European Parliament

DIRECTORATE GENERAL FOR INTERNAL POLICIES

POLICY DEPARTMENT A: ECONOMIC AND SCIENTIFIC POLICY

Rooms for extension of the ECB's quantitative easing programme

IN-DEPTH ANALYSIS

Abstract

The announcement of an extension of quantitative easing (QE) until March 2017, at least, has cast doubts on the strength of the Euro area recovery and it has raised concerns about the credibility of the ECB. In this contribution, we argue that the current design of QE prevents unlimited monetary accommodation and, meanwhile, it may reduce the effectiveness of QE. Extending QE again through a modification in its design is thus possible. It will be effective provided governments and the ECB are able to cooperate.

IP/A/ECON/2016-01 February 2016

PE 569.994 EN

This document was requested by the European Parliament's Committee on Economic and Monetary Affairs (ECON)

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Manuscript completed in February 2016

This document is available on the Internet at:
http://www.europarl.europa.eu/committees/en/econ/monetary-dialogue.html

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EXECUTIVE SUMMARY

- Considering the extension of the quantitative easing (QE) programme announced on December 3rd, 2015, the ECB would hold 11% of the stock of debt issued by central and other government tiers of Eurozone countries in March 2017. The proportion of debt held by the ECB would remain relatively limited in comparison with public debt holdings by other central banks. The Federal Reserve, the Bank of England and the Bank of Japan hold respectively 13.5%, 22.5% and 27.1% of public debt issued by their respective governments.

- The criteria set by the ECB regarding its ability to purchase securities in the secondary market may limit the scope for increasing the size of the Public Sector Purchase Programme (PSPP). Yet, under its current design, the ECB's purchase of public securities would amount to €520bn in 2016, representing 38% of total financing needs of Euro area governments.

- To amplify the monetary stimulus, the ECB should decide to remove the 25% purchasing limit, should remove the deposit floor constraint on purchases, should target new types of securities (i.e. corporate debts or sovereign derivatives) and should deviate from the capital shares, hence increasing risk-sharing of the programme.

- Insolvency and inflation risks should not be overestimated. Today's risk for ECB's credibility is not to increase inflation but to be unable to avoid below-target inflation and deflation.

"If at first you don't succeed, Mr. Kidd", "Try, try again, Mr. Wint."
Diamonds are forever, directed by G. Hamilton

1. INTRODUCTION

In January 2015, the ECB announced a substantial increase in its asset purchase programmes. Until then, the ECB had been buying asset-backed securities (ABS) and covered bonds (CB) for an approximate amount of €10bn per month. Following the January 2015 announcement, the total assets purchases has risen to €60bn per month. The additional purchase of €50bn of assets per month is made through the Public Sector Purchase Programme (PSPP). This programme consists of €6bn of debt securities of EU supranational institutions and €44bn of debt securities of sovereign, national agencies and national utilities. The programme started in March 2015 and was initially supposed to last at least until September 2016.

Following the Governing Council of the 3rd December 2015, the President of the ECB announced the decision to extend the length of the programme until March 2017 at least. The monthly amounts stand still but eligible assets have been extended to regional and local governments' bonds. Besides, the ECB also announced a reduction in the deposit facility rate, which stands now at -0.3%.

It is interesting to note that this extension has been either perceived as a disappointment, because it was of a limited size, or as a threat to the ECB's credibility, because it produced a growing size of its balance sheet, some quasi-fiscal policies and a possible risk of insolvency.

In the following, we first discuss the size of QE and highlight the constraints that the ECB has imposed itself to limit its QE policies. These constraints, as they stand, up to now, limit its margins for maneuver and should help refraining fears of unlimited monetary accommodation.

Second, having said that does not preclude from discussing the possible risks of the QE extension. If the risk of inflation and the risk of insolvency are non-negligible risks, this is certainly because they both relate to a possible lack of coordination between ECB monetary policy and fiscal policies. We will argue that though important, this risk remains low in the European context.

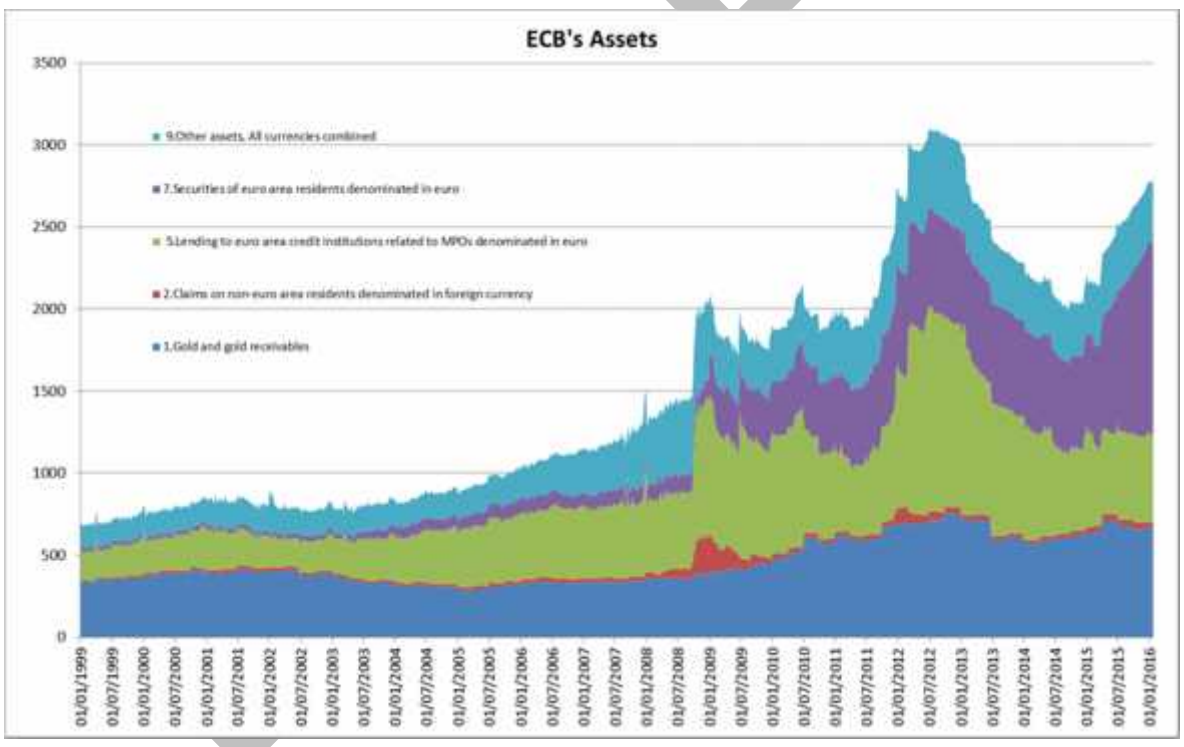
Another kind of risk finally relates to the timing of the announcement. The precocity of the extension announcement, which is maybe intended to counter-balance the delay in announcing the QE programme, leaves open the question of future margins for maneuver for the ECB. What would they be and would the overall design of the new programme have to change? The question of the extension of eligible assets would be posed as would be the possible increase in the monthly assets' purchases. The question of QE effectiveness is thus central in this respect. We briefly review the options.

2. EXTENDING QE: HOW AND HOW MUCH?

The extension in the duration of the Asset Purchase Programme (APP) to March 2017 with the monthly purchase rate maintained at €60bn consists in a €360bn increase in the size of the APP. The Governing Council maintained its language that the programme would continue until a sustained adjustment in inflation, suggesting that a further extension beyond March 2017 would be possible if inflation remained low. The ECB also announced the reinvestment of principal payments, so when bonds mature the ECB will reinvest the principal.

Under the PSPP, national securities are purchased in proportion to the Eurozone's national central banks' shareholdings of the ECB (in effect, in proportion to the size of national economies). With the extended PSPP, the size of the ECB's balance sheet will increase and may rapidly resume the peak above €3,000bn observed in August 2012[1] (see figure 1). At the time of announcement, the total assets held by the ECB amounted to €2,200bn. The total assets to be purchased in this window are now supposed to reach €1.5 trillion. In March 2017, the ECB would hold 11% of the stock of debt issued by central and other government tiers of Eurozone countries.

Figure 1: ECB's balance sheet (assets), € Billions



Source: ECB.

As a matter of fact, the ECB provides information on the breakdown of purchases realized since March 2015. Under a stable allocation of debt instruments' purchases by the ECB, we can infer the proportion of European debts held by the ECB by March 2017 (table 1).[2] In December 2015, total purchases of sovereign assets issued by Euro area governments

[1] At the time of the first announcement on the PSPP in January 2015, the total assets held by the ECB amounted to €2,200 billion and the President of the ECB Mario Draghi explicitly formulated at several occasions in 2014 the objective of increasing the size of the balance sheet.

[2] See https://www.ecb.europa.eu/mopo/implement/omt/html/index.en.html.

amounted to €434.8bn, hence 4.5% of total gross public debt. Taking into account the SMP, the ECB is holding 5.7% of gross public debt issued by Euro area governments. Consequently, the ECB has become a significant actor in the market for public debt in the Euro area. It will become a more significant one after the QE extension. Considering a stable breakdown of purchases computed as the monthly average of purchases in 2015, we can compute the expected amount and allocation of debt securities that could be held by the ECB in March 2017.[3] Overall, the ECB holdings of debt securities would represent 11.1% of total gross public debt of the Euro area[4]. The ECB would hold, for example, 9% of Italian debt, 11% of French debt, 13% of German and Spanish debt, 15% of Finnish debt and 28% of Slovakian debt.

Table 1: Gross public debt and ECB holdings of sovereign

	Gross public debt (2015) Billion, national currency	Central bank holdings (31.12.2015), Billions national currency*	Central banks holdings (31.12.2015) as % of gross public debt*	Central banks holdings (PSPP+SMP) (31.12.2015) as % of gross public debt	Planned ECB holdings (31.03.2017), Billion euro *	Planned ECB holdings (31.12.2017) as % of gross public debt*
Belgium	437.7	15.9 (3.7)	3.6	3.6	39.7	9.1
Germany	2156.8	115.6 (26.6)	5.4	5.4	289.1	13.4
Estonia	2.1	0.0 (0.0)	0.0	0.0	0.0	0.0
Ireland	203.7	7.6 (1.7)	3.7	7.6	19.0	9.3
Greece	337.3	0.0 (0.0)	0.0	4.6	0.0	0.0
Spain	1087.3	56.8 (13.1)	5.2	7.5	142.0	13.1
France	2098.9	91.8 (21.1)	4.4	4.4	229.4	10.9
Italy	2174.4	79.2 (18.2)	3.6	6.5	198.0	9.1
Cyprus	18.5	0.3 (0.1)	1.5	1.5	0.7	3.8
Latvia	9.4	0.7 0.2)	7.3	7.3	1.7	18.2
Lithuania	15.8	1.1 (0.3)	7.0	7.0	2.8	17.5
Luxembourg	11.2	1.1 (0.3)	9.9	9.9	2.8	24.8
Malta	5.6	0.3 (0.1)	5.1	5.1	0.7	12.6
Netherlands	467.9	25.6 (5.9)	5.5	5.5	64.0	13.7
Austria	291.2	12.6 (2.9)	4.3	4.3	31.6	10.9
Portugal	229.0	11.2 (2.6)	4.9	10.2	28.1	12.3
Slovenia	32.4	2.2 (0.5)	6.9	6.9	5.6	17.2
Slovakia	41.2	4.6 (1.1)	11.2	11.2	11.6	28.0
Finland	130.3	8.1 (1.9)	6.2	6.2	20.2	15.5
Euro area	9758.4	434.8 (100.0)	**4.5**	5.7	**1086.9**	**11.1**
Supranationals		60.1			150.26	
U. Kingdom	1664.8	375.0	22.5			
United-States	18189.0	2462.0	13.5			
Japan	1197146	325001.9	27.1			

*: PSPP only for the ECB. % of total sovereign purchases in brackets.
Sources: ECB, European Commission, OFCE.

The proportion of debt held by the ECB, though on an upward trend, remains relatively limited in comparison with public debt holdings by other central banks in the world like the Federal Reserve, the Bank of England and the Bank of Japan. Indeed, the ECB would hold a smaller share (11.1 %) of total debt in 2017 than the US Fed at the end of 2015, with its

[3] Without taking into account the residual amount held from the SMP.
[4] In December 2015, the ECB has decided to include in the PSPP euro-denominated marketable debt issued by regional and local governments located in the euro area. This decision would yet leave unchanged the estimate above since regional and local governments debt is consolidated with central government debt.

holdings of 13.5% of US public debt. The £375bn held by the Bank of England through its QE programmes[5] represented 22.5% of total debt issued by the British government. By the end of 2015, the Bank of Japan was holding more than a quarter of Japanese total public debt.

The purchases of debt instruments by the ECB have also appeared limited as far as financial market expectations are concerned. Actually, before QE extension, financial market operators had expected an increase in debt purchases of €650bn.

An important question about QE has been its incidence on risk and allocation of it. The ECB indicated that the credit risk of the €6bn debt of the supranational EU institutions and €4bn of the national debt securities would be shared across the Eurosystem according to shareholdings. The credit risk of the remaining €40bn of national securities would remain with the national central bank of the issuer. In practice, sovereign debt purchases with national risk sharing are limited by the loss absorption capacities of the national central banks.

It is noteworthy that PSPP risk-sharing is lower than that involved by the Securities Market Programme (SMP) in 2010-2012 with its acquisition of €220bn public and private debt securities from Greece, Ireland, Italy, Portugal and Spain to be held to maturity. Within the SMP, profits and losses are shared across national central banks according to the ECB's shareholdings rather than borne by the national central bank of the issuing government. The PSPP also differs substantially from the Outright Monetary Transactions (OMT) instrument, as announced in September 2012. OMT enables the ECB to purchase the debts of distressed Eurozone sovereign states as a stabilizing mechanism. In this case, the ECB has stated its intention to hold purchased bonds on its own balance sheet, effectively sharing the associated risks among all Eurozone member states.

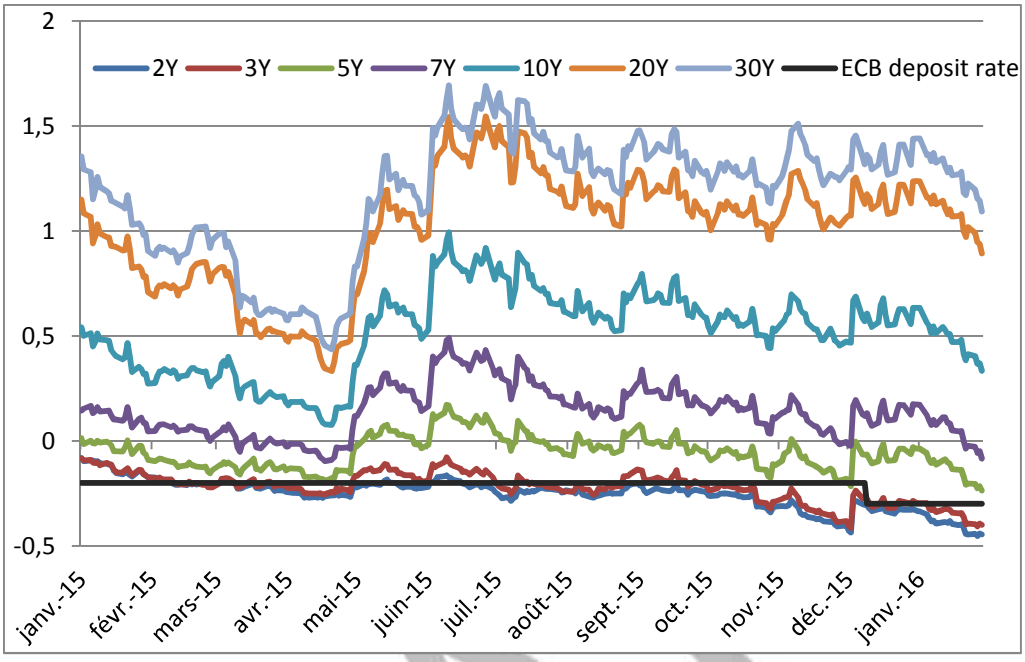
The current design of the PSPP limits the scope for increasing its size. The ECB has indeed fixed rules limiting the amount of securities that can be purchased in the secondary market. First, bonds must have a remaining maturity between 2 and 30 years. Then, the ECB cannot buy assets for which the yield is below the deposit rate. The proportion of German/French bonds yielding below the deposit rate (and hence ineligible) (see figures 2a and 2b) is a key consideration in explaining why the ECB decided to cut further the deposit rate in December 2015, from -0.2 to -0.3%. It has lifted a bit the limit and therefore permitted the ECB to keep on buying "safe" German and French public debts. Second, under the current programme, government bonds are purchased in proportion to the ECB's capital shares. The ECB can buy up to 33% of a country's outstanding stock of eligible bonds (the limit is 25% for bonds with collective action clauses, CACs, to ensure that the ECB will never hold a blocking minority). Since government debt is not distributed uniformly across the Euro area, the purchase limit is self-limiting as it can bind on different countries at different times. The smallest countries are already close to the limits and will have insufficient domestic debt to fulfill their quotas. The programme therefore allows for affected central banks to purchase supranational bonds. However, because supranational purchases account for 12% of the overall stock of purchases, reallocation of debt purchases towards supranational bonds will not always be possible, e.g. if the domestic debt limit is hit in a large country.

Actually, based on projections of countries' borrowing requirements, small countries are approaching the debt limits suggesting that the ECB will have to switch to supranational debt purchases. Germany may hit the limit shortly after September 2016, with Portugal and Finland not far behind, or Latvia, Luxembourg and Estonia, as emphasized by Clays,

[5] The QE in the UK started in March 2009 after the BoE announced £200bn purchases of Gilts. The programme has come to a halt until October 2011 and resumed (it was then called QEII) to reach £375bn in November 2012.

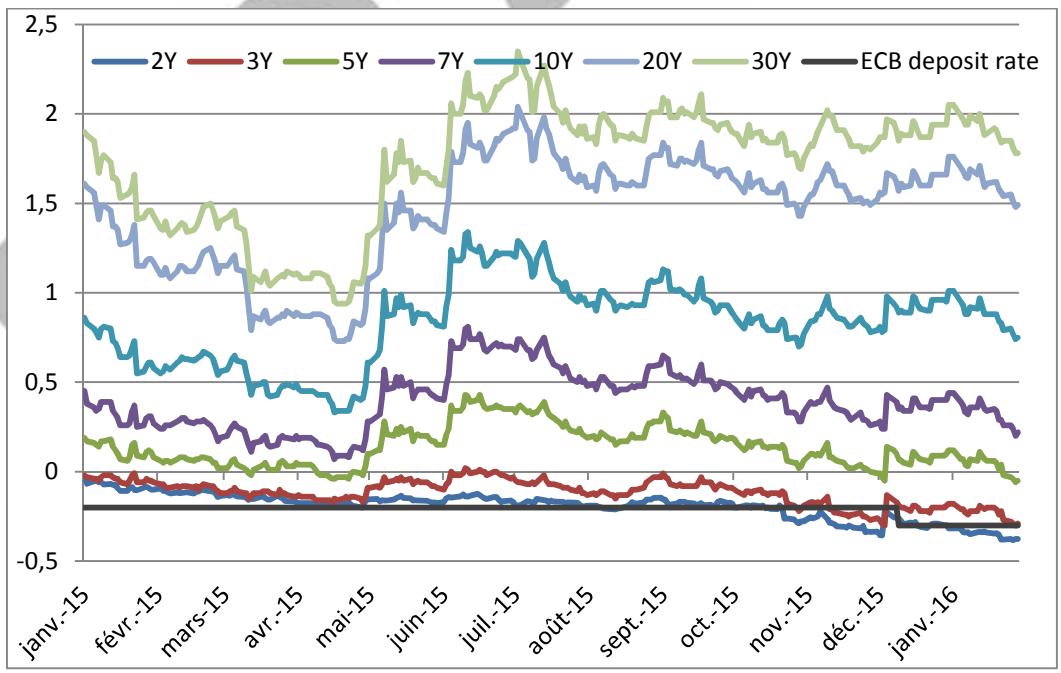
Leandro and Mandra (2015). In Portugal, the limit is notably reached because of the SMP programme. That suggests only little scope for extending the programme under its current design.

Figure 2a. Sovereign yields in Germany at different maturities (in %)



Sources: Datastream, ECB

Figure 2b. Sovereign yields in France at different maturities (in %)



Sources: Datastream, ECB

3. EXTENDING QE: WHAT RISKS?

With QE, ECB has engaged in a new way of conducting monetary policy.[6] Before the financial crisis, the conduct of monetary policy boiled down to fixing the policy rate and providing liquidity – through main refinancing operations (MRO) and long-term refinancing operation (LTRO) – in order to bring the short-term market rates close to the target fixed by the central bank. Liquidity was provided against collateral limiting the risk of central bank operations.[7]

With the financial crisis, central banks have entered a new era where criteria for collateral have been modified, where the size and composition of the balance sheet's assets have been significantly altered. The ECB holds covered bonds, asset-backed securities and sovereign bonds. The central banks actions now entail risks. Thus, there is a possibility that asset purchased by the ECB (either through the PPSP, or ABSP or CBPP) programmes become worth much less, either because people later worry more about default, or because one government actually defaults, or exits the Euro area. ECB may then suffer from capital losses. The issue then arises of a potential need to recapitalize the ECB or national central banks, and eventually of central bank's insolvency. Another issue relates to so-called on-going "quasi-fiscal" policies by the ECB and their impact on inflation.

3.1 Insolvency risk

Can central banks go bankrupt? It might be considered that this risk is limited as they issue a specific liability: central banks' reserves, held by the financial sector. Central banks issue base money (reserves held by banks and paper money), which may be considered as a non-interest bearing liability.[8] Following this argument, central banks would always be solvent. There are yet limits to the issuance of base money and even if central banks are not under the same regulations as commercial banks, troubles may arise. They have already occurred in the past, as reminded by Stella and Lönnberg (2008).

Intertemporal insolvency is the most relevant concept to assess the financial position of central banks (see Reis, 2013, 2015, and the appendix). It explicitly takes into account as a liability the present discounted value of expenditures (the future costs of running central banks – administrative costs – and future payments to the Treasury) and the present discounted value of revenues: seigniorage profits (interest saved on the current and future stocks of non-interest bearing liabilities[9]). Insolvency occurs when seigniorage revenues do not cover present discounted expenditures. This approach accounts for the possibility of central banks to increase assets to a very large value and finance these asset purchases by issuing reserves. It is clearly the argument according to which central banks would never fail. Yet, considering that functioning costs are negligible and for given expected payment to the Treasury, central banks' solvency boils down to the ability for central banks to raise seigniorage revenues.

May revenues from seigniorage become infinite? The answer is no. If central banks issue reserves to finance assets purchases, the banking sector may seek to exchange excess reserves for banknotes. Therefore, real revenues from seigniorage are limited by the demand for money and eventually eroded by inflation. Then, there would be a need to

[6] It was actually already the case with CBPP, SMP or even with other unconventional monetary policy measures. Yet, the size of PSPP makes this change more significant.

[7] Monetary policy operations in the United States did not consist in direct lending to the banking system but in Treasuries purchases. Yet, the Fed only purchased short maturity assets limiting the risk of its portfolio.

[8] Actually, most central banks (including the ECB) have decided to remunerate reserves. Yet, this interest rate is lower than interest rate earnings on assets held by central banks.

[9] The central bank issues reserves and may acquire assets in counterparty. Revenues are then the interest paid on those assets financed by issued reserves.

recapitalize the central bank. It is generally supposed that seigniorage revenues are hump-shaped so that they decrease beyond a threshold level.

According to several authors central banks are inherently linked to governments so that central banks' finance is not an issue (central banks finance has to be consolidated with government finance). Treasury always provides a financial backup to central banks and central banks cannot be insolvent separately from governments. According to Buiter (2006), "the concept of a financially independent central bank is therefore, in substance, vacuous, whatever the formal legal status of the central bank… First the inflation target has to be financeable by the state, that is, the consolidated central bank and government. Second, when monetary policy is institutionally delegated to central bank, the Treasury has to stand behind the central bank".

Yet, for the ECB, no central government stands behind the ECB but national central banks. It may be argued that it makes no difference if NCB's are backed by national governments and the ECB is backed by NCB's. However, as emphasized by Stella and Lönnberg (2008) governments do not always stand behind central banks. First, they may sometimes be reluctant to meet their commitments. Besides, in some countries, independence issue is so strong that it is explicitly stated (by law) that "the central bank is not responsible for the liabilities of the state and the state is not responsible for the liabilities of the central bank". It is notably the case for the Baltic states. Yet, for most Euro area countries, governments would certainly stand behind national central banks. However, they may not be able to recapitalize them. ECB and national central banks are indeed exposed to sovereign risk. It is doubtful though that governments would be able to recapitalize any central bank suffering from capital losses on Treasury securities. Then, central banks' insolvency is either inherently linked to government insolvency or to inflation risk.

3.2 Inflation risk

QE operations are sometimes referred to as "quasi-fiscal" operations as they do not conform to traditional monetary policy (Park, 2015). According to Goodfriend (2011), "quasi-fiscal operations" are operations putting taxpayers at risk; hence they are equivalent to fiscal decisions. This argument can be related to the Fiscal theory of the price level (FTPL) (Sims, 1994; Woodford, 1994) which draws extensively on the interactions of fiscal and monetary policies at the equilibrium (Leeper, 1991). Del Negro and Sims (2015) have recently discussed, in this framework, about the Fed's QE policies and concluded that fiscal backing by the Fed did not pose any issues of Fed's solvency except under extreme conditions, namely hyper-inflations.

The FTPL discusses about the fiscal requirements for achieving a stable economic system, according to the nature of monetary policy. In case the latter is aggressive at taming inflation, fiscal policy ought to target a stable debt-to-GDP ratio unless the economy is unstable. Otherwise, fiscal policy can be relieved from the objective of fiscal sustainability because monetary policy leaves the consumer price jump so that the real value of debt stabilizes in proportion to GDP. The FTPL works like a Quantity theory of Public Debt: in contrast with the Quantity theory of money according to which higher money creation leads to higher prices, the FTPL states that higher nominal debt eventually leads to higher prices when the central bank is " passive".

The current QE programme by the ECB nicely fits into this framework. The purchases of debt instruments ease the financing conditions of governments (bond prices are going up and yields are going down) and as a counterpart, the ECB is increasing high-powered money. This may lead banks to increase reserves or lead to higher money creation, then inflation. Does it mean a higher risk? No, in theory, as the price jump occurs at equilibrium.

Stated differently, nominal values are growing, but real values remain constant. The QE experiment is thus embedded in a general equilibrium framework, i.e. a stable framework.

What about the inflation risk in practice? As a matter of fact, if inflation increases above ECB's target, ECB's credibility will be undermined. Yet, QE and the decision to extend it beyond September 2016 have precisely aimed at reshaping inflation's expectations in order to finally meet the 2% inflation target in the medium term. Therefore, today's risk for ECB's credibility is not to increase inflation but to be unable to avoid deflation.

QE programmes carry some risks of insolvency or inflation. A prerequisite to a stable equilibrium is cooperative behaviors by governments and the central bank. Yet, those risks are currently rather limited, with governments aiming at limiting their debt-to-GDP ratios, whereas deflation risk remains pervasive. Being passive and still resorting to standard central banking would be far riskier as the Euro area's prolonged depression would fuel deflation, hence posing a threat to central bank credibility.

4. EXTENDING QE AGAIN: IS IT POSSIBLE?

Given the limited increase in the size of the APP, the reason for the extension of December 2015 has remained unclear. The ECB could have announced the extension of the APP later; it could have completed it with a size extension in December 2015 without extending it to new asset types. The ECB has sent two signals. The first one relates to the availability of debt instruments. Due to the internal limits, there may have been risks of scarcity on the Treasuries' markets. Extending QE to new assets like regional debt instrument is a good way to circumvent the possible scarcity of debt instruments. Keeping in mind that Germany and Spain have large and liquid regional debt markets, QE extension has been targeted to cope with and resolve scarcity. Second, QE extension can be interpreted as a type of "forward-guidance". With the announcement of continuing asset purchases until March 2017, the ECB has signaled its will to maintain short-run interest rate at their current (low) level until then. This reflects the perceived risk of continuing below-target inflation by the ECB. Does this mean that QE could be extended in size and/or to new assets?

As we have argued, there is only limited room for scaling up the QE programme under its current design. Increasing its size or its allocation would thus require some modifications in its design.

First, the ECB could decide to remove purchasing limit (the 33% limit for bonds without CACs). This would generate a long-lasting and sharp influence on debt liquidity and may improve the effectiveness of QE. As a matter of fact, an important transmission channel of QE is the portfolio balance effect.[10] The central bank's purchases push prices of sovereign assets up and lead investors to seek for close substitutes. In the end, sovereign yields decrease and corporate yields as well. Investors can also switch to foreign (non-European) sovereign assets leading to currency depreciation. Consequently, the effectiveness of the portfolio balance effect is high if the central bank alters significantly the market liquidity of public debt by buying large amounts of sovereign assets.

Actually, in 2015 the total purchases of government public debt securities (excluding supranational purchases) by the ECB have been €434.8bn whereas estimates of financing needs have amounted to €1,400bn. It must be reminded that securities are not purchased on the primary market but on the secondary market. Yet comparing assets purchases with yearly issuance of securities provides information on the liquidity impact of ECB decisions and then on its ability to influence sovereign assets' prices. In the case of Slovakia (see table 2), the ECB purchases amounted to €5.2bn in 2015 approaching 90% of the Slovakian financing needs. If the ECB had realized its operations on the primary market, it would have acquired nearly all assets issued during the year. 10% would have been left to other investors forcing them to switch to other assets. With €115.6bn purchases of German bonds, the ECB has absorbed the equivalent of 66% of financing needs. Supposing that ECB monthly purchases for 2016 are of the same amount as in 2015, the ECB would then buy 79% of the German financing needs. To compare with the implementation of the QE I and QE II of the Bank of England, purchases realized in 2009 (respectively in 2012) have represented 97.2 % (respectively 76 %) of Gilt issuances.

[10] See Blot, Creel, Hubert and Labondance (2015).

Table 2. Public financing needs and ECB yearly purchases of public debt securities

	Total financing needs in (€ bn)		ECB PSPP purchases (€ bn)		ECB PSPP purchases (in % of financing needs)	
	2015	2016	2015	2016	2015	2016
Belgium	80.8	76.3	15.9	19.1	19.7	25.0
Germany	175.2	175.2	115.6	138.8	66.0	79.2
Estonia	na	na	0.0	0.0	na	Na
Ireland	20.8	16.7	7.6	9.1	36.4	54.4
Greece	na	na	0.0	0.0	na	Na
Spain	231.9	236.2	56.8	68.2	24.5	28.9
France	376.3	395.9	91.8	110.1	24.4	27.8
Italy	349.9	323.7	79.2	95.1	22.6	29.4
Cyprus	na	na	0.3	0.3	na	Na
Latvia	na	na	0.7	0.8	na	Na
Lithuania	3.1	2.8	1.1	1.3	35.8	48.1
Luxembourg	na	na	1.1	1.3	na	Na
Malta	0.5	0.7	0.3	0.3	52.9	50.0
Netherlands	73.7	56.6	25.6	30.7	34.8	54.3
Austria	25.2	24.9	12.6	15.2	50.1	61.0
Portugal	35.9	31.3	11.2	13.5	31.3	43.1
Slovenia	3.5	5.5	2.2	2.7	63.0	49.0
Slovakia	5.2	6.8	4.6	5.5	89.6	81.6
Finland	16.9	17.5	8.1	9.7	47.9	55.4

Sources: ECB, IMF (Fiscal monitor, April 2015)
Note: Financing needs are calculated as the sum of new debt resulting from budget deficit and debt arriving to maturity.

Second, the ECB could remove the deposit floor constraint on purchases. This would permit to purchase all "safe" debts (with a negative yield). A glance at figures 2a and 2b shows that the loss incurred by the ECB (the yield on some assets could fall below the yield on some liabilities) would be small.

Third, the ECB could target new types of securities, i.e. corporate debts or sovereign derivatives. While the current spot curve means that German Bunds with residual maturity of less than 3½ years are yielding below the deposit rate, and so are ineligible, the forward curve shows that all Bunds with maturities more than 2 years are eligible (with yields above -0.3%) by the end of 2016. So the proportion of total debt that is eligible for purchase could be increasing over time and constraints on the total size of the APP would be less tight for extensions beyond September 2016.

Fourth, the ECB could deviate from the capital shares, hence increasing risk-sharing of the programme. Politically speaking, it would certainly be very difficult to implement. Economically speaking, it questions the link between risk-sharing and overall risk and/or effectiveness of PSPP. The fact that Mario Draghi made clear that: "risk-sharing is fundamental for the effectiveness" of OMT, suggests that the limited risk-sharing of QE impinges on its effectiveness. It is noteworthy that in the US, QE purchases are being held in the System Open Market Account (SOMA) where possible losses are shared across the Federal Reserve System.

Three arguments can be put forward to conclude that increasing risk-sharing will increase risk or decrease effectiveness. First, coupon payments are kept within national borders. Hence, because fiscal policy remains country-specific, national authorities should bear the credit risk. If credit risk is shared across Euro area countries, governments may be less

motivated to balance their budget and sustainability issues will arise. Uncooperative behaviors between governments and the ECB would destabilize the Euro area economy and fuel inflation risk. Second, national central banks have the fiscal support of their respective governments, not the ECB. Third, risk-sharing is useless and has no effect on the effectiveness of QE since it has no effect on the creation of high-powered money.

However, greater risk-sharing also has some advantages. First, the Banking Union is supposed to disrupt the link between governments and national banking sectors. Requiring national central banks to purchase large amounts of their government debt would regenerate that link. Second, if a government's solvency is at risk, the limited risk-sharing may increase the cost of funding relative to a QE programme with more risk-sharing.

4. CONCLUSIONS AND POLICY IMPLICATIONS

To sum up, a new extension of QE is possible, though certainly limited, either by the current design of the assets purchasing programme, by the future financing needs of Euro area governments, or by a political reluctance to see the ECB bear more risk. This reluctance questions the future of policymaking. Is unconventional monetary policy a temporary tool or is it the "new normal"? If the latter case applies and monetary policy becomes less endorsed with price stability than with the management of risk premia, QE extension will be very likely.

In central bankers communication there is a question of balance of risk as far as QE measures are concerned. In the short-term, the main economic risk remains deflation, so that the actions taken so far contribute to mitigate this risk; they shall not be overly criticized for creating illusory risks of central bank insolvency or an inflation risk. The monetary policy in the Euro area has contributed to the on-going, though weak, recovery. Yet, the tools at the disposal of the central bank may lead to higher inflation and higher risks – either for central bank's solvency or for the economy if not tuned appropriately with business and financial cycles.

REFERENCES

- Blot C, J. Creel, P. Hubert and F. Labondance (2015). "The QE experience: worth a try?", Briefing Paper European Parliament, March.
- Buiter, W.H (2006). "How robust is the New conventional wisdom in monetary policy?", paper presented at the 2006 Central Governor's Symposium "Challenges to Monetary Theory" at the Bank of England, on June 23, 2006.
- Buiter, W.H (2008). "Can central banks go broke?", CEPR Policy Insight n°24.
- Clayes, G., A. Leandro and A. Mandra (2015). "European central bank quantitative easing: the detailed manual". Bruegel Policy Contribution Issue 2015/2.
- Del Negro M. and C.A. Sims (2015). "When does a central bank's balance sheet require fiscal support?", Journal of Monetary Economics 73, July, 1-19.
- Leeper, E. (1991). "Equilibria under 'active' and 'passive' monetary policies". Journal of Monetary Economics 27(1), 129–147.
- Park, S.G (2015). "Central banks' quasi-fiscal policies and inflation". International Journal of Central banking vol.11 n°2, 199–236.
- Reis, R. (2013). "The mystique surrounding the Central bank's balance sheet, applied to the European crisis". American Economic Review 103(3), 135–140.
- Reis, R. (2015). "Comment on: when does a central bank's balance sheet require fiscal support?". Journal of Monetary Economics 73, 20–25.
- Sims, C. A. (1994). "A simple model for study of the determination of the price level and the interaction of monetary and fiscal policy". Economic Theory 4(3), 381–399.
- Stella, P. and A. Lönnberg (2008). "Issues in central bank finance and independence". IMF Working Paper n°37.
- Woodford, M. (1994). "Monetary policy and price level determinacy in a cash-in-advance economy". Economic Theory 4(3), 345–380.

APPENDIX

From a theoretical perspective, Reis (2013, 2015) disentangles 3 types of insolvency:

- "period insolvency" when the value of assets becomes inferior to the value of liabilities. The current net worth of the central bank is negative and it is unable to pay dividend to the government because of capital losses.
- "rule insolvency", does arise when the central bank is not able to meet its commitments (the rule of dividend as defined in its charter). "This may be equivalent to period insolvency if the rule implies that dividends can never be negative" (Reis, 2015).
- "intertemporal insolvency". Here, future commitment and revenues are taken in to account to assess the situation of central banks. Such an approach takes explicitly into account the intertemporal budget constraint and central banks become insolvent when present discounted revenue are lower than present discounted expenditures.

To provide better insight into the distinction made above, it is useful to recall that on the asset side, central banks hold different types of assets: official foreign exchange reserves, credit to the financial sector, Treasury securities and other securities since the financial crisis. Before the financial crisis, 40% of ECB assets was lending to Euro area credit institutions through MRO and LTRO. This share has now fallen under 20% whereas securities issued by Euro area residents have jumped from 6.7% in 2006 to 43% in January 2016 (30.3 for securities held for monetary purpose only).[11]

For central banks, the main source of default is related to losses on foreign exchange reserves or capital losses on risky assets. On the liability side, central banks issue a non-interest bearing liability (also called high-powered money), which is the sum of reserves held by the credit institutions and banknotes in circulation.

According to the distinction above, the central bank would be insolvent if losses on exchange rate reserves or capital losses are such that the value of assets becomes inferior to the value of liabilities. Net worth becomes negative and the central bank cannot pay dividend. It should be recapitalized. Yet, for some central banks rules allow central banks to create "revaluation account". Then losses become an asset and can be viewed as a claim on government. By this accounting operation, current losses may be compensated by future profits. Stella and Lönnberg (2008) remind that central banks are indeed not requested to meet the same legal obligations as commercial banks. Realized profits may be retained and not distributed to owners. Then "period insolvency" may not be relevant. Nor would be "rule insolvency" if, by accounting operations, the central has the ability to postpone its commitments regarding the payment of dividend.

[11] For the US, more than 85% of the Federal Reserve Bank's assets were Treasury securities. At the beginning of 2006, the Fed did hold neither bank loans nor agency securities. Banks loans represented more than 20% of the Fed's assets in 2008Q3. This share has gone back to zero by the end of 2015 and Agency and GSE-backed securities now represent nearly 40% of the balance sheet.