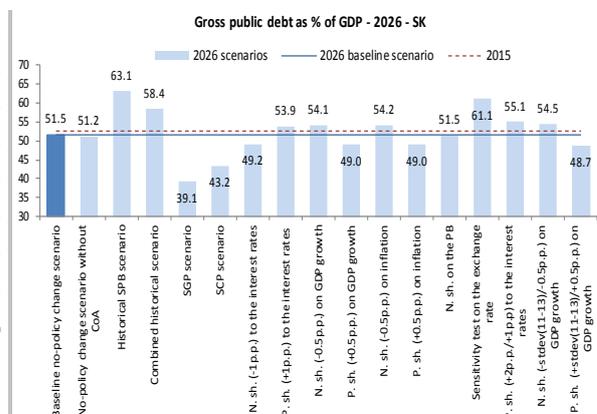
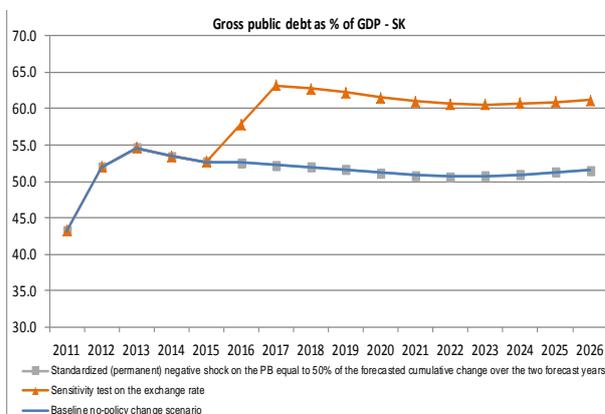
Macro-fiscal assumptions, Slovenia													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	0.0	0.5	0.6	0.4	0.0	-0.3	-0.3	-0.3	-0.5	-0.7	-1.0	-1.2
Structural primary balance (before CoA)	0.4	0.3	0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	3.0	2.6	1.9	2.5	0.6	0.7	0.9	1.8	2.0	2.0	2.0	2.1	1.9
Potential GDP growth	0.5	0.7	0.8	1.1	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.1	1.9
Inflation rate	0.8	0.5	1.4	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.7	3.8	3.6	3.4	3.2	3.1	3.1	3.1	3.3	3.4	3.7	3.9	4.0
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	0.0	0.5	0.6	1.4	1.6	1.7	1.6	1.4	1.3	1.1	1.0	0.9
Structural primary balance (before CoA)	0.4	0.3	0.4	-0.3	0.8	1.4	1.7	1.6	1.5	1.5	1.6	1.7	1.8
Real GDP growth	3.0	2.6	1.9	2.5	-0.2	0.2	0.7	1.9	2.1	2.0	1.9	2.0	1.8
Potential GDP growth	0.5	0.7	0.8	1.1	0.4	0.9	1.3	1.9	2.1	2.0	1.9	2.0	1.8
Inflation rate	0.8	0.5	1.4	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.7	3.8	3.6	3.4	3.2	3.2	3.2	3.2	3.3	3.4	3.7	3.9	4.0
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	0.0	0.5	2.1	2.2	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.3
Structural primary balance (before CoA)	0.4	0.3	0.4	1.2	1.6	2.1	2.3	2.2	2.2	2.2	2.3	2.3	2.3
Real GDP growth	3.0	2.6	1.9	1.5	0.2	0.3	0.7	1.9	2.0	2.0	2.0	2.1	1.9
Potential GDP growth	0.5	0.7	0.8	0.1	0.9	1.0	1.4	1.9	2.0	2.0	2.0	2.1	1.9
Inflation rate	0.8	0.5	1.4	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.7	3.8	3.6	3.4	3.3	3.2	3.2	3.2	3.3	3.4	3.7	3.9	4.0
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.6	0.2	0.7	0.7	1.1	1.5	1.1	1.2	1.1	1.0	0.7	0.5	0.2
Structural primary balance (before CoA)	0.8	0.8	0.8	0.7	0.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Real GDP growth	2.6	2.4	2.0	2.1	2.2	2.2	1.9	2.0	2.1	2.1	2.1	1.9	1.6
Potential GDP growth	0.7	1.4	1.6	1.9	2.1	1.7	1.9	2.0	2.1	2.1	2.1	1.9	1.6
Inflation rate	0.4	1.1	0.3	1.0	1.4	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.8	3.9	3.7	3.4	3.2	3.1	3.0	3.0	3.1	3.1	3.4	3.8	3.8
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	0.0	0.5	0.6	0.1	-0.5	-1.1	-1.3	-1.3	-1.5	-1.8	-2.0	-2.2
Structural primary balance (before CoA)	0.4	0.3	0.4	-0.3	-0.5	-0.8	-1.0	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.0	2.6	1.9	2.5	0.7	0.9	1.1	2.0	2.0	2.0	2.0	2.1	1.9
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	0.0	0.5	0.6	0.1	-0.5	-1.1	-1.3	-1.3	-1.5	-1.8	-2.0	-2.2
Structural primary balance (before CoA)	0.4	0.3	0.4	-0.3	-0.5	-0.8	-1.0	-1.3	-1.3	-1.3	-1.3	-1.3	-1.3
Real GDP growth	3.0	2.6	1.9	2.5	2.6	2.5	2.3	2.2	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	4.7	3.8	3.6	3.4	3.3	3.3	3.4	3.6	3.9	4.1	4.3	4.4	4.5
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.7	3.8	3.7	3.6	3.5	3.5	3.5	3.6	3.8	4.0	4.4	4.7	4.8
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.7	3.8	3.4	3.2	3.0	2.8	2.7	2.7	2.7	2.8	2.9	3.1	3.2
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	4.7	3.8	3.8	3.8	3.8	3.7	3.7	3.8	4.0	4.2	4.5	4.7	4.9
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	2.6	2.4	3.0	1.1	1.2	1.4	2.3	2.5	2.5	2.5	2.6	2.4
Potential GDP growth	0.5	0.7	1.3	1.6	1.7	1.8	2.0	2.3	2.5	2.5	2.5	2.6	2.4
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	2.6	1.4	2.0	0.1	0.2	0.4	1.3	1.5	1.5	1.5	1.6	1.4
Potential GDP growth	0.5	0.7	0.3	0.6	0.7	0.8	1.0	1.3	1.5	1.5	1.5	1.6	1.4
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	2.6	4.1	4.8	1.1	1.2	1.4	2.3	2.5	2.5	2.5	2.6	2.4
Potential GDP growth	0.5	0.7	3.1	3.4	1.7	1.8	2.0	2.3	2.5	2.5	2.5	2.6	2.4
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	3.0	2.6	-0.4	0.3	0.1	0.2	0.4	1.3	1.5	1.5	1.5	1.6	1.4
Potential GDP growth	0.5	0.7	-1.5	-1.1	0.7	0.8	1.0	1.3	1.5	1.5	1.5	1.6	1.4
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.8	0.5	1.9	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	0.8	0.5	0.9	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	0.0	0.0	0.4	0.1	-0.3	-0.6	-0.5	-0.5	-0.7	-1.0	-1.2	-1.5
Structural primary balance (before CoA)	0.4	0.3	-0.1	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	3.0	2.6	2.3	2.3	0.6	0.7	0.9	1.8	2.0	2.0	2.0	2.1	1.9
Potential GDP growth	0.5	0.7	1.2	0.9	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.1	1.9
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.8	3.6	3.4	3.2	3.1	3.1	3.1	3.3	3.4	3.7	3.9	4.0

## 23. Slovakia

Public debt projections under baseline and alternative scenarios and sensitivity tests

SK - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>54.6</b>	<b>53.5</b>	<b>52.7</b>	<b>52.6</b>	<b>52.2</b>	<b>52.0</b>	<b>51.6</b>	<b>51.2</b>	<b>50.8</b>	<b>50.6</b>	<b>50.7</b>	<b>50.9</b>	<b>51.2</b>	<b>51.5</b>
Changes in the ratio (-1+2+3) of which	2.6	-1.1	-0.8	-0.1	-0.4	-0.2	-0.4	-0.4	-0.3	-0.2	0.0	0.2	0.3	0.3
(1) Primary balance (1.1+1.2+1.3)	-0.8	-0.9	-1.1	-0.8	-0.5	-0.5	-0.4	-0.4	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.2	-0.1	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6
(1.1.1) Structural Primary Balance (before CoA)	0.2	-0.1	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
(1.1.2) Cost of ageing						0.0	-0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1
(1.2) Cyclical component	-1.0	-0.8	-0.5	-0.3	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	0.0	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	0.9	0.7	-0.1	-0.4	-0.9	-0.7	-0.7	-0.8	-0.8	-0.7	-0.5	-0.4	-0.3	-0.3
(2.1) Interest expenditure	1.9	1.9	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.7	1.8	1.9	2.0
(2.2) Growth effect	-0.7	-1.3	-1.6	-1.5	-1.7	-1.4	-1.3	-1.4	-1.3	-1.3	-1.2	-1.2	-1.2	-1.3
(2.3) Inflation effect	-0.3	0.1	-0.1	-0.5	-0.7	-0.8	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
(3) Stock flow adjustments	1.0	-2.6	-1.8	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-1.7	-2.1	-2.1	-2.0	-2.0	-1.9	-1.9	-1.9	-2.0	-2.1	-2.3	-2.4	-2.5	-2.5





Sustainability indicators summary table

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	18.1	18.2	18.3	18.3	18.3	18.3	18.2	18.3	18.4	18.3
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	0.62	0.21	0.43	Critical threshold						
Fiscal sub-index	0.63	0.18	0.35							
Financial competitiveness sub-index	0.61	0.23	0.45							
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	-0.7	1.7	-0.1	-1.9	2.2					
of which Initial Budgetary position	0.0	1.9	0.0	-0.8	0.8					
Cost of delaying adjustment**	-0.1	0.4	0.0	-0.3	0.3					
Debt requirement***	-0.6	-0.6	-0.6	-0.9	-0.2					
Ageing costs	0.0	0.1	0.5	0.1	1.3					
Required structural primary balance related to S1	-1.1	-0.4	-0.5	-1.6	1.5					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	3.5	5.4	6.6	2.7	6.9					
of which Initial Budgetary position	1.4	3.2	1.4	0.5	1.8					
Long term component	2.1	2.3	5.3	2.2	5.1					
of which Pensions	0.9	1.2	0.9	1.0	3.5					
Health care	1.3	1.2	2.2	1.3	1.7					
Long-term care	0.2	0.2	2.5	0.2	0.0					
Others	-0.3	-0.4	-0.3	-0.3	-0.1					
Required structural primary balance related to S2	3.0	3.3	6.2	3.0	6.2					

**Risks related to the structure of public debt financing**

<b>Public debt structure - SK (2014):</b>	<b>Change in share of short-term public debt (p.p.):</b> -1.3	<b>Share of public debt by non-residents (%):</b> 47.1 (2012)	<b>Share of public debt in foreign currency (%):</b> 8
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014		
	SK	EU
State guarantees (% GDP) (2013)	0.0	10.5
of which One-off guarantees	0.0	10.2
Standardised guarantees	0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	: 3.07
	Securities issued under liquidity schemes	: 0.45
	Special purpose entity	: 0.91
	<b>Total</b>	<b>0.00</b>

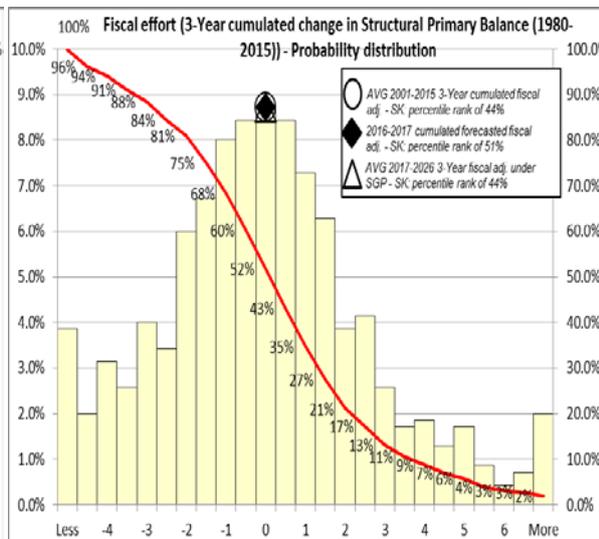
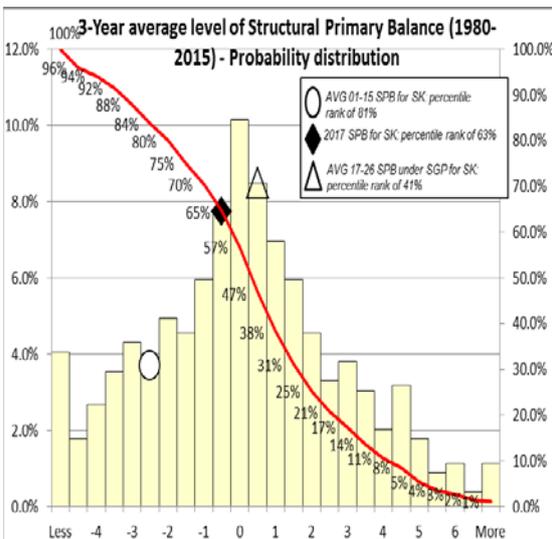
<b>Government's contingent liability risks from banking sector - SK (2014):</b>	<b>Private sector credit flow (% GDP):</b> 3.9	<b>Bank loans-to-deposits ratio (%):</b> 97.5	<b>Share of non-performing loans (%):</b> 4.1	<b>Change in share of non-performing loans (p.p.):</b> 0.4	<b>Change in nominal house price index:</b> 1.5	<b>Probability of gov't cont. liabilities (&gt;3% of GDP) linked to banking losses and recap needs (SYMBOL):</b> bank recap. at 8% 0.00% bank recap. at 10.5% 0.00%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, SK	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	A2		A2	
S&P	A+	A-1	A+	A-1
Fitch	A+		A+	

Financial market information as of November 2015, SK		
Sovereign yield spreads(bp)*	2-year	40.6
	10-year	13
CDS (bp)	5-year	48.6

**Realism of baseline assumptions**



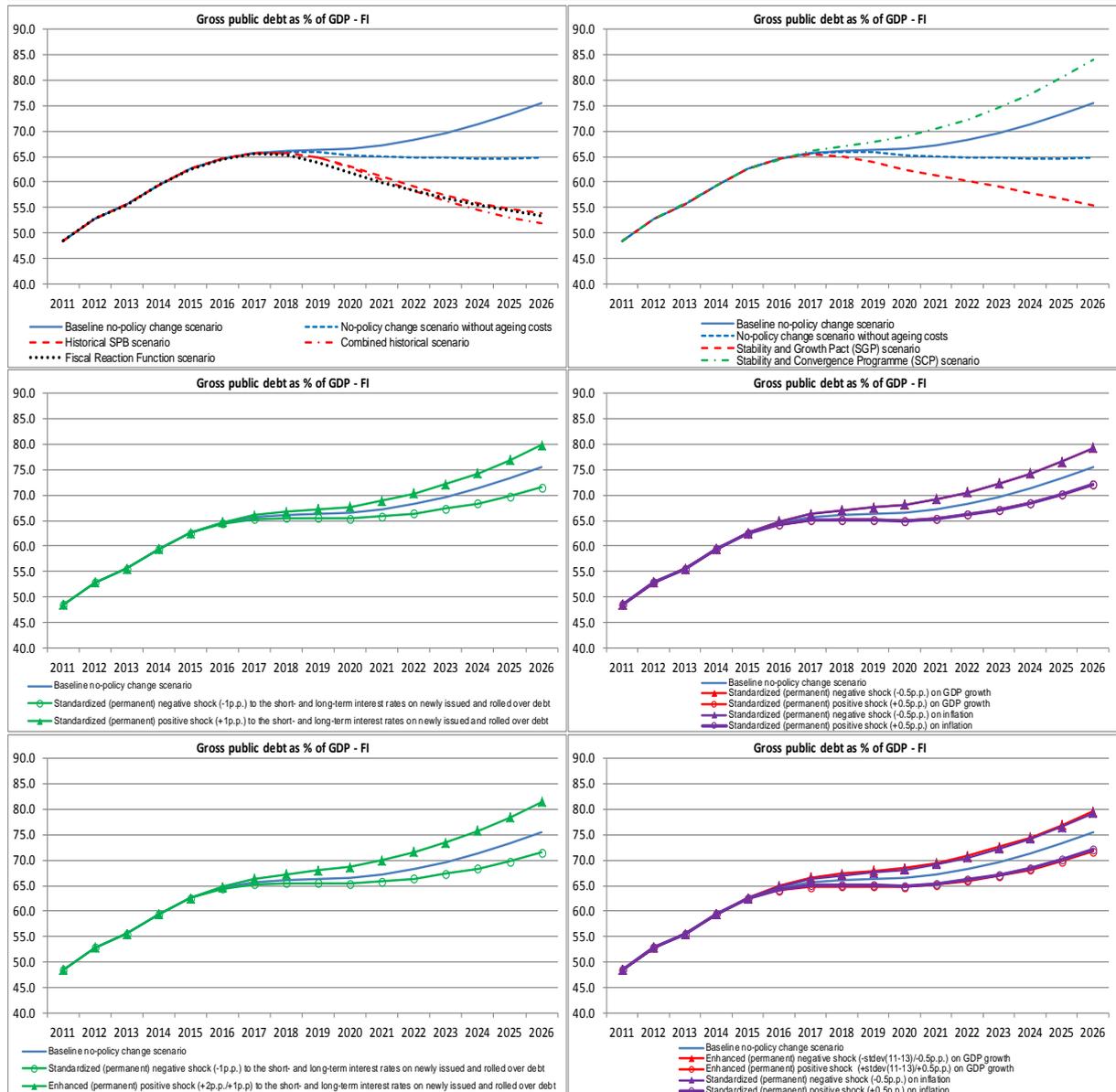
## Underlying macro-fiscal assumptions

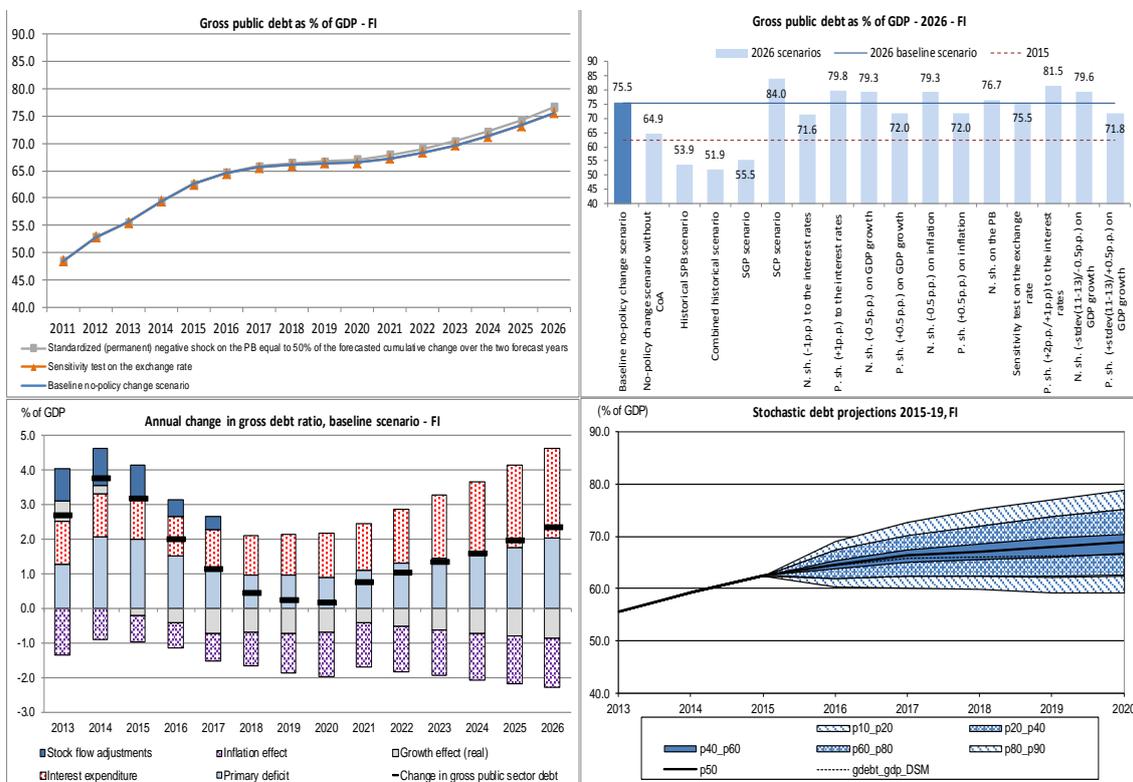
Macro-fiscal assumptions, Slovakia													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-1.1	-0.8	-0.5	-0.5	-0.4	-0.4	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	2.5	3.2	2.9	3.3	2.7	2.7	2.8	2.7	2.6	2.5	2.5	2.5	2.6
Potential GDP growth	2.0	2.4	2.5	2.7	2.7	2.6	2.7	2.7	2.6	2.5	2.5	2.5	2.6
Inflation rate	-0.2	0.2	1.1	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.1	3.1	3.0	3.0	3.0	3.1	3.1	3.1	3.4	3.7	3.9	4.0
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-1.1	-0.8	-0.5	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	-0.4	-0.6	-0.7	-0.7	-0.7	-0.6	-0.5	-0.5	-0.5	-0.5
Real GDP growth	2.5	3.2	2.9	3.3	2.9	2.8	2.8	2.6	2.5	2.5	2.5	2.5	2.6
Potential GDP growth	2.0	2.4	2.5	2.7	2.8	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.6
Inflation rate	-0.2	0.2	1.1	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.1	3.1	3.0	3.0	3.0	3.1	3.1	3.1	3.4	3.7	3.9	4.0
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-1.1	-0.8	-0.1	0.4	0.9	1.0	0.9	0.9	1.0	1.0	1.1	1.0
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	0.0	0.5	1.0	1.0	0.9	0.9	1.0	1.0	1.1	1.0
Real GDP growth	2.5	3.2	2.9	3.0	2.4	2.3	2.8	2.7	2.6	2.5	2.4	2.5	2.6
Potential GDP growth	2.0	2.4	2.5	2.3	2.3	2.3	2.7	2.7	2.6	2.5	2.4	2.5	2.6
Inflation rate	-0.2	0.2	1.1	1.4	1.6	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.1	3.1	3.0	3.0	3.0	3.1	3.1	3.1	3.4	3.7	3.9	4.0
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-0.8	-0.4	0.1	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1
Structural primary balance (before CoA)	0.0	0.1	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Real GDP growth	2.4	2.9	3.6	3.6	3.7	3.5	2.9	2.9	2.8	2.8	2.8	2.8	2.8
Potential GDP growth	2.4	2.6	2.8	2.8	2.8	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8
Inflation rate	-0.2	0.0	1.5	1.8	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.6	3.3	3.1	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.6	3.8	4.0
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-1.1	-0.8	-0.5	-0.9	-1.2	-1.7	-2.1	-2.2	-2.3	-2.3	-2.3	-2.2
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	-0.4	-0.9	-1.3	-1.7	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Real GDP growth	2.5	3.2	2.9	3.3	3.1	3.0	3.1	3.0	2.6	2.5	2.5	2.5	2.6
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-1.1	-0.8	-0.5	-0.9	-1.2	-1.7	-2.1	-2.2	-2.3	-2.3	-2.3	-2.2
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	-0.4	-0.9	-1.3	-1.7	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Real GDP growth	2.5	3.2	2.9	3.3	3.8	3.9	4.1	4.2	3.9	3.9	3.9	3.9	3.9
Implicit interest rate (nominal)	3.6	3.1	3.1	3.0	3.0	3.1	3.2	3.2	3.3	3.7	3.9	4.1	4.1
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.1	3.2	3.3	3.3	3.4	3.5	3.5	3.6	4.0	4.4	4.6	4.8
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.1	2.9	2.7	2.7	2.7	2.7	2.7	2.7	2.9	3.1	3.2	3.3
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.6	3.1	3.4	3.5	3.6	3.6	3.7	3.8	3.8	4.2	4.5	4.8	4.9
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.5	3.2	3.4	3.8	3.2	3.2	3.3	3.2	3.1	3.0	3.0	3.0	3.1
Potential GDP growth	2.0	2.4	3.0	3.2	3.2	3.1	3.2	3.2	3.1	3.0	3.0	3.0	3.1
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.5	3.2	2.4	2.8	2.2	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.1
Potential GDP growth	2.0	2.4	2.0	2.2	2.2	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.1
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.5	3.2	3.7	4.2	3.2	3.2	3.3	3.2	3.1	3.0	3.0	3.0	3.1
Potential GDP growth	2.0	2.4	3.4	3.5	3.2	3.1	3.2	3.2	3.1	3.0	3.0	3.0	3.1
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.5	3.2	2.0	2.5	2.2	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.1
Potential GDP growth	2.0	2.4	1.6	1.8	2.2	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.1
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	-0.2	0.2	1.6	1.9	2.1	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	-0.2	0.2	0.6	0.9	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-0.9	-1.1	-0.8	-0.5	-0.5	-0.4	-0.4	-0.5	-0.5	-0.6	-0.6	-0.7	-0.6
Structural primary balance (before CoA)	-0.1	-0.5	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	2.5	3.2	2.9	3.4	2.7	2.7	2.8	2.7	2.6	2.5	2.5	2.5	2.6
Potential GDP growth	2.0	2.4	2.5	2.7	2.7	2.6	2.7	2.7	2.6	2.5	2.5	2.5	2.6
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-9.3%	-9.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	3.1	2.8	3.0	3.0	3.0	3.0	3.0	3.1	3.3	3.7	3.9	4.0

## 24. Finland

Public debt projections under baseline and alternative scenarios and sensitivity tests

FI - Debt projections baseline scenario		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>		55.6	59.3	62.5	64.5	65.7	66.1	66.3	66.5	67.3	68.3	69.7	71.2	73.2	75.5
Changes in the ratio (-1+2+3) of which		2.7	3.8	3.2	2.0	1.7	0.4	0.3	0.2	0.8	1.0	1.3	1.6	2.0	2.3
<b>(1) Primary balance (1.1+1.2+1.3)</b>		-1.3	-2.1	-2.0	-1.5	-1.2	-1.0	-1.0	-0.9	-1.1	-1.3	-1.4	-1.6	-1.8	-2.0
<b>(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)</b>		0.3	-0.5	-0.6	-0.4	-0.4	-0.5	-0.7	-0.9	-1.1	-1.3	-1.4	-1.6	-1.8	-2.0
(1.1.1) Structural Primary Balance (before CoA)		0.3	-0.5	-0.6	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
(1.1.2) Cost of ageing							0.1	0.4	0.7	1.0	1.2	1.4	1.6	1.9	2.1
(1.1.3) Others (taxes and property incomes)							0.1	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.4
<b>(1.2) Cyclical component</b>		-1.5	-1.7	-1.4	-1.1	-0.8	-0.5	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(1.3) One-off and other temporary measures</b>		-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>(2) Snowball effect (2.1+2.2+2.3)</b>		0.5	0.6	0.2	0.0	-0.4	-0.5	-0.7	-0.7	-0.4	-0.3	-0.1	0.0	0.2	0.3
(2.1) Interest expenditure		1.3	1.2	1.2	1.1	1.1	1.1	1.2	1.3	1.3	1.6	1.8	2.1	2.4	2.6
(2.2) Growth effect		0.6	0.2	-0.2	-0.4	-0.7	-0.7	-0.7	-0.7	-0.4	-0.5	-0.6	-0.7	-0.8	-0.9
(2.3) Inflation effect		-1.3	-0.9	-0.8	-0.7	-0.8	-1.0	-1.1	-1.3	-1.3	-1.3	-1.3	-1.4	-1.4	-1.4
<b>(3) Stock flow adjustments</b>		0.9	1.1	1.0	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>															
Structural balance		-1.0	-1.8	-1.7	-1.5	-1.5	-1.6	-1.9	-2.2	-2.5	-2.9	-3.3	-3.7	-4.1	-4.6





**Sustainability indicators summary table**

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	31.2	31.6	31.8	32.0	32.2	32.3	32.6	32.9	34.0	34.7
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Property incomes	3.8	3.8	3.8	3.9	4.0	4.0	4.1	4.1	4.5	4.0
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	0.36	0.22	0.43	Critical threshold						
Fiscal sub-index	0.49	0.17	0.35							
Financial competitiveness sub-index	0.30	0.24	0.45							
<b>S1 indicator</b>										
Overall index	2.6	-1.0	2.8	4.7	2012 Sustainability Report					
of which Initial Budgetary position	0.2	-2.9	0.2	1.8						
Cost of delaying adjustment**	0.4	-0.2	0.4	0.8						
Debt requirement***	0.4	0.1	0.4	0.7						
Ageing costs	1.6	2.0	1.8	1.4						
Required structural primary balance related to S1	2.2	1.7	2.4	3.3						
<b>S2 indicator</b>										
Overall index	3.9	1.0	5.2	5.5	2012 Sustainability Report					
of which Initial Budgetary position	2.1	0.2	2.1	4.2						
Long term component	1.7	0.8	3.1	1.3						
of which Pensions	-0.4	-1.1	-0.4	-0.8						
Health care	0.5	0.4	1.0	0.5						
Long-term care	1.6	1.4	2.5	1.5						
Others	0.0	0.1	0.0	0.1						
Required structural primary balance related to S2	3.5	3.7	4.8	4.1						

### Risks related to the structure of public debt financing

<b>Public debt structure - FI (2014):</b>	<b>Change in share of short-term public debt (p.p.):</b> 0.4	<b>Share of public debt by non-residents (%):</b> 81.2 (2013)	<b>Share of public debt in foreign currency (%):</b> 1.6
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### Risks related to government's contingent liabilities

Government's contingent liabilities - 2014			
	FI	EU	
State guarantees (% GDP) (2013)	24.1	10.5	
of which One-off guarantees	23.3	10.2	
Standardised guarantees	0.8	0.4	
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee	0.00	3.07
	Securities issued under liquidity schemes	0.00	0.45
	Special purpose entity	0.00	0.91
	<b>Total</b>	<b>0.00</b>	<b>4.43</b>

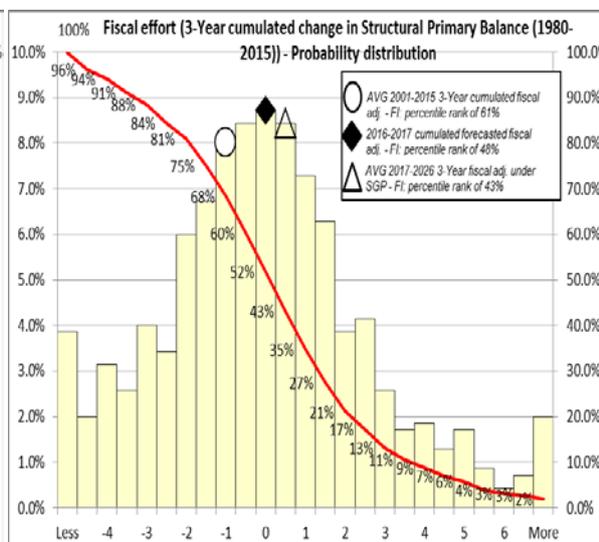
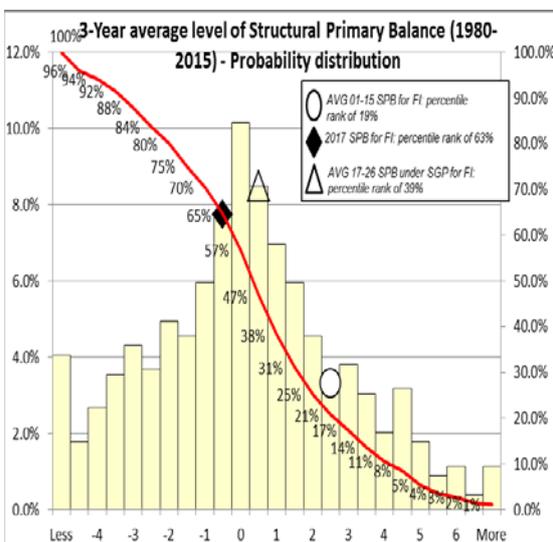
<b>Government's contingent liability risks from banking sector - FI (2014):</b>	<b>Private sector credit flow (% GDP):</b> 0.4	<b>Bank loans-to-deposits ratio (%):</b> 164.4	<b>Share of non-performing loans (%):</b> 1.4	<b>Change in share of non-performing loans (p.p.):</b> 0.8	<b>Change in nominal house price index:</b> -0.4	<b>Probability of gov't cont. liabilities (&gt;3% of GDP) linked to banking losses and recap needs (SYMBOL):</b> bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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### Financial market information

Sovereign Ratings as of Nov 30 2015, FI	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	
S&P	AA+	A-1+	AA+	A-1+
Fitch	AAA		AAA	F1+

Financial market information as of November 2015, FI		
Sovereign yield spreads(bp)*	2-year	4.6
	10-year	24
CDS (bp)	5-year	30.7

### Realism of baseline assumptions



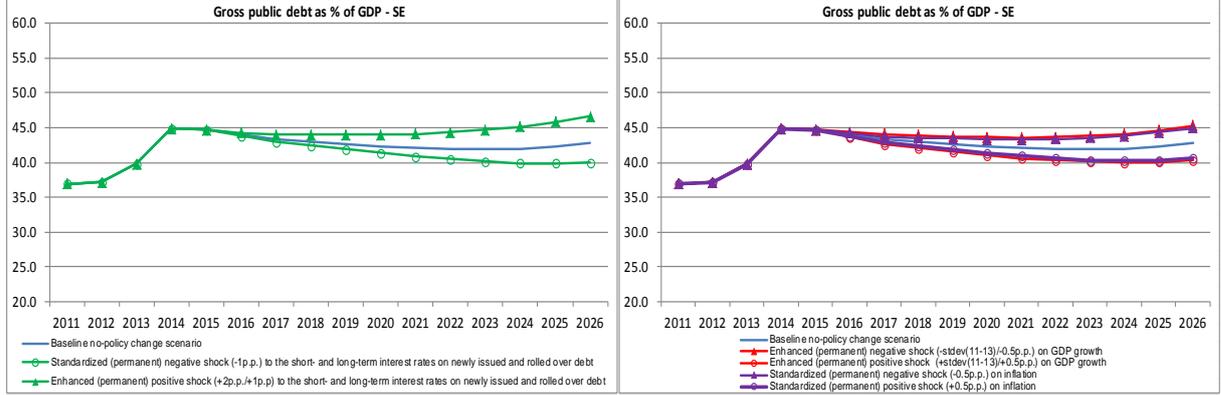
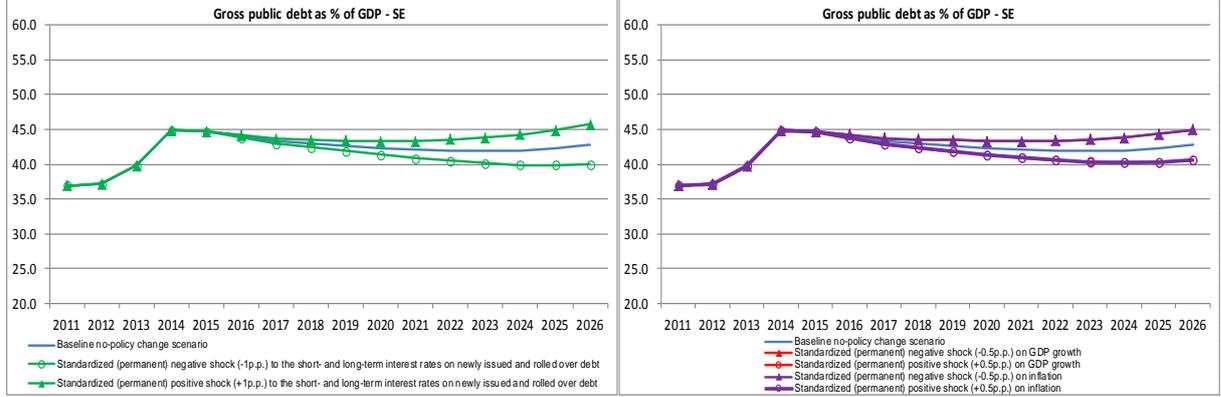
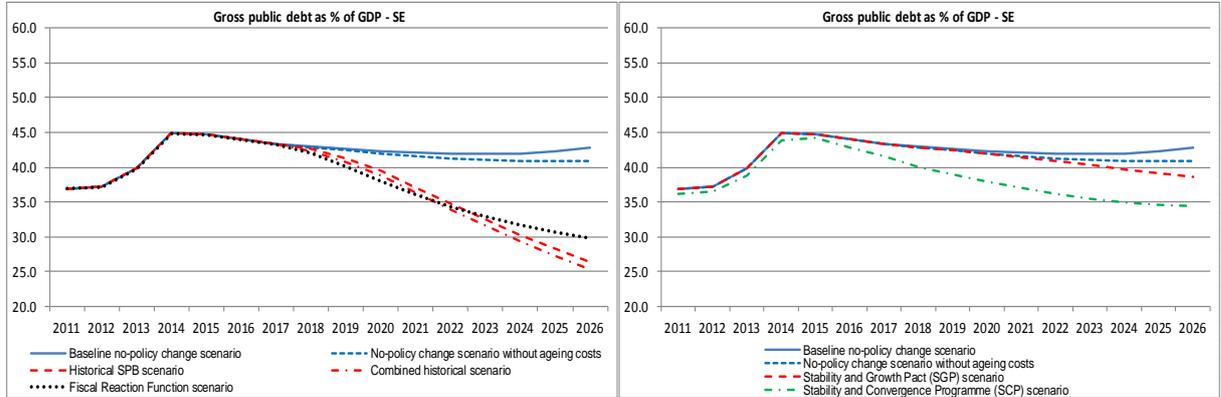
### Underlying macro-fiscal assumptions

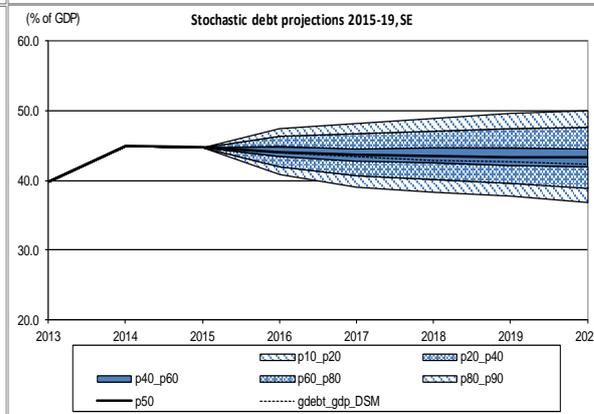
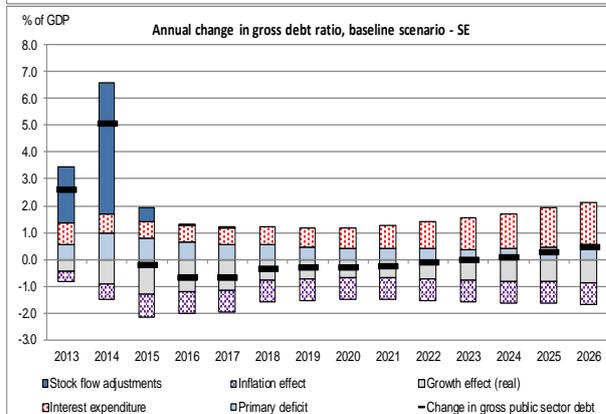
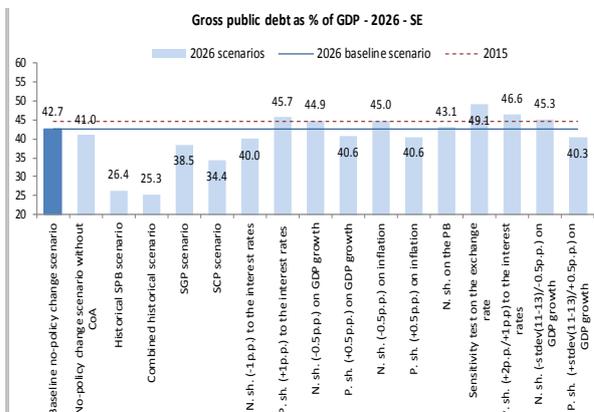
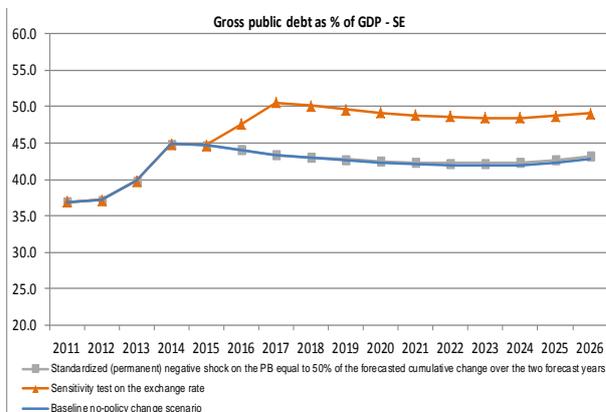
Macro-fiscal assumptions, Finland													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-2.0	-1.5	-1.2	-1.0	-1.0	-0.9	-1.1	-1.3	-1.4	-1.6	-1.8	-2.0
Structural primary balance (before CoA)	-0.5	-0.6	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	-0.4	0.3	0.7	1.1	1.1	1.1	1.1	0.6	0.8	0.9	1.1	1.1	1.2
Potential GDP growth	-0.1	-0.1	0.1	0.5	0.6	0.7	0.6	0.6	0.8	0.9	1.1	1.1	1.2
Inflation rate	1.6	1.3	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.3	2.0	1.8	1.8	1.8	1.8	2.0	2.1	2.4	2.8	3.1	3.4	3.7
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-2.0	-1.5	-1.2	0.4	1.2	1.5	1.5	1.4	1.3	1.3	1.2	1.2
Structural primary balance (before CoA)	-0.5	-0.6	-0.4	-0.4	1.0	1.8	2.0	2.3	2.3	2.4	2.5	2.6	2.9
Real GDP growth	-0.4	0.3	0.7	1.1	0.0	0.6	0.9	0.5	0.7	0.9	1.0	1.0	1.0
Potential GDP growth	-0.1	-0.1	0.1	0.5	-0.4	0.1	0.4	0.5	0.7	0.9	1.0	1.0	1.0
Inflation rate	1.6	1.3	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.3	2.0	1.8	1.8	1.8	1.8	1.9	2.0	2.3	2.7	3.0	3.3	3.5
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-2.0	-1.5	-0.6	0.1	0.4	0.7	0.7	0.9	1.1	1.2	1.4	1.4
Structural primary balance (before CoA)	-0.5	-0.6	-0.4	0.2	0.6	0.7	0.7	0.7	0.9	1.1	1.2	1.4	1.4
Real GDP growth	-0.4	0.3	0.7	0.7	0.8	1.1	1.0	0.6	0.7	0.8	1.0	1.0	1.2
Potential GDP growth	-0.1	-0.1	0.1	0.0	0.3	0.7	0.6	0.6	0.7	0.8	1.0	1.0	1.2
Inflation rate	1.6	1.3	1.2	1.3	1.5	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.3	2.0	1.8	1.8	1.8	1.8	2.0	2.1	2.4	2.7	3.0	3.4	3.6
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.9	-2.2	-2.1	-2.0	-1.6	-1.4	-1.8	-2.1	-2.5	-2.8	-3.1	-3.4	-3.7
Structural primary balance (before CoA)	-0.3	-0.6	-1.1	-1.5	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4	-1.4
Real GDP growth	-0.1	0.5	1.4	1.5	1.3	1.2	0.8	0.8	0.9	1.0	1.1	1.2	1.2
Potential GDP growth	-0.1	0.2	0.2	0.6	0.8	0.8	0.8	0.8	0.9	1.0	1.1	1.2	1.2
Inflation rate	1.3	0.7	1.4	1.6	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	2.3	2.1	1.9	1.7	1.7	1.7	1.7	1.9	2.1	2.3	2.6	2.9	3.1
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-2.0	-1.5	-1.2	-0.2	0.6	1.4	1.9	1.7	1.6	1.4	1.3	1.0
Structural primary balance (before CoA)	-0.5	-0.6	-0.4	-0.4	0.4	1.1	1.9	2.6	2.6	2.6	2.6	2.6	2.6
Real GDP growth	-0.4	0.3	0.7	1.1	0.5	0.6	0.5	0.1	0.8	0.9	1.1	1.1	1.2
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-2.0	-1.5	-1.2	-0.2	0.6	1.4	1.9	1.7	1.6	1.4	1.3	1.0
Structural primary balance (before CoA)	-0.5	-0.6	-0.4	-0.4	0.4	1.1	1.9	2.6	2.6	2.6	2.6	2.6	2.6
Real GDP growth	-0.4	0.3	0.7	1.1	0.6	0.7	0.8	0.9	1.5	1.5	1.5	1.5	1.5
Implicit interest rate (nominal)	2.3	2.0	1.8	1.8	1.8	1.9	2.1	2.2	2.5	2.9	3.0	3.2	3.3
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.3	2.0	2.0	2.1	2.2	2.3	2.5	2.6	3.0	3.5	3.8	4.3	4.5
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.3	2.0	1.6	1.4	1.4	1.4	1.4	1.5	1.8	2.1	2.3	2.6	2.8
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	2.3	2.0	2.3	2.4	2.6	2.6	2.7	2.9	3.2	3.6	4.0	4.4	4.6
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.3	1.2	1.6	1.6	1.6	1.6	1.1	1.3	1.4	1.6	1.6	1.7
Potential GDP growth	-0.1	-0.1	0.6	1.0	1.1	1.2	1.1	1.1	1.3	1.4	1.6	1.6	1.7
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.3	0.2	0.6	0.6	0.6	0.6	0.1	0.3	0.4	0.6	0.6	0.7
Potential GDP growth	-0.1	-0.1	-0.4	0.0	0.1	0.2	0.1	0.1	0.3	0.4	0.6	0.6	0.7
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.3	1.4	1.8	1.6	1.6	1.6	1.1	1.3	1.4	1.6	1.6	1.7
Potential GDP growth	-0.1	-0.1	0.9	1.2	1.1	1.2	1.1	1.1	1.3	1.4	1.6	1.6	1.7
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	-0.4	0.3	-0.1	0.4	0.6	0.6	0.6	0.1	0.3	0.4	0.6	0.6	0.7
Potential GDP growth	-0.1	-0.1	-0.6	-0.3	0.1	0.2	0.1	0.1	0.3	0.4	0.6	0.6	0.7
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.6	1.3	1.7	1.8	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.6	1.3	0.7	0.8	1.0	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.1	-2.0	-1.7	-1.3	-1.1	-1.1	-1.0	-1.2	-1.4	-1.5	-1.7	-1.9	-2.1
Structural primary balance (before CoA)	-0.5	-0.6	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real GDP growth	-0.4	0.3	0.8	1.1	1.1	1.1	1.1	0.6	0.8	0.9	1.1	1.1	1.2
Potential GDP growth	-0.1	-0.1	0.3	0.4	0.6	0.7	0.6	0.6	0.8	0.9	1.1	1.1	1.2
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	2.0	1.8	1.8	1.8	1.8	2.0	2.1	2.4	2.8	3.1	3.4	3.7

## 25. Sweden

Public debt projections under baseline and alternative scenarios and sensitivity tests

SE - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Gross debt ratio	39.8	44.9	44.7	44.0	43.3	42.9	42.6	42.3	42.1	41.9	41.9	42.0	42.3	42.7
Changes in the ratio (-1+2+3) of which	2.6	5.1	-0.2	-0.7	-0.7	-0.3	-0.3	-0.3	-0.2	-0.1	0.0	0.1	0.3	0.4
(1) Primary balance (1.1+1.2+1.3)	-0.6	-1.0	-0.8	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.6
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	0.6	-0.1	-0.4	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.6
(1.1.1) Structural Primary Balance (before CoA)	0.6	-0.1	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
(1.1.2) Cost of ageing						0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4
(1.1.3) Others (taxes and property incomes)						0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1
(1.2) Cyclical component	-1.2	-0.9	-0.4	-0.3	-0.2	-0.2	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	0.0	-0.8	-1.5	-1.4	-1.3	-0.9	-0.8	-0.7	-0.6	-0.5	-0.4	-0.3	-0.2	-0.1
(2.1) Interest expenditure	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.2	1.3	1.5	1.5
(2.2) Growth effect	-0.5	-0.9	-1.3	-1.2	-1.2	-0.8	-0.7	-0.7	-0.7	-0.7	-0.8	-0.8	-0.8	-0.8
(2.3) Inflation effect	-0.4	-0.6	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
(3) Stock flow adjustments	2.1	4.9	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Per memo														
Structural balance	-0.2	-0.8	-1.0	-1.0	-0.9	-1.1	-1.1	-1.2	-1.3	-1.4	-1.6	-1.7	-1.9	-2.1





### Sustainability indicators summary table

Long-term projections										
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030
<b>Budgetary projections</b>										
Total cost of ageing (gross)	25.5	25.1	24.8	24.9	25.0	25.1	25.1	25.1	25.3	25.6
Revenues from pensions taxation	2.8	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.7	2.8
Property incomes	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.2
<b>Sustainability indicators</b>										
<b>S0 indicator</b>										
Overall index	2009	2015	Critical threshold							
Overall index	0.24	0.15	0.43							
Fiscal sub-index	0.30	0.17	0.35							
Financial competitiveness sub-index	0.21	0.14	0.45							
<b>S1 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	-1.3	-5.8	-0.8	-2.5	-3.6					
of which Initial Budgetary position	-0.1	-2.3	-0.1	-0.6	-2.0					
Cost of delaying adjustment**	-0.2	-1.2	-0.1	-0.4	-0.6					
Debt requirement***	-1.3	-2.6	-1.3	-1.7	-1.6					
Ageing costs	0.3	0.4	0.7	0.2	0.6					
Required structural primary balance related to S1	-1.6	-3.8	-1.1	-2.1	-1.8					
<b>S2 indicator</b>										
	COM no-policy change scenario	Historical SPB scenario	AWG risk scenario	SCP scenario	2012 Sustainability Report					
Overall index	2.3	0.0	4.7	1.8	1.7					
of which Initial Budgetary position	1.2	-0.9	1.2	0.8	-1.0					
Long term component	1.1	0.8	3.4	1.0	2.7					
of which Pensions	-0.8	-0.5	-0.8	-0.7	0.0					
Health care	0.3	0.2	0.9	0.3	2.5					
Long-term care	1.3	1.0	3.2	1.1	0.0					
Others	0.2	0.2	0.2	0.2	0.2					
Required structural primary balance related to S2	2.0	1.9	4.3	2.2	3.4					

**Risks related to the structure of public debt financing**

Public debt structure - SE (2014):	Change in share of short-term public debt (p.p.): 7.5	Share of public debt by non-residents (%): 32.9 (2013)	Share of public debt in foreign currency (%): 26.8
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			SE	EU
State guarantees (% GDP) (2013)			11.6	10.5
of which One-off guarantees			11.6	10.2
Standardised guarantees			0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.02	3.07
	Securities issued under liquidity schemes		:	0.45
	Special purpose entity		:	0.91
	Total		0.02	4.43

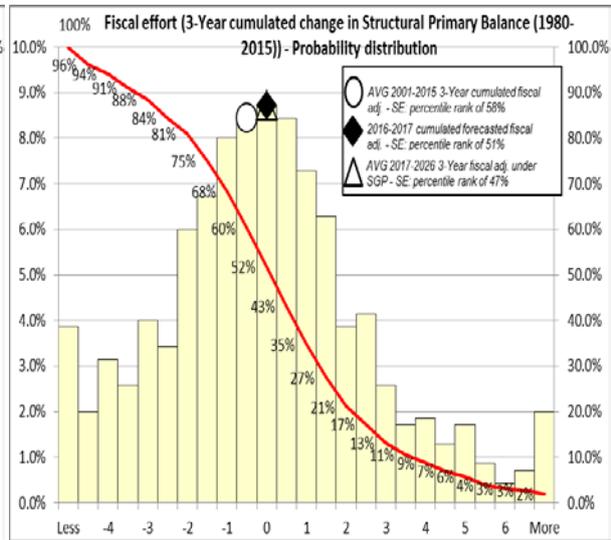
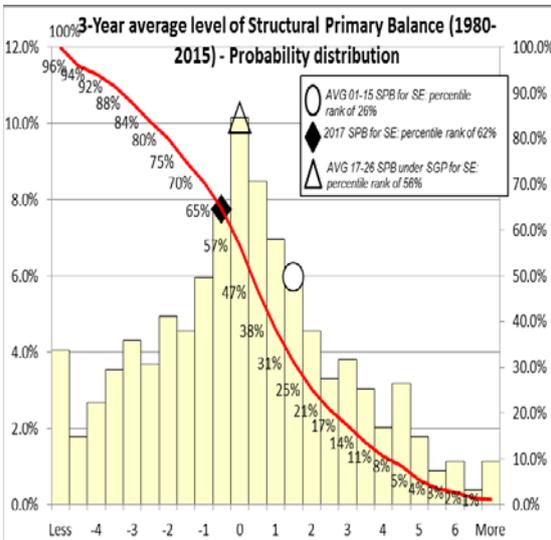
Government's contingent liability risks from banking sector - SE (2014):	Private sector credit flow (% GDP): 6.5	Bank loans-to-deposits ratio (%): n.a. ()	Share of non-performing loans (%): 1.4	Change in share of non-performing loans (p.p.): 0.9	Change in nominal house price index: 9.4	Probability of gov't cont. liabilities (>3% of GDP) linked to banking losses and recap needs (SYMBOL): bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, SE	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aaa		Aaa	P-1
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AAA		AAA	F1+

Financial market information as of November 2015, SE		
Sovereign yield spreads(bp)*	2-year	-5.3
	10-year	30
CDS (bp)	5-year	13.8

**Realism of baseline assumptions**



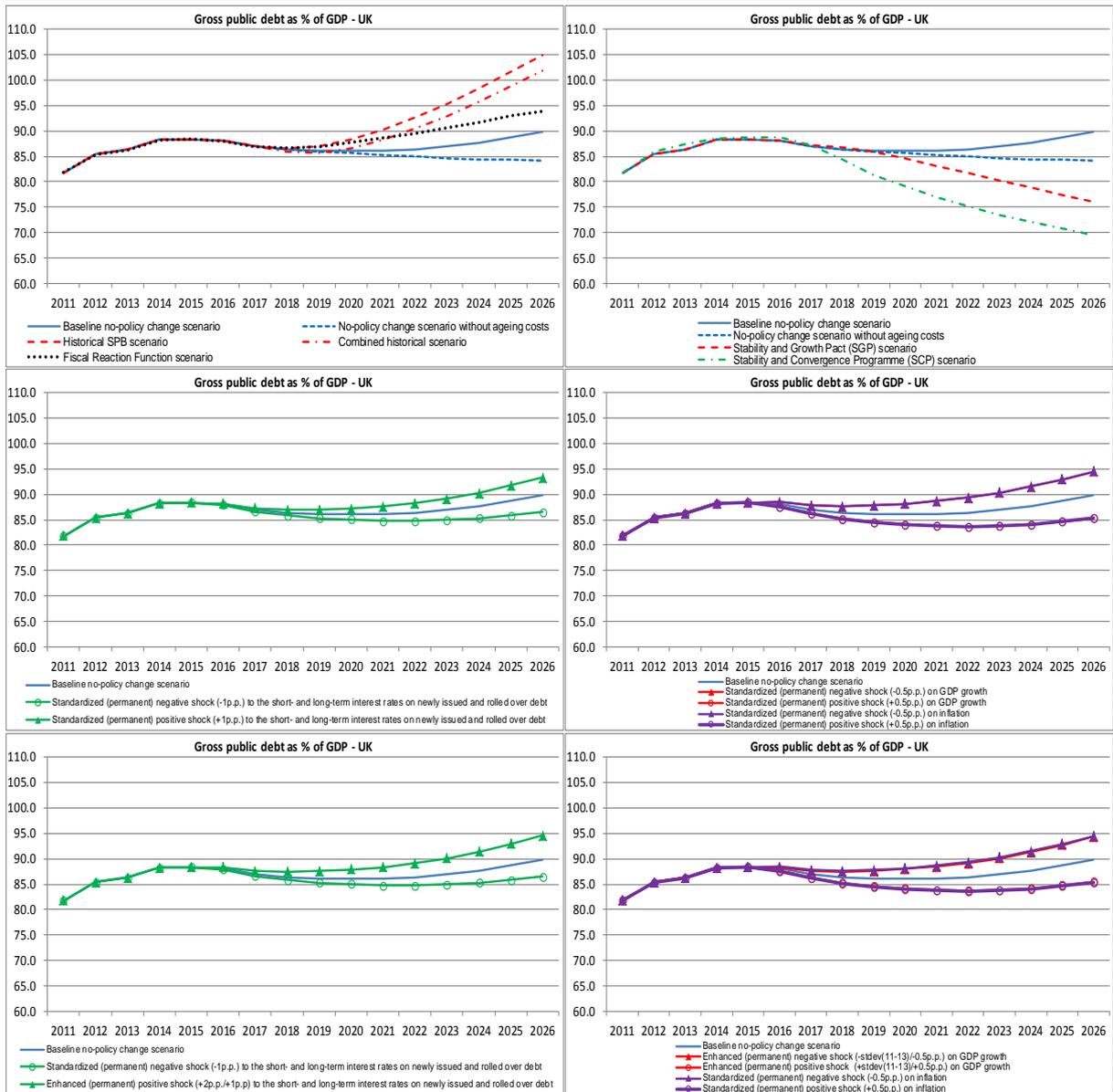
## Underlying macro-fiscal assumptions

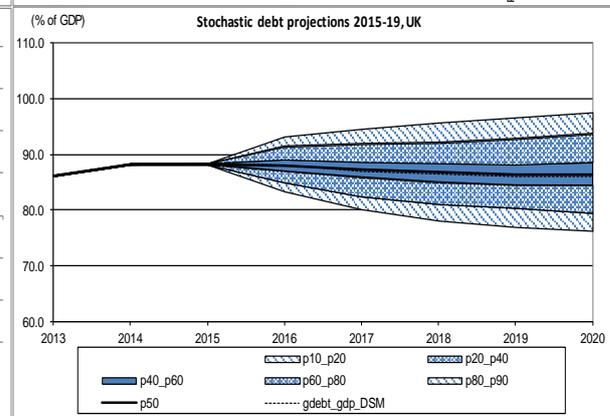
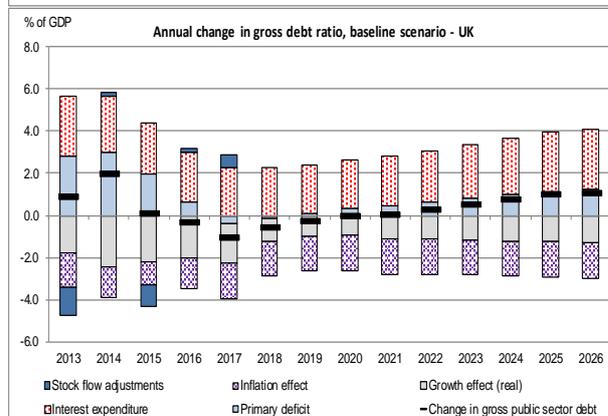
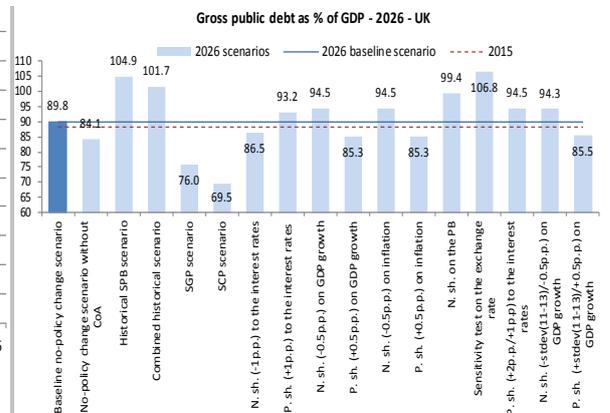
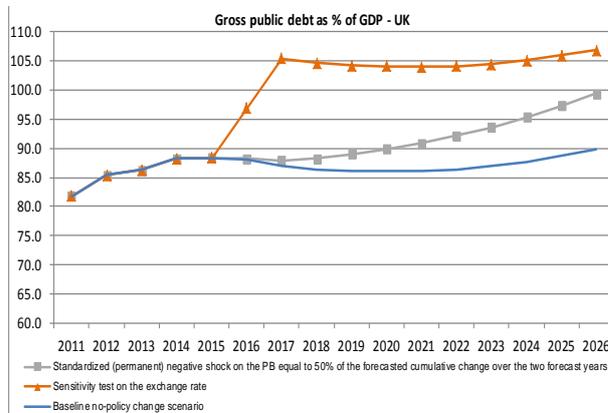
Macro-fiscal assumptions, Sweden													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.0	-0.8	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.6
Structural primary balance (before CoA)	-0.1	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Real GDP growth	2.3	3.0	2.8	2.7	1.9	1.7	1.6	1.6	1.8	1.9	2.0	2.1	2.1
Potential GDP growth	1.8	2.1	2.6	2.6	1.7	1.6	1.5	1.6	1.8	1.9	2.0	2.1	2.1
Inflation rate	1.6	1.9	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.5	1.4	1.5	1.6	1.7	1.9	2.1	2.6	2.9	3.2	3.6	3.8
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.0	-0.8	-0.6	-0.6	0.8	1.3	1.4	1.3	1.2	1.0	0.9	0.8	0.7
Structural primary balance (before CoA)	-0.1	-0.4	-0.3	-0.3	1.1	1.4	1.5	1.4	1.3	1.1	1.0	0.9	0.9
Real GDP growth	2.3	3.0	2.8	2.7	0.8	1.4	1.6	1.7	1.9	2.0	2.1	2.1	2.1
Potential GDP growth	1.8	2.1	2.6	2.6	0.7	1.3	1.5	1.7	1.9	2.0	2.1	2.1	2.1
Inflation rate	1.6	1.9	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.5	1.4	1.5	1.6	1.7	1.9	2.1	2.5	2.8	3.0	3.5	3.6
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.0	-0.8	-0.6	-0.6	-0.5	-0.3	-0.2	-0.1	0.1	0.2	0.3	0.4	0.5
Structural primary balance (before CoA)	-0.1	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	0.1	0.2	0.3	0.4	0.5
Real GDP growth	2.3	3.0	2.8	2.7	1.8	1.7	1.6	1.6	1.7	1.8	2.0	2.0	2.1
Potential GDP growth	1.8	2.1	2.6	2.6	1.7	1.5	1.4	1.6	1.7	1.8	2.0	2.0	2.1
Inflation rate	1.6	1.9	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.5	1.4	1.5	1.6	1.7	1.9	2.1	2.6	2.9	3.2	3.6	3.8
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.2	-0.6	-0.1	0.3	0.7	0.5	0.4	0.3	0.3	0.2	0.1	0.0	-0.1
Structural primary balance (before CoA)	-0.3	-0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Real GDP growth	2.1	2.6	2.7	2.5	2.4	1.6	1.6	1.8	1.9	2.0	2.1	2.1	2.1
Potential GDP growth	1.5	1.8	1.9	2.0	2.2	1.5	1.6	1.7	1.9	2.0	2.1	2.1	2.1
Inflation rate	1.3	1.5	1.7	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	1.9	1.7	1.5	1.6	1.8	1.9	2.1	2.3	2.4	2.6	2.7	3.1	3.4
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.0	-0.8	-0.6	-0.6	0.0	0.7	1.3	1.9	1.9	1.9	1.8	1.8	1.7
Structural primary balance (before CoA)	-0.1	-0.4	-0.3	-0.3	0.2	0.8	1.4	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	2.3	3.0	2.8	2.7	1.4	1.3	1.2	1.2	1.8	1.9	2.0	2.1	2.1
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.0	-0.8	-0.6	-0.6	0.0	0.7	1.3	1.9	1.9	1.9	1.8	1.8	1.7
Structural primary balance (before CoA)	-0.1	-0.4	-0.3	-0.3	0.2	0.8	1.4	1.9	1.9	1.9	1.9	1.9	1.9
Real GDP growth	2.3	3.0	2.8	2.7	2.2	2.0	1.9	1.7	2.2	2.2	2.2	2.2	2.2
Implicit interest rate (nominal)	1.9	1.5	1.4	1.5	1.6	1.8	2.1	2.3	2.7	2.9	3.0	3.2	3.3
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.9	1.5	1.8	1.9	2.1	2.3	2.5	2.8	3.3	3.7	4.0	4.5	4.7
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.9	1.5	1.1	1.0	1.1	1.2	1.3	1.5	1.8	2.1	2.3	2.7	2.9
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	1.9	1.5	2.1	2.3	2.6	2.5	2.7	3.0	3.4	3.8	4.1	4.6	4.8
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.3	3.0	3.3	3.2	2.4	2.2	2.1	2.1	2.3	2.4	2.5	2.6	2.6
Potential GDP growth	1.8	2.1	3.1	3.1	2.2	2.1	2.0	2.1	2.3	2.4	2.5	2.6	2.6
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.3	3.0	2.3	2.2	1.4	1.2	1.1	1.1	1.3	1.4	1.5	1.6	1.6
Potential GDP growth	1.8	2.1	2.1	2.1	1.2	1.1	1.0	1.1	1.3	1.4	1.5	1.6	1.6
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.3	3.0	3.7	3.6	2.4	2.2	2.1	2.1	2.3	2.4	2.5	2.6	2.6
Potential GDP growth	1.8	2.1	3.5	3.5	2.2	2.1	2.0	2.1	2.3	2.4	2.5	2.6	2.6
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.3	3.0	1.9	1.8	1.4	1.2	1.1	1.1	1.3	1.4	1.5	1.6	1.6
Potential GDP growth	1.8	2.1	1.7	1.7	1.2	1.1	1.0	1.1	1.3	1.4	1.5	1.6	1.6
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.6	1.9	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.6	1.9	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-1.0	-0.8	-0.7	-0.6	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5	-0.6
Structural primary balance (before CoA)	-0.1	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Real GDP growth	2.3	3.0	2.8	2.7	1.9	1.7	1.6	1.6	1.8	1.9	2.0	2.1	2.1
Potential GDP growth	1.8	2.1	2.7	2.6	1.7	1.6	1.5	1.6	1.8	1.9	2.0	2.1	2.1
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-10.2%	-10.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	1.5	1.3	1.4	1.5	1.7	1.9	2.1	2.6	2.9	3.1	3.6	3.7

## 26. The United-Kingdom

Public debt projections under baseline and alternative scenarios and sensitivity tests

UK - Debt projections baseline scenario	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>Gross debt ratio</b>	<b>86.2</b>	<b>88.2</b>	<b>88.3</b>	<b>88.0</b>	<b>86.9</b>	<b>86.4</b>	<b>86.1</b>	<b>86.1</b>	<b>86.1</b>	<b>86.4</b>	<b>86.9</b>	<b>87.7</b>	<b>88.7</b>	<b>89.8</b>
Changes in the ratio (-1+2+3) of which	0.9	2.0	0.1	-0.3	-1.1	-0.6	-0.3	0.0	0.0	0.3	0.5	0.7	1.0	1.1
(1) Primary balance (1.1+1.2+1.3)	-2.8	-3.0	-2.0	-0.6	0.4	0.1	-0.1	-0.3	-0.5	-0.6	-0.8	-1.0	-1.2	-1.3
(1.1) Structural Primary Balance (1.1.1-1.1.2+1.1.3)	-1.7	-2.5	-2.0	-0.9	-0.1	-0.2	-0.3	-0.3	-0.5	-0.6	-0.8	-1.0	-1.2	-1.3
(1.1.1) Structural Primary Balance (before CoA)	-1.7	-2.5	-2.0	-0.9	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
(1.1.2) Cost of ageing						0.1	0.2	0.3	0.4	0.6	0.8	0.9	1.1	1.2
(1.1.3) Others (taxes and property incomes)						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.2) Cyclical component	-1.2	-0.4	0.1	0.3	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(1.3) One-off and other temporary measures	0.1	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(2) Snowball effect (2.1+2.2+2.3)	-0.6	-1.2	-0.8	-1.1	-1.3	-0.4	-0.3	-0.4	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1
(2.1) Interest expenditure	2.9	2.7	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.8	2.8
(2.2) Growth effect	-1.8	-2.4	-2.2	-2.0	-1.9	-1.1	-1.0	-1.0	-1.1	-1.1	-1.2	-1.2	-1.2	-1.3
(2.3) Inflation effect	-1.6	-1.4	-1.1	-1.5	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
(3) Stock flow adjustments	-1.3	0.1	-1.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Per memo</b>														
Structural balance	-4.5	-5.2	-4.5	-3.3	-2.4	-2.5	-2.5	-2.6	-2.8	-3.1	-3.4	-3.6	-4.0	-4.1





**Sustainability indicators summary table**

Long-term projections																
	2013	2014	2015	2016	2017	2018	2019	2020	2025	2030						
<b>Budgetary projections</b>																
Total cost of ageing (gross)	22.1	21.7	21.6	21.7	21.8	21.8	21.9	22.0	22.9	23.3						
Revenues from pensions taxation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Property incomes	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5						
<b>Sustainability indicators</b>																
<b>S0 indicator</b>		<b>2009</b>		<b>2015</b>		<b>Critical threshold</b>										
<b>Overall index</b>		<b>0.58</b>		<b>0.36</b>		<b>0.43</b>										
Fiscal sub-index		0.77		0.40		0.35										
Financial competitiveness sub-index		0.50		0.34		0.45										
<b>S1 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							3.3		9.1		3.4		0.6		5.0	
of which Initial Budgetary position							-0.2		2.6		-0.2		-2.3		1.8	
Cost of delaying adjustment**							0.5		2.1		0.5		0.1		0.8	
Debt requirement***							2.1		3.3		2.1		1.9		2.1	
Ageing costs							0.8		1.1		1.0		0.8		0.2	
<b>Required structural primary balance related to S1</b>							3.2		6.8		3.4		3.1		3.4	
<b>S2 indicator</b>							<b>COM no-policy change scenario</b>		<b>Historical SPB scenario</b>		<b>AWG risk scenario</b>		<b>SCP scenario</b>		<b>2012 Sustainability Report</b>	
<b>Overall index</b>							3.2		5.7		4.4		0.8		5.2	
of which Initial Budgetary position							0.9		3.6		0.9		-1.4		2.6	
Long term component							2.4		2.0		3.5		2.2		2.6	
of which Pensions							1.0		0.9		1.0		0.9		1.2	
Health care							1.0		0.9		1.5		0.9		1.3	
Long-term care							0.3		0.3		0.9		0.3		0.0	
Others							0.1		0.0		0.1		0.1		0.1	
<b>Required structural primary balance related to S2</b>							3.2		3.4		4.3		3.3		3.6	

**Risks related to the structure of public debt financing**

<b>Public debt structure - UK (2014):</b>	<b>Change in share of short-term public debt (p.p.):</b> 2.1	<b>Share of public debt by non-residents (%):</b> n.a.	<b>Share of public debt in foreign currency (%):</b> 0
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**Risks related to government's contingent liabilities**

Government's contingent liabilities - 2014			UK	EU
State guarantees (% GDP) (2013)			9.5	10.5
of which One-off guarantees			9.5	10.2
Standardised guarantees			0.0	0.4
Contingent liabilities of gen. gov't related to support to financial institutions (% GDP)	Liabilities and assets outside gen. gov't under guarantee		0.00	3.07
	Securities issued under liquidity schemes		0.00	0.45
	Special purpose entity		0.00	0.91
	Total		0.00	4.43

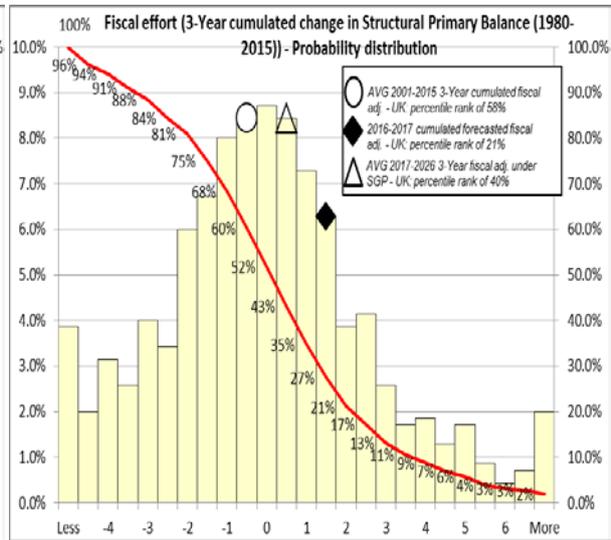
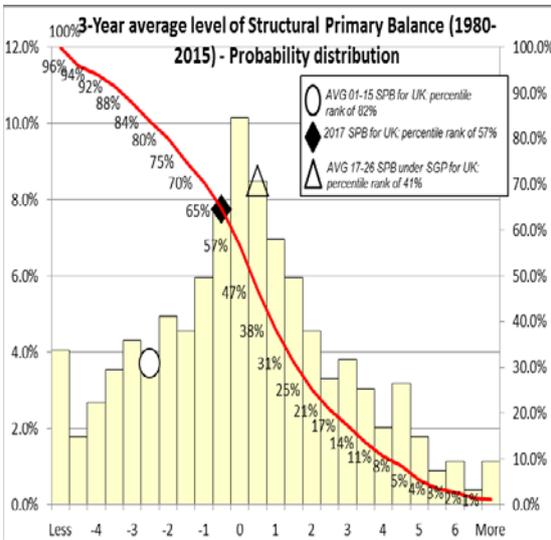
<b>Government's contingent liability risks from banking sector - UK (2014):</b>	<b>Private sector credit flow (% GDP):</b> 3.4	<b>Bank loans-to-deposits ratio (%):</b> n.a. ()	<b>Share of non-performing loans (%):</b> 1.5	<b>Change in share of non-performing loans (p.p.):</b> -0.3	<b>Change in nominal house price index:</b> 10.1	<b>Probability of gov't cont. liabilities (&gt;3% of GDP) linked to banking losses and recap needs (SYMBOL):</b> bank recap. at 8% 0.00%	bank recap. at 10.5% 0.00%
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**Financial market information**

Sovereign Ratings as of Nov 30 2015, UK	Local currency		Foreign currency	
	long term	short term	long term	short term
Moody's	Aa1		Aa1	
S&P	AAAu	A-1+u	AAAu	A-1+u
Fitch	AA+		AA+	F1+

Financial market information as of November 2015, UK		
Sovereign yield spreads(bp)*	2-year	102.2
	10-year	136
CDS (bp)	5-year	16.9

**Realism of baseline assumptions**



### Underlying macro-fiscal assumptions

Macro-fiscal assumptions, United-Kingdom													
<b>1. Baseline no-policy change scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-3.0	-2.0	-0.6	0.4	0.1	-0.1	-0.3	-0.5	-0.6	-0.8	-1.0	-1.2	-1.3
Structural primary balance (before CoA)	-2.5	-2.0	-0.9	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Real GDP growth	2.9	2.5	2.4	2.2	1.3	1.2	1.1	1.3	1.3	1.4	1.4	1.5	1.5
Potential GDP growth	1.7	1.6	1.9	2.0	1.5	1.4	1.4	1.3	1.3	1.4	1.4	1.5	1.5
Inflation rate	1.7	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	2.9	2.8	2.7	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.3	3.3
<b>2. Fiscal reaction function institutional scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-3.0	-2.0	-0.6	0.4	-0.4	-0.9	-1.2	-1.3	-1.3	-1.3	-1.2	-1.1	-1.0
Structural primary balance (before CoA)	-2.5	-2.0	-0.9	-0.1	-0.6	-0.9	-0.9	-0.9	-0.7	-0.5	-0.3	0.0	0.2
Real GDP growth	2.9	2.5	2.4	2.2	1.7	1.3	1.2	1.3	1.2	1.2	1.3	1.3	1.3
Potential GDP growth	1.7	1.6	1.9	2.0	1.9	1.6	1.4	1.3	1.2	1.2	1.3	1.3	1.3
Inflation rate	1.7	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	2.9	2.8	2.7	2.7	2.7	2.8	2.8	2.9	3.0	3.2	3.3	3.3
<b>3. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-3.0	-2.0	-0.7	0.0	0.4	0.9	1.1	1.1	1.1	1.1	1.1	1.2	1.1
Structural primary balance (before CoA)	-2.5	-2.0	-1.0	-0.5	0.1	0.7	1.1	1.1	1.1	1.1	1.1	1.2	1.1
Real GDP growth	2.9	2.5	2.4	2.4	0.8	0.7	0.9	1.3	1.3	1.4	1.4	1.4	1.5
Potential GDP growth	1.7	1.6	2.0	2.2	1.1	1.0	1.1	1.3	1.3	1.4	1.4	1.4	1.5
Inflation rate	1.7	1.3	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.3	2.9	2.8	2.7	2.7	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.2
<b>4. SCP scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-2.9	-1.8	0.4	2.0	2.7	2.7	2.4	2.3	2.1	1.8	1.7	1.5	1.4
Structural primary balance (before CoA)	-0.2	-1.7	0.3	1.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Real GDP growth	2.6	2.5	2.3	2.3	2.3	2.4	1.2	1.2	1.2	1.3	1.3	1.4	1.4
Potential GDP growth	1.4	2.0	2.1	2.2	2.3	2.4	1.3	1.3	1.2	1.3	1.3	1.4	1.4
Inflation rate	1.8	1.6	1.1	1.5	1.9	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Implicit interest rate (nominal)	3.0	2.9	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.6	3.6	3.6	3.7
<b>5. Historical SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-3.0	-2.0	-0.6	0.4	-0.4	-1.2	-2.0	-2.7	-2.8	-3.0	-3.2	-3.3	-3.4
Structural primary balance (before CoA)	-2.5	-2.0	-0.9	-0.1	-0.6	-1.2	-1.7	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
Real GDP growth	2.9	2.5	2.4	2.2	1.7	1.6	1.6	1.7	1.3	1.4	1.4	1.5	1.5
<b>6. Combined historical scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-3.0	-2.0	-0.6	0.4	-0.4	-1.2	-2.0	-2.7	-2.8	-3.0	-3.2	-3.3	-3.4
Structural primary balance (before CoA)	-2.5	-2.0	-0.9	-0.1	-0.6	-1.2	-1.7	-2.3	-2.3	-2.3	-2.3	-2.3	-2.3
Real GDP growth	2.9	2.5	2.4	2.2	2.5	2.4	2.3	2.3	1.8	1.8	1.8	1.8	1.8
Implicit interest rate (nominal)	3.3	2.9	2.8	2.7	2.8	2.8	3.0	3.1	3.2	3.3	3.4	3.5	3.5
<b>7. Higher IR scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.3	2.9	3.0	2.9	3.0	3.0	3.1	3.2	3.4	3.5	3.6	3.8	3.9
<b>8. Lower IR scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.3	2.9	2.6	2.5	2.5	2.4	2.4	2.5	2.5	2.6	2.7	2.8	2.8
<b>9. Higher IR scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Implicit interest rate (nominal)	3.3	2.9	3.1	3.2	3.2	3.2	3.2	3.3	3.5	3.6	3.7	3.9	4.0
<b>10. Higher growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	2.5	2.9	2.7	1.8	1.7	1.6	1.8	1.8	1.9	1.9	2.0	2.0
Potential GDP growth	1.7	1.6	2.4	2.5	2.0	1.9	1.9	1.8	1.8	1.9	1.9	2.0	2.0
<b>11. Lower growth scenario (standard DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	2.5	1.9	1.7	0.8	0.7	0.6	0.8	0.8	0.9	0.9	1.0	1.0
Potential GDP growth	1.7	1.6	1.4	1.5	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.0	1.0
<b>12. Higher growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	2.5	2.7	2.6	1.8	1.7	1.6	1.8	1.8	1.9	1.9	2.0	2.0
Potential GDP growth	1.7	1.6	2.3	2.3	2.0	1.9	1.9	1.8	1.8	1.9	1.9	2.0	2.0
<b>13. Lower growth scenario (enhanced DSA)</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Real GDP growth	2.9	2.5	2.0	1.8	0.8	0.7	0.6	0.8	0.8	0.9	0.9	1.0	1.0
Potential GDP growth	1.7	1.6	1.6	1.6	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.0	1.0
<b>14. Higher inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.7	1.3	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>15. Lower inflation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Inflation rate	1.7	1.3	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
<b>16. Lower SPB scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Primary balance	-3.0	-2.0	-1.2	-0.6	-0.8	-1.1	-1.3	-1.4	-1.6	-1.8	-2.0	-2.1	-2.2
Structural primary balance (before CoA)	-2.5	-2.0	-1.6	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1
Real GDP growth	2.9	2.5	2.8	2.5	1.3	1.2	1.1	1.3	1.3	1.4	1.4	1.5	1.5
Potential GDP growth	1.7	1.6	2.4	2.2	1.5	1.4	1.4	1.3	1.3	1.4	1.4	1.5	1.5
<b>17. Exchange rate depreciation scenario</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>
Exchange rate depreciation	0.0%	0.0%	-9.4%	-9.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Implicit interest rate (nominal)	0.0	2.9	2.5	2.6	2.6	2.6	2.7	2.8	2.9	2.9	3.1	3.2	3.2

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