

INTERNATIONAL MONETARY FUND

**The State of Public Finances:
Outlook and Medium-Term Policies After the 2008 Crisis**

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EXECUTIVE SUMMARY

The financial crisis is having major implications for the public finances of most countries. Direct fiscal support is being provided to the financial sector. Fiscal revenues are declining through the operation of automatic stabilizers and due to lower asset and commodity prices. Many countries are undertaking discretionary fiscal stimulus. The consequent fiscal deterioration is particularly strong for advanced countries, where the increase in both government debt and contingent liabilities is unprecedented in scale and pervasiveness since the end of the Second World War. Moreover, these developments occur in a context of severe long-run fiscal challenges, especially for countries facing rapid population aging.

The fiscal balances of G-20 advanced countries are projected to weaken by 6 percentage points of GDP on average, and government debt is projected to rise by 14½ percentage points of GDP in 2008–09, with most of the deterioration occurring this year. The fiscal balances of G-20 emerging economies will also deteriorate—albeit less markedly. For advanced economies, the increase in debt mostly reflects support to the financial sector, fiscal stimulus, and revenue losses caused by the crisis. For emerging economies, a relatively large component of the fiscal weakening reflects declining commodity and asset prices. Collapsing asset prices have also had adverse effects on funded components of pension systems, with potentially significant risks for public accounts over the next few years.

While fiscal balances are expected to improve over the medium term, they will remain weaker than before the crisis. Public debt-to-GDP ratios will continue to increase over the medium term: in 2014 the G-20 advanced country average is projected to exceed the end-2007 average by almost 25 percentage points of GDP. On current policies, debt ratios will continue growing over the longer term, reflecting demographic forces. Moreover, for both advanced and emerging economies, the crisis has increased short- and medium-term fiscal risks, with key downside risks arising from the need for possible further support to the financial sector, the intensity and the persistence of the output downturn, and the return from the management and sale of assets acquired during the financial support operations.

This somber fiscal outlook raises issues of fiscal solvency, and could eventually trigger adverse market reactions. This must be avoided: market confidence in governments' solvency is a key source of stability and a pre-condition for economic recovery. Therefore, there is an urgent need for governments to clarify their strategy to ensure that solvency is not at risk. In formulating such a strategy, four components are particularly important: (i) fiscal stimulus packages, where these are appropriate, should not have permanent effects on deficits; (ii) medium-term frameworks, buttressed by clearly identified policies and supportive institutional arrangements, should provide a commitment to fiscal correction, once economic conditions improve; (iii) structural reforms should be implemented to enhance growth; and (iv) countries facing demographic pressures should firmly commit to clear strategies for health and pension reforms. While these prescriptions are not new, the weaker state of public finances has dramatically raised the cost of inaction.

I. INTRODUCTION

1. **The financial and economic crisis is affecting the fiscal accounts of virtually all Fund members through several channels.** First, many countries have supported the financial sector directly, primarily through “below-the-line” operations affecting governments’ assets and liabilities, as well as operations giving rise to contingent liabilities. Second, the growth deceleration, coupled with asset and commodity price declines, is affecting revenues (and, in some cases, spending). Third, discretionary stimulus has been used to support aggregate demand. Moreover, the losses suffered by funded pension schemes may involve contingent liabilities for the state. For many countries, these developments come in the context of a projected long-term deterioration in fiscal balances reflecting demographic changes. Indeed, in these countries, fiscal policy before the crisis was expected to focus on pre-positioning the fiscal accounts to make room for increased aging-related spending. The opposite has happened.

2. **It is now critical to reassess the state of public finances in light of the crisis and pursue strategies to ensure fiscal solvency.** Major doubts about fiscal solvency would lead to a surge in risk premia on government paper, destabilize expectations, and further shake market confidence. A clear strategy to ensure fiscal solvency is, therefore, an important element for the resolution of the current crisis.

3. **This paper quantifies the fiscal implications of the crisis, assesses the status of fiscal balances after the shock, and discusses the strategy to ensure fiscal solvency.** The focus is primarily on advanced and emerging economies, complementing the Board paper on the effect of the crisis on low-income countries. While, for practical purposes, some of the empirical evidence presented refers only to the G-20, information is provided also for other countries, and the analysis also applies to them.¹ Section II estimates the fiscal costs and contingent liabilities arising from direct support extended to financial institutions and markets, looking both at the upfront gross costs and the likely recovery from asset sales. Section III assesses the budget impact of the recession related to the automatic stabilizers, other non-discretionary effects (e.g., revenue losses from asset price declines), and the discretionary stimulus. Section IV looks at fiscal risks arising from the losses suffered by funded pension schemes. Section V presents the overall fiscal outlook for advanced and emerging economies, adding together the effects discussed in the earlier sections, and discusses risks to the baseline. Section VI assesses the outlook for fiscal solvency, calls for the early identification of a fiscal strategy to ensure solvency, and outlines the key components of such a strategy. Section VII suggests issues for discussion. A Companion Paper (CP) provides supporting material. As a general caveat, the estimates presented are subject to a significant degree of uncertainty, and developments should be closely monitored as new information becomes available.

¹ The G-20 group is defined in this paper as inclusive of Spain.

II. FISCAL IMPLICATIONS OF THE CRISIS: DIRECT COSTS²

4. **Government support to the financial sector can take various forms, with different implications for gross and net debt.** Operations undertaken directly by the government typically entail an upfront rise in gross government debt, though not necessarily a change in net worth and the deficit, given the related acquisition of assets. Over time, the fiscal impact will critically depend on the realization value of the acquired assets (i.e., recoveries from their sale). Other operations—those undertaken by the central bank or guarantees—have less immediate implications for the fiscal accounts, but may also have important costs over the medium term. For all, a transparent treatment in the fiscal accounts is necessary (see Box 1 and CP, Chapter I).

Box 1. Fiscal Accounting Treatment of Support to the Financial Sector

(Guidance based on Government Finance Statistics Manual (GFSM 2001))

The following is the recommended treatment of the impact on the government balance of the main financial support operations:

Capital grants: Increase the deficit by the amount of the grant.

Equity purchases: Have no impact on the fiscal balance, if purchase is at market value, but increase government gross debt. Raise the deficit by any marked/undisputable excess of what the government pays over the value of the equity.

Asset purchases/swaps: Same as equity purchases.

Loans: Have no immediate impact on the fiscal balance if there is no inherent subsidy, but increase government debt. Reduce the balance by any amount that the government cannot expect to be repaid.

Guarantees: Have no immediate impact on the fiscal balance or debt unless there is a significant probability the guarantee will be called (in practice when a reserve has been created). In other cases, the fiscal balance would weaken and debt increase if and when the guarantee is called.

Associated fees, interest, and dividends: Affect the deficit in the same way as other government income or expense.

Central bank operations: Are reflected in its own balance sheet and income statement, rather than those of the government. However, losses on these operations will affect the budget over time, as they affect profit transfers or necessitate recapitalization. For transparency and to facilitate policy decision making, these operations should be disclosed, possibly as complementary information in the budget.

² Prepared by Daehaeng Kim, Manmohan Kumar, and Julio Escolano, with contributions by Philippe D. Karam, and Daniel Leigh.

A. Headline Support to Financial Sectors ³

Advanced countries

5. **Many advanced countries have provided, or announced the intent to provide, significant support to their financial sectors.** Support measures have varied markedly in extent and nature (see Table 1, and CP, Chapter II). Estimates in Table 1 are based on official announcements of amounts allocated for financial sector support (or maximum amount of banks' liabilities to be guaranteed), although they may not be used in full.⁴

- *Capital injections:* Many countries have recapitalized their banks, particularly the systemically important ones. For the advanced G-20 countries, the average outlay to date is projected at 2.9 percent of GDP, with considerable variation across countries (ranging from 4.0 percent in the U.S. to none for Australia, Canada, and Spain). Among smaller advanced economies, Austria, Belgium, Ireland, and the Netherlands have announced large programs, ranging from 3½ to 5¼ percent of GDP.
- *Asset purchases and direct lending by the Treasury:* Governments and some central banks have (i) provided substantial direct loans; and (ii) purchased illiquid assets from financial institutions. Amounts involved range widely, with the U.K. and Norway accounting for over 10 percent of GDP. The advanced G-20 average is 5¼ percent of GDP.
- *Central bank support with or without direct Treasury funding:* Central bank support has been provided primarily through credit lines to financial institutions, purchase of asset-backed securities and commercial paper, and asset swaps (Table 1, columns C and D).⁵ In only three countries have these operations been undertaken with Treasury support (the U.K., the U.S., and Russia). Liquidity provisions that do not require upfront Treasury financing have also been made, and could eventually entail fiscal costs (Table 1, column D).
- *Guarantees for financial sector liabilities:* Guarantees have been provided for bank deposits, interbank loans and, in some cases, bonds. Deposit insurance limits have been raised in almost all countries. Guarantees provided in Ireland, the Netherlands, Sweden, and the U.S. are particularly large, relative to GDP.

³ Some countries have also provided direct support to the non-financial sector but for fairly small amounts.

⁴ In some instances, the amounts announced have not yet been formally committed through legislation or regulation (see CP, Table 5 for details).

⁵ For the euro area countries, the ECB has provided significant support since the summer of 2007, initially mainly through lengthening of the maturity of its refinancing operations, and since October 2008, through an increase in the aggregate amount of liquidity provision (by around 70 percent). This also applies to other major central banks, with some variation in the modalities in the provision of the support.

Table 1. Headline Support for the Financial Sector and Upfront Financing Need
(As of February 18, 2009; in percent of GDP)

	Capital Injection	Purchase of Assets and Lending by Treasury	Central Bank Support Provided with Treasury Backing	Liquidity Provision and Other Support by Central Bank	Guarantees	Total	Upfront Government Financing
	(A)	(B)	(C)	(D)	(E)	(A+B+C+D+E)	3/
Advanced North America							
Canada	0.0	8.8	0.0	1.6	11.7	22.0	8.8
United States	4.0	6.0	1.1	31.3	31.3	73.7	6.3 4/
Advanced Europe							
Austria	5.3	0.0	0.0	0.0	30.0	35.3	5.3
Belgium	4.7	0.0	0.0	0.0	26.2	30.9	4.7
France	1.2	1.3	0.0	0.0	16.4	19.0	1.5 5/
Germany	3.7	0.4	0.0	0.0	17.6	21.7	3.7
Greece	2.1	3.3	0.0	0.0	6.2	11.6	5.4
Ireland	5.3	0.0	0.0	0.0	257	263	5.3
Italy	1.3	0.0	0.0	2.5	0.0	3.8	1.3 6/
Netherlands	3.4	2.8	0.0	0.0	33.7	39.8	6.2
Norway	0.0	13.8	0.0	0.0	0.0	13.8	13.8
Portugal	2.4	0.0	0.0	0.0	12.0	14.4	2.4
Spain	0.0	4.6	0.0	0.0	18.3	22.8	4.6
Sweden	2.1	5.3	0.0	15.3	47.3	70.0	5.8 7/
Switzerland	1.1	0.0	0.0	10.9	0.0	12.1	1.1
United Kingdom	3.5	13.8	12.9	0.0	17.4	47.5	19.8 8/
Advanced Asia and Pacific							
Australia	0.0	0.7	0.0	0.0	N/A	0.7	0.7
Japan	2.4	6.7	0.0	0.0	3.9	12.9	0.2 9/
Korea	2.5	1.2	0.0	0.0	10.6	14.3	0.2 10/
Emerging Economies							
Argentina	0.0	0.9	0.0	0.0	0.0	0.9	0.0 11/
Brazil	0.0	0.0	0.0	1.5	0.0	1.5	0.0
China	0.5	0.0	0.0	0.0	0.0	0.5	0.0 12/
India	0.0	0.0	0.0	5.6	0.0	5.6	0.0
Indonesia 13/	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Hungary	1.1	0.0	0.0	4.0	1.1	6.2	1.1
Poland	0.4	0.0	0.0	0.0	3.2	3.6	0.4
Russia	0.1	0.4	2.9	3.2	0.5	7.1	0.6 14/
Saudi Arabia	0.6	0.6	0.0	8.2	N/A	9.4	1.2
Turkey	0.0	0.0	0.0	0.2	0.0	0.2	0.0
Average (PPP GDP Weights)							
G-20	1.9	3.3	1.0	9.3	12.4	27.9	3.3
Advanced Economies	2.9	5.2	1.3	13.9	19.7	43.1	5.2
Emerging Economies	0.2	0.1	0.3	1.6	0.1	2.3	0.1

Source: FAD-MCM database on public interventions. See CP, Chapter II for details.

1/ This table includes operations of new special facilities designed to address the current crisis and does not include the operations of the regular liquidity facilities provided by central banks. Outstanding amounts under the latter have increased substantially, and their maturity has been lengthened in recent months in many cases, including the ECB.

2/ Excludes deposit insurance provided by deposit insurance agencies.

3/ This includes components of A, B and C that require upfront government outlays.

4/ Some purchase of assets and lending is undertaken by the Federal Reserve, and entails no immediate government financing. Upfront financing is USD 900 bn (6.3 percent of GDP), consisting of TARP (700 bn) and GSE support (200 bn). Guarantees on housing GSEs are excluded. For details, see CP, Chapter II.

5/ Support to the country's strategic companies is recorded under (B); of which E14 bn euro will be financed by a state-owned bank, Caisse des Depots and Consignations, not requiring upfront Treasury financing.

6/ The amount in Column D corresponds to the temporary swap of government securities held by the Bank of Italy for assets held by Italian banks. This operation is unrelated to the conduct of monetary policy which is the responsibility of the ECB.

7/ Some capital injection (SEK50 bn) will be undertaken by the Stabilization Fund.

8/ Costs to nationalize Northern Rock and Bradford & Bingley recorded under (B), entail no upfront financing.

9/ Budget provides JPY 900 bn to support capital injection by a special corporation and lending and purchase of commercial paper by policy-based financing institutions of the BoJ.

10/ KRW 35.25 trillion support for recapitalization and purchase of assets needs upfront financing of KRW 2.3 trillion.

11/ Direct lending to the agricultural and manufacturing sectors and consumer loans are likely to be financed through Anses, and would not require upfront Treasury financing.

12/ Capital injection is mostly financed by Central Huijin Fund, and would not require upfront Treasury financing.

13/ Extensive intervention plans that are difficult to quantify have also been introduced recently.

14/ Asset purchase will be financed from National Wealth Fund; and the government will inject 200 bn rubles to deposit insurance fund financed from the budget.

6. **While the support operations have been large, the immediate impact on financing needs have been more limited.** The immediate impact averages $5\frac{1}{4}$ percent of GDP for the advanced G-20 (Table 1, last column). The figures are much larger (Table 1, sixth column) when taking into account: (i) central bank liquidity provisions—which, however, are sizable only in a few countries; and (ii) especially, guarantees, which do not require upfront financing.

Emerging markets

7. **Financial sector support has been limited so far in emerging economies,** which have only recently seen a pronounced impact of deleveraging and increased risk aversion on their financial sectors. The main measures announced include:⁶

- *Bank recapitalization*—Hungary, Poland, and Ukraine;
- *Liquidity provision*—Hungary, India, Mexico, Russia, Turkey and Ukraine. These countries have extended (or committed to extend) liquidity facilities to banks or to state-owned or managed enterprises;
- *Guarantees*—Blanket coverage has been provided in Egypt and Saudi Arabia; several other countries (Hungary, Indonesia, Mexico, Poland, and Russia) have committed to provide more limited guarantees (e.g., trade credit to exporters and interbank lending).

Based on the (limited) information available, the average immediate impact on gross debt of these operations is less than $\frac{1}{4}$ percent of GDP.

B. Net Cost over the Medium Term

8. **The medium-term net budgetary cost of financial support operations will depend on the extent to which the assets acquired by government or the central bank will hold their value and can be disinvested without losses, and the potential loss from guarantees.** Although there are significant uncertainties relating to each of these channels, and the current crisis is unique in its complexity and pervasiveness, past experience can provide some guidance for asset recovery rates. Moreover, estimates of default probabilities based on financial market data can be used to provide an educated guess of the potential losses from guarantees.

Recovery rates and net cost

9. **The amounts recovered from the sale of assets acquired through interventions will likely vary significantly across countries,** depending on the type of intervention, the

⁶ Many countries noted below have announced measures that are difficult to quantify and so are not included in Table 1.

approach followed in managing and selling the assets, and various macroeconomic factors. Econometric analysis suggests that recovery ratios are positively correlated with per capita income: advanced countries had higher recovery rates (average of 55 percent compared with 15 percent for emerging markets—see CP, Chapter III). Recovery rates are also higher, the stronger the fiscal balance at the start of the crisis, possibly an indicator of sounder fiscal and public financial management frameworks.

10. **Based on these estimates, the medium-term impact on gross government debt could be substantially lower than the upfront impact, but still sizable.** For instance, in the U.S., the medium-term effect could be $3\frac{1}{4}$ percent of GDP, compared to the $6\frac{1}{4}$ percent gross upfront cost (CP, Chapter II). The average net cost for the G-20 advanced economies is projected to be $2\frac{1}{4}$ percent of GDP. In general, recovery rates estimated for emerging markets are markedly lower, so the difference between the gross and net outlays would be smaller.

11. **The timing of asset recoveries will depend on the speed of the economic and financial recovery.** Past experience indicates that the bulk of asset recovery takes place only after economic and financial recovery firms up demand and stabilizes asset prices. For example, Sweden achieved a recovery rate of 94 percent after only 5 years following the 1991 crisis, while Japan had recovered only 1 percent of assets after 5 years following the 1997 crisis (by 2008, the recovery rate for Japan reached 54 percent).

Net cost of central bank liquidity support and of government guarantees

12. **Potential costs involved in central bank liquidity support are likely to be more contained than those associated with government intervention.** Given the unprecedented magnitude of central bank support operations, there is little evidence to assess likely recovery rates. However, in most countries, central banks have focused on providing liquidity support (with relatively short maturities and higher-quality collateral), whereas governments have generally provided solvency support—operations with the highest risk of loss. Therefore, the recovery rate for outlays by central banks is likely to be higher than for governments (the calculations in Chapter V assume 90 percent). The net cost from central bank operations could, thus, average $1\frac{3}{4}$ percent of GDP for advanced countries (CP, Chapter II).

13. **The expected cost of the (explicit) guarantees provided so far is not trivial, but the margin of uncertainty is large.** Some indicative estimates can be obtained using standard financial derivative pricing models—in particular, by estimating the Expected Default Frequency Implied CDS (EICDS) spreads and applying them to the guaranteed amounts. EICDS can be regarded as indicative of the “insurance” premium for providing the guarantees, and the approach—which takes into account market volatility and hence the probability of default of individual institutions—provides an approximate measure of the cost to government of providing this “insurance.” Based on November 2008 market data, outlays from contingent liabilities could be of the order of 2–6 percent of GDP (cumulative) for

2009–13 for the advanced G-20 countries, although higher outlays are possible in some countries (notably Ireland).⁷

C. Potential Total Cost of Implicit and Explicit Guarantees

14. **In case of additional market disturbances, governments may need to provide broader support than currently implied by the explicit guarantees.** For illustrative purposes, it has been assumed that governments provide an implicit guarantee on all institutions that are systemic (“too big to fail”). To derive an estimate of the potential costs for governments arising from explicit and implicit guarantees, two approaches were followed. The first one is the approach noted in paragraph 13, applied to all systemic institutions. The second one is the ‘Contingent Claim Approach,’ applied to the same institutions (see CP, Chapter IV for further details on both approaches). These approaches imply that the possible costs in case of further market disturbances could be of the order of 15–22 percent of GDP (cumulative for 2009–13) for the advanced G-20 countries, and 4-9 percent of GDP for the G-20 emerging economies (some of this financing, however, could come from the private sector).

III. FISCAL IMPLICATIONS OF THE CRISIS: THE COST OF THE RECESSION⁸

15. **The recession (and actions to alleviate it) will involve fiscal costs through three channels:** automatic stabilizers; other non-discretionary effects going beyond the normal impact of the cycle, including from lower asset prices, financial sector profits, and commodity prices; and discretionary fiscal stimulus. Some of these impacts will be short-lived; others will be longer lasting or even permanent. For example, the cyclical impact of automatic stabilizers will reverse with recovery, and some discretionary measures may explicitly incorporate sunset provisions. By contrast, tax breaks may be difficult to reverse, and while revenues associated with “normal” long-term trends in commodity and asset prices will resume, those associated with above-normal price levels before the crisis will not.

A. Automatic Stabilizers

16. **The impact of the automatic stabilizers is increasing rapidly with the weakening of economic conditions.**⁹ For 2008, the estimated impact of automatic stabilizers—computed

⁷ The lower bound of this range reflects the EICDS spreads observed in the market. However, these spreads, once the guarantees are in place, capture the residual risk for banks, but may not capture the full risk for the government that is providing the guarantee. The approach, therefore, may bias downward the calculation of the potential costs for the government. To correct for this, a ‘conservative’ CDS was calculated (assuming a conservative recovery rate—broadly in line with market practices) and used to derive the figure reported in the text as upper bound (see CP, Chapter II, Table 4).

⁸ Prepared by Steve Barnett, Daria Zakharova, Mark Horton, Annalisa Fedelino, Anna Ivanova, and Elsa Sze.

on the basis of changes in the output gap—is just -0.3 percent of GDP for the G-20. A larger impact, -1.2 percent of GDP, is projected in 2009, as the output gap widens. The impact in 2009 ranges from -2 percent of GDP for the U.K., France, and Korea, to -1.5 percent for the U.S., and to -½ percent for several emerging economies, including China, India, and South Africa (differences across countries reflect differences in the change in the output gap and the revenue and expenditure elasticity assumptions). As a gauge for sensitivity analysis, a uniform one percentage point of GDP worsening in the G-20 output gap broadly translates into a one-third percent of GDP increase in the fiscal deficit. An intuition behind this approximation is that government size—a good proxy for the magnitude of automatic stabilizers—is around one-third of GDP for the G-20 weighted average.

G-20 Countries: Contribution of Automatic Stabilizers
(In percent of GDP, relative to previous year)

	2008	2009
Automatic stabilizers	-0.3	-1.2
of which:		
Advanced countries	-0.4	-1.6
Emerging market countries	0.0	-0.7

Sources: January 2009 World Economic Outlook; and IMF staff estimates, averages, based on PPP weights.

B. Other Non-discretionary Effects

17. **Looking just at output gap changes is not sufficient to evaluate the effect of non-discretionary factors on budgetary positions.** In fact, some variables affecting fiscal balances are not perfectly correlated with output fluctuations. For example, exceptional declines in asset prices may reduce revenues by more than could be explained by looking at output gap changes. In quantifying these effects, it is important to avoid double-counting (i.e., the fact they would *partly* be captured by the standard output gap calculation).

18. **Five effects are worth considering more closely:**¹⁰

- *Equity prices*: Recent swings in equity prices were more pronounced than in past business cycles, and would, thus, not be fully included in the above estimates. The fall in revenues could come through several channels, including declines in capital gains taxation, a fall in wealth, consumption, and consumption tax revenue, and the impact on profit tax revenues from firms with trading activity. Staff regression estimates (see CP,

⁹ See CP, Chapter V for details on the computation of the automatic stabilizers. The estimates are based on non-commodity revenues.

¹⁰ Severe disruptions in payment and credit markets could also abnormally reduce revenue collection, including through failure to file returns, under-declaration, or payment deferrals. These effects, which may only affect the fiscal balance on a cash (and not accrual) basis, are difficult to estimate, and are not included here.

Chapter V) suggest that a 10 percent decline in equity prices leads cyclically-adjusted revenues to fall by 0.07 and 0.08 percent of GDP in the current and subsequent years, close to estimates by Morris and Schuknecht, 2007. Using these estimates, the equity market declines through end-2008 imply a cumulative fall in revenue for 2008–09 for the G-20 weighted average of 0.6 percent of GDP (of which 0.4 percent of GDP in 2009, assuming no further decline in equity prices takes place).

- *Housing prices*: Staff regression estimates suggest that a 10 percent decline in real housing prices leads to a 0.27 percent of GDP decline in cyclically-adjusted revenues in the following year, a stronger elasticity than for equity price changes (see also Carroll, et. al., 2006; and Morris and Schuknecht, 2007). However, as the decline in housing prices has been smaller than for equity prices (less than 10 percent versus 50 percent), the fall in cyclically-adjusted revenues arising from house price declines would be more contained (0.1 percent of GDP for the G-20 weighted average in 2009; see also CP, Chapter V).
- *Financial sector profits*: In many countries, financial sector profits are an important source of corporate income tax (CIT) revenue; in some, stamp duties and financial transaction taxes are also levied. Over one-quarter of CIT revenues for the U.S. and the U.K. during 2000–07 came from the financial sector. Extrapolating from this, the decline in financial sector profits could contribute to a 0.2 percent of GDP additional revenue decline (evenly split between 2008 and 2009).¹¹
- *Commodity prices*: The effect on fiscal revenues of the decline in commodity prices could be sizable in 2009 for some emerging markets (Table 2). For the G-20 group, the figures are smaller, but significant (0.7 percent of GDP in 2009), largely reflecting the impact on Russia, Saudi Arabia, and Brazil.¹² Some countries could benefit to the extent that governments decide not to pass through to users the decline in commodity prices. This decision—effectively a cut in subsidies or a tax increase—is considered a discretionary change, and associated fiscal savings are not included in these adjustments.
- *Interest rate and exchange rates*: In lower-risk countries, the decline in interest rates on government debt would reduce the debt service. In other countries, rising risk premia and exchange rate depreciation could raise it. Staff estimate that the impact, in both directions, is likely to be modest in 2008 and 2009, at least in G-20 countries.

¹¹ CIT revenues averaged 3 percent of GDP across the G-20 during 2004–06 (weighted average). The calculation assumes that the financial sector pays 25 percent of CIT and has a decline in profits of 50 percent on top of the average decline in profits (already captured by the cyclical adjustment calculation). Because of the possible double-counting between this effect and the equity price effect, the former is reduced by a quarter.

¹² Another major G-20 oil producer, Mexico, hedged its 2009 oil export price at US\$70 per barrel. Staff estimate that each 10 percent fall in commodity prices will reduce G-20 fiscal revenue by 0.15 percent of GDP.

Table 2. Loss of Fiscal Revenue Due to Commodity Price Movements, 2008–09
(in percent of GDP)

	2008	2009
Argentina	0.0	-0.3
Australia	0.0	-0.4
Brazil	1.0	-2.8
Canada	-0.1	-0.3
Indonesia	0.2	0.0
Mexico	0.3	-0.1
Russia	1.3	-6.4
Saudi Arabia	15.0	-26.8
South Africa	0.2	-0.1

Source: IMF staff estimates.

19. **Overall, these other non-discretionary effects appear to be sizable** (Table 3). Their impact could account for an estimated 1.3 percent of GDP deterioration in fiscal positions of G-20 countries in 2009.

Table 3. G-20 Countries: Other Non-discretionary Factors
(In percent of GDP, relative to previous year)

	2008			2009		
	All G-20	Advanced	Emerging	All G-20	Advanced	Emerging
Non-discretionary factors	0.2	-0.4	1.0	-1.3	-0.6	-2.4
Equity prices	-0.2	-0.3	0.0	-0.4	-0.3	-0.5
Housing prices	0.1	0.0	0.3	-0.1	-0.2	0.0
Financial sector	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2
Interest payments	0.1	0.0	0.1	0.0	0.0	0.0
Commodity prices	0.3	0.0	0.7	-0.7	0.0	-1.8

Sources: January 2009 World Economic Outlook update; Bloomberg and other financial sources (see CP Chapter V); and IMF staff estimates. Averages based on PPP GDP weights.

C. Discretionary Responses to the Crisis

20. **Many countries have announced fiscal stimulus plans.** On average, G-20 countries have adopted (or plan to adopt) stimulus measures amounting to ½ percent of GDP in 2008, 1½ percent of GDP in 2009, and 1 percent of GDP in 2010 (Table 4 and CP, Chapter VI).¹³

¹³ These figures reflect the budgetary cost of the stimulus measures in each year. They are based on packages announced through mid-February 2009. The figures have been corrected for: (i) “below-the-line” operations that do not impact the fiscal balance; and (ii) the fact that in some countries part of the announced stimulus included measures that were already planned for.

21. **The impact of these stimulus measures on government deficits and debts will vary, depending on their nature.** Table 5 identifies three types of measures:

- *Temporary*: These measures will have a temporary effect on the deficit, but a permanent one on the debt level. Most of the stimulus measures on the spending side are designed to expire after a certain period (although some spending programs may have recurrent cost implications, such as maintenance costs for new infrastructure projects).
- *Permanent*: These measures have a permanent effect on the deficit, and a cumulative one on debt. Most revenue measures announced so far are permanent.

Table 4. G-20 Countries: Estimated Cost of Discretionary Measures, 2008–10
(In percent of GDP)

	2008	2009	2010
Argentina	0.0	1.3	...
Australia 1/	0.7	2.1	1.7
Brazil	0.0	0.4	0.2
Canada	0.0	1.5	1.3
China	0.4	2.0	2.0
France	0.0	0.7	0.7
Germany	0.0	1.5	2.0
India 1/	0.0	0.5	...
Indonesia	0.0	1.3	0.6
Italy	0.0	0.2	0.1
Japan	0.4	1.4	0.4
Korea	1.0	1.5	0.3
Mexico	0.0	1.5	...
Russia 2/	0.0	1.7	...
Saudi Arabia	2.4	3.3	3.5
South Africa 1/ 3/	1.7	1.8	-0.6
Spain 4/	1.9	2.3	...
Turkey	0.0	0.0	...
United Kingdom	0.2	1.4	-0.1
United States 5/	1.1	2.0	1.8
Total (PPP weighted average)	0.5	1.5	1.1

Source: IMF staff estimates.

Note: This table does not include banking-sector support measures.

1/ Fiscal year basis.

2/ Possible additional discretionary measures for 2009 were announced at end-January and mid-February, but have not yet been approved by the Duma.

3/ No official stimulus package has been announced. Figure shown is an estimate of discretionary fiscal impulse, based on Fund staff calculations.

4/ Budget liquidity impact basis.

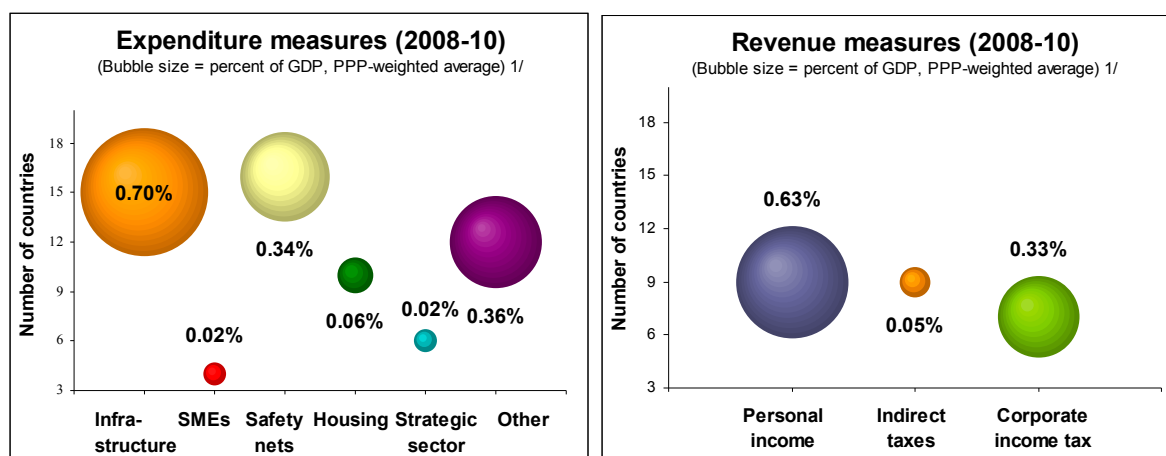
5/ Excludes cost of financial system support measures (according to CBO estimates, equivalent to US\$503 billion, or 3.5 percent of GDP in 2009).

- *Self-reversing*: These have a temporary effect on both deficit and debt. Few measures are truly self-reversing (e.g., bringing forward some investment spending). But some *sets of measures*, as a whole, could have no long-term impact. For example, in the U.K., the upfront VAT cut will be offset by revenue-increasing measures starting in 2010.

22. **Almost two-thirds of the fiscal stimulus has so far been represented by expenditure measures** with particular emphasis on increased spending for infrastructure (see Figure 1 and Table 5).

- Fifteen of the G-20 have announced plans to increase spending on infrastructure, largely on transportation networks (Canada, France, Germany, and Korea, among others)—either in the form of direct central government spending, or through capital transfers to local authorities.

Figure 1. Composition of Discretionary Fiscal Measures (G-20 Countries)



Source: IMF staff estimates.
1/ PPP weights includes all countries.

- Many countries have announced plans to protect vulnerable groups, including by strengthening unemployment benefits (Russia, the U.K., and the U.S.), cash transfers to the poor (Korea) or support to children (Australia, Germany) or pensioners (Australia, Canada).
- A few G-20 countries are also stepping up support for small- and medium-sized enterprises (SMEs; e.g., Korea) and strategic or vulnerable sectors, such as construction (in Germany, for energy efficient buildings and repairs and renovations), defense and agriculture (Russia).
- Finally, a few countries are using stimulus measures to address longer-term policy challenges, such as improving the quality of health and education (Australia and China) or introducing incentives for environmentally-friendly technologies (China, Germany, and the U.K.).

23. **Revenue measures—in terms of relative magnitude—have targeted primarily households**, through cuts in personal income and indirect taxes.

- Nine G-20 countries have announced sizable cuts in personal income taxes (Brazil, Canada, France, Germany, Indonesia, Japan, Spain, the U.K., and the U.S.); while in six, indirect tax cuts have been announced.
- Cuts in the corporate income tax (CIT) have also been frequent but not as large; these include: outright reduction in the CIT rate (Canada, Korea, and Russia), investment incentives (France and Korea), or more favorable depreciation schedules (Germany, Russia, and the U.S.).

Table 5. G-20 Stimulus Measures, 2008–10 ^{1/}

Measure	Argentina	Australia	Brazil	Canada 2/	China	France	Germany	India	Indonesia	Italy	Japan	Korea	Mexico	Russia	Saudi Arabia	Spain	UK 3/	US
Expenditure																		
Infrastructure investment	T	T		T	T	T	T	T	T		T	T	T		T	T	S	T
Support to SMEs and/or farmers							T				T	T		T				
Safety nets	T	T	T	T	T	T	T		T	T	T	T	T			T	T	T
Housing/construction support		T	T	T	T	T	T				T			T		T	T	
Strategic industries support				T	T		T	T						T		T		
Increase in public wage bill																		
Other		T		T	T	T	T	T			T	T	T			T	T	T
Revenue																		
CIT/depreciation/incentives 2/		P	P	P		P	P		P		P	P	P	P				P
PIT/exemptions/deductions 3/			P	P		T	P		P		P					P	P	P
Indirect tax reductions/exemptions 4/			T		P		P	T	P							S	S	
Other											P						P	

Source: Country authorities; and IMF staff estimates.

1/ Measures announced as of February 23, 2009.

T: temporary measures (with explicit sunset provisions or time-bound spending)

S: self-reversing measures (measures whose costs are recouped by compensatory measures in future years)

P: permanent measures (with recurrent fiscal costs).

Excludes South Africa and Turkey, for which detail of relevant stimulus measures is not available.

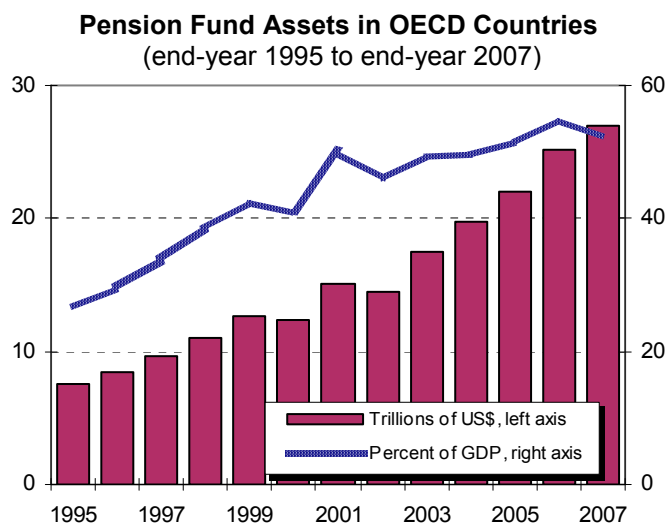
2/ Some of the CIT reductions in Germany are temporary.

3/ Some of the PIT reductions in Canada and Indonesia are temporary. For Spain, some are temporary and some are self-reversing.

4/ The reduction in the VAT in the U.K. is a temporary measure, but lost revenue will be replaced by restricting personal income tax allowance and increasing income tax for high earners in 2010-11.

IV. FISCAL IMPLICATIONS OF THE FINANCIAL CRISIS: EFFECTS THROUGH THE FUNDED COMPONENT OF THE PENSION SYSTEM¹⁴

24. A key fiscal risk presented by the crisis is its effect on funded components of the pension system, both public and private. The level of funding for pensions has increased rapidly in recent years as a share of GDP, reflecting both earnings on existing retirement saving and net deposits. Some of the countries most affected by the recent stock market decline are those where private pensions play an important role in mandatory pension provision. It is useful to assess at the outset the overall loss suffered by funded pension schemes.



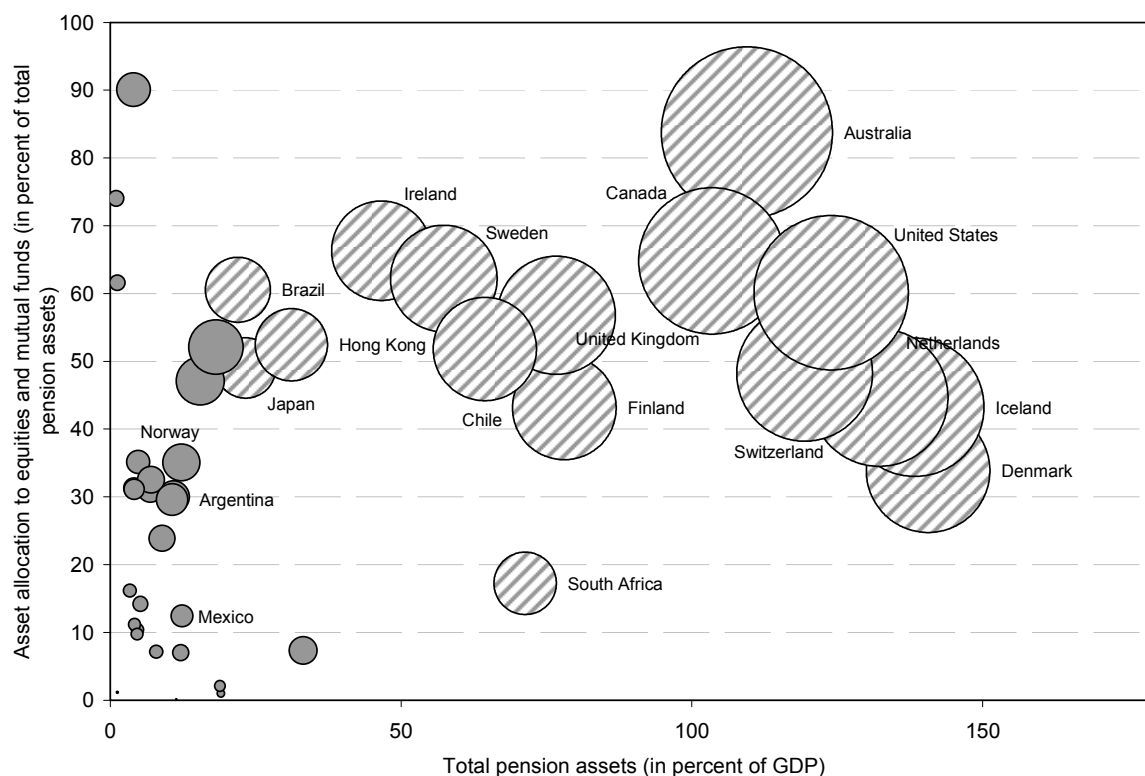
Source: OECD and IMF staff estimates.
Note: Totals include both public and private plans.

A. Losses of Funded Pension Schemes

25. Public and private pension fund losses are concentrated in a limited number of countries. These are countries that, with more mature funded pension schemes, have higher shares of equities and mutual funds in pension fund portfolios and higher shares of pension saving in relation to GDP¹⁵: 16 of the 46 countries for which data are available have pension fund investments in equities and mutual funds greater than 10 percent of GDP (striped circles in Figure 2). Countries more exposed include Australia, the U.S., Canada, Iceland, the Netherlands, Switzerland, Denmark, and the U.K.. Among emerging economies, South Africa, Chile, and Brazil are more exposed. Estimated losses in the U.S. and the U.K. during 2008 are, respectively, 22 percent and 31 percent of GDP.

¹⁴ Prepared by Robert Gillingham, Adam Leive, and Anita Tuladhar.

¹⁵ Mutual funds in these countries are also heavily weighted toward equities. Investment by funded pension funds in real estate is small (below 3 percent of total assets, on average, for OECD countries).

Figure 2. Pension Plan Assets by Country, End-2007

Source: OECD Global Pension Database; and IMF staff estimates.

Note: Size of circles represents pension funds' equity and mutual fund assets as a percent of GDP. Circles with stripes denote countries where this value exceeds 10 percent of GDP. Data do not include reserve funds of social security systems or funds whose assets may be used for purposes other than financing the social security system, such as in Norway.

26. **A separate risk is pension fund exposure to potentially “toxic” assets**, such as mortgage-backed securities and credit default swaps. The OECD has estimated average holdings of 3 percent of such assets in the portfolios of pension funds that member countries have (OECD, 2008). Structured products—the class of assets within which toxic assets fall—represent about 8 percent of pension fund assets worldwide. The risk is concentrated in the U.S., Sweden, and Japan.

B. Risks for Fiscal Accounts

27. **The risks for governments are difficult to quantify exactly, but are significant.** They stem from: (i) direct effects arising from investments by government pension funds in assets affected by the crisis; (ii) explicit guarantees provided by governments to funded schemes; and (iii) pressures to make up for losses suffered by pensioners covered by private pension plans. Whether these risks will materialize depends on the timing and the extent of the recovery in asset prices.

28. Direct effects relate to:

- Pension plans sponsored by governments for their employees, which are significant in some countries. For example, as of end-2007, over \$4 trillion of assets were held by federal, state, and local government defined-benefit pension plans in the U.S. (more than one-fifth of total U.S. pension assets). The value of these assets had fallen by roughly \$1 trillion by October 2008 (Munnell et. al., 2008). Three-quarters of these assets are held by state and local pension plans, which are typically subject to stringent funding requirements. The drop in equity prices will trigger requirements to close the resulting funding gap over the next five years (on a mark-to-market basis, the estimated aggregate funding ratio fell to 65 percent in October 2008). During 2000–02, when the equity market experienced a similarly sharp decline, contributions subsequently increased by 45 percent over a two-year period. Although contributions are presently shared between the employer and employees, recent court rulings in some states and restrictions on modifying accrued pension benefits imply that the burden of making up the current shortfall is likely to fall primarily on employers and, indirectly, on taxpayers.
- National social insurance pension plans—these also hold significant assets affected by the crisis. In some countries (e.g., the U.S.), these assets are specialized and largely impervious to financial market movements. In other countries (e.g., Japan, Canada, the Netherlands, and New Zealand), national pension systems hold a substantial quantity of marketable securities, including equities. However, national pension systems are not typically fully funded, and the impact may be postponed or mitigated by recovery.

29. Explicit guarantees have been provided in two forms:

- Insurance against the loss of assets in private, defined-benefit plans due to employer insolvency (Canada (province of Ontario), Germany, Japan, Sweden, Switzerland, the U.K., and the U.S.). Maximum benefits differ across countries, with the U.S., the U.K., Sweden, and Germany offering relatively high amounts. The crisis has yet to lead to widespread claims on these schemes; however, it is possible that the shock may overwhelm those already in deficit and require government intervention.¹⁶ In the U.S., the federal Pension Benefit Guaranty Corporation (PBGC), represents a sizeable potential liability to the federal government, although legislation would be necessary for this liability to be significant. In the U.K., the Pension Protection Fund (PPF) is not explicitly backed by taxpayers, but should the balance on these schemes deteriorate further, pressures for government financial support may arise. Recent estimates suggest that potential costs to the government arising from deficits of the guarantee funds as well as from contingent liabilities of probable employer bankruptcies would amount to

¹⁶ Partly due to low pricing of premiums, weak funding rules, and limited adjustment for plan-sponsor risk, guarantee schemes in the U.S., the U.K., and Ontario, Canada were in deficit in 2008.

0.4 percent of GDP in the U.S. and 0.1 percent of GDP in the U.K. (PBGC, 2008; and PPF, 2008). These costs will likely increase if economic conditions deteriorate further.

- Guarantees of minimum benefits or rates of return for defined-contribution pension plans (France, Spain, Switzerland, the U.K., and many Eastern European countries) (Whitehouse, 2007).

30. **Arguably the largest fiscal risk is that the government may be forced to step in to support participants covered by private pension plans severely hit by the crisis.**¹⁷ This could happen for:

- “Unprotected” defined-contribution plans (roughly three-quarters of defined-contribution assets). Younger workers may wait for market recovery. Older workers are likely to suffer more severe cuts in retirement income, particularly those that have to purchase annuities. The depressed value in their accounts, combined with low interest rates, will make the purchase of annuities less favorable.
- Defined-benefit plans run by private employers where benefits can be cut under certain conditions. Funding rules determine the extent and timing of increases in contributions and the degree to which benefits can be reduced.¹⁸

31. **To some extent, the potential call for government support will be influenced by the distributional incidence of the losses of participants in these plans.** Among people over age 65 in the U.S., for instance, funded pensions and annuities account for 21 percent of income of the richest income quintile, but just 3 percent for the poorest (Burtless, 2008). In the U.K., occupational pensions comprise over 30 percent of income for the richest quintile of pensioners and only 1 percent for the poorest. In a few countries, however, funded plans cover a larger share of the retirement income of lower-income pensioners. For instance, all participants in the Chilean pension system invest in individual accounts, although the government does guarantee a minimum pension level.

¹⁷ In the U.S., pension plans of S&P 1500 companies lost nearly half a trillion dollars in 2008, nearly 80 percent of which occurred in the last quarter (Mercer, 2009).

¹⁸ To avert wind-up of plans, there are increasing demands for temporarily amending funding rules. Several countries are considering regulatory adjustments, for example, to adjust the time within which pension plans have to restore adequate funding levels. For example, in December 2008, the U.S. Congress rolled back part of the Pension Protection Act of 2006, which had increased the funding requirements of underfunded plans. Concerns remain, however, that such a relaxation would weaken the long-term health of the plans, affecting members and the government in the future.

V. THE OUTLOOK FOR PUBLIC FINANCES IN LIGHT OF THE CRISIS¹⁹

32. **This chapter assesses the short- and medium-term outlook for public finances, bringing together the themes discussed in earlier chapters.** There is, of course, considerable uncertainty around this outlook, and outcomes could be significantly worse than the baseline figures reported below in case of further distress and weaker output growth.²⁰

A. Short-Term Outlook

33. **Fiscal balances will be severely affected by the crisis in the short run.** For G-20 advanced economies, fiscal balances are projected to worsen, on average, by 6 percentage points of GDP in 2009 relative to 2007 (see text table below) thus, reaching 8 percent of GDP in 2009 (Figure 3). The fiscal balances of G-20 emerging economies deteriorate less—given the lower impact on growth, automatic stabilizers and fiscal stimulus—but still significantly (reversing the improvement achieved since 2003). For the advanced countries, half of the deterioration is due to fiscal stimulus and financial sector support, while for emerging economies, a relatively large component is due to declining commodity and asset prices (Figure 4).

Change in Fiscal Balances and Government Debt in the G-20 ^{1/}

(In percent of GDP, difference with respect to previous period)

	2008 (A)	2009 (B)	2008-09 (A+B)
Fiscal Balance			
Advanced G-20 Countries	-2.3	-3.8	-6.1
Emerging Market G-20 Countries	-0.3	-3.2	-3.4
G-20	-1.5	-3.6	-5.1
Public Debt			
Advanced G-20 Countries	4.4	10.0	14.4
Emerging Market G-20 Countries	-2.0	1.9	-0.1
G-20	2.0	7.0	9.0

Source: January 2009 World Economic Outlook (WEO); updated to reflect the final version of the stimulus package in the U.S., and recent financial sector support measures in the U.K.

1/ General government if available, otherwise most comprehensive fiscal aggregate reported in the WEO. Table reports PPP GDP-weighted averages.

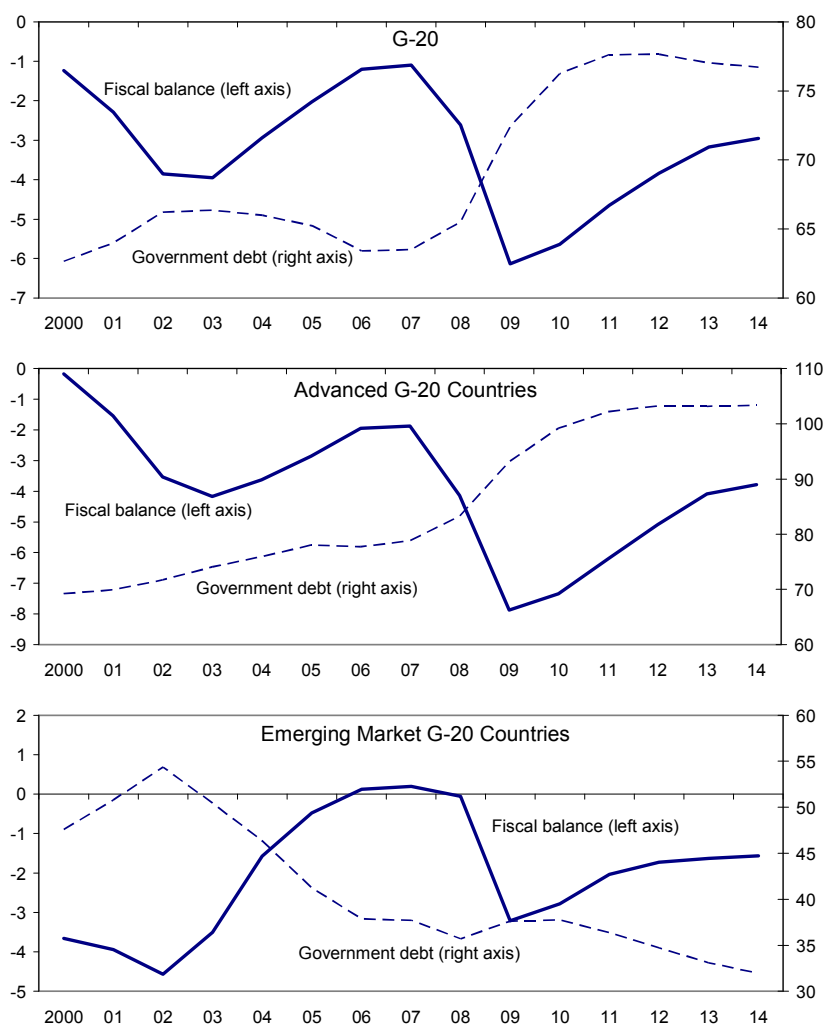
34. **The increase in government debt ratios will be even more sizable** (Figure 3). The debt-to-GDP ratio of advanced countries is expected to rise by 14½ percentage points over 2008–09, the most pronounced upturn in the last few decades (Figure 5). The one-year

¹⁹ Prepared by Manmohan Kumar, Daniel Leigh, and Julio Escolano, with contributions by Philippe D. Karam, and Daehaeng Kim.

²⁰ The baseline is based on the January 2009 World Economic Outlook update.

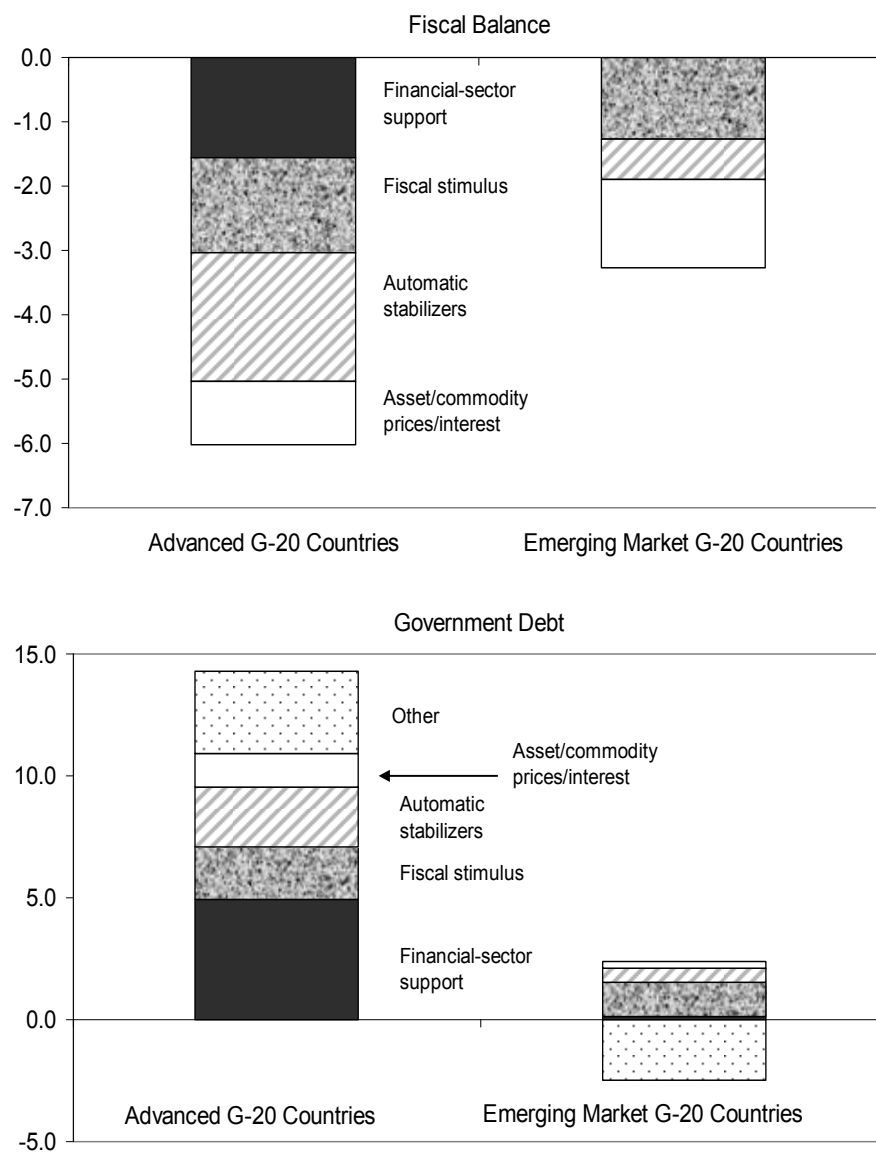
increase in government debt in 2009 is twice as large as that experienced during the 1993 recession. A third of this increase is due to financial sector support packages. The debt ratio for the average of the emerging economies also shows a sizable increase in 2009, the first since 2002.

Figure 3. Outlook for Public Finances in the G-20^{1/}
(In percent of GDP)



Source: January 2009 World Economic Outlook (WEO); updated to reflect the final version of the stimulus package in the U.S., and recent financial sector support measures in the U.K.
1/ General government if available, otherwise most comprehensive data reported in the WEO. Figure reports PPP GDP-weighted averages.

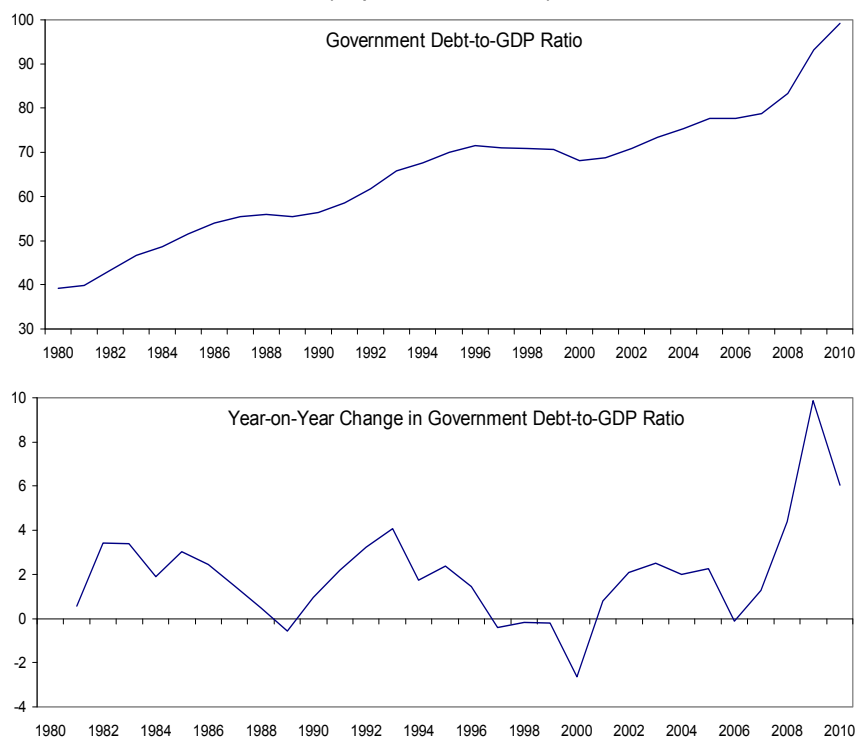
Figure 4. Impact of the Crisis on Public Finances: Contributing Factors ^{1/}
(in percent of GDP)



Source: IMF staff estimates.

1/ Figure reports contributions to fiscal balance-to-GDP ratio in 2009, and debt-to-GDP ratio at end-2009 relative to 2007 level based on PPP GDP-weighted averages. The category "other" in this figure refers to the impact on debt of a variety of additional factors including valuation changes, changes in GDP, and privatization receipts.

Figure 5. G-20 Advanced Economies: Evolution of Government Debt ^{1/}
(in percent of GDP)



Source: January 2009 World Economic Outlook; updated to reflect the final version of the stimulus package in the U.S., and recent financial support measures in the U.K.
1/ Averages based on PPP GDP weights.

B. The Medium-Term Outlook and Risk Assessment

35. **In the medium term, fiscal balances are expected to improve, while remaining weaker than before the crisis.** Beyond 2009, activity is expected to recover, reflecting supportive macroeconomic and financial sector policies. Fiscal balances are projected to improve (Figure 3 and Table 6) as some of the stimulus measures are temporary and as the effects of the automatic stabilizers are gradually reversed. Nevertheless, unless tightening measures are introduced later, fiscal balances for advanced economies would remain weaker in the medium term than in 2007. Moreover, also for advanced economies, the effect of debt ratios would be long lasting: the debt-to-GDP ratio in 2014 is projected to be almost 25 percentage points above the 2007 level (Table 6).²¹ For emerging economies, the projected medium-term debt path is more benign owing to higher growth. Still, debt ratios in 2010 will remain around their 2007 levels, and the declining trend will not resume until 2011.

²¹ These projections assume different recovery rates for the financial support operations discussed in Chapter II, depending on the nature of the support.

Table 6. Public Finances^{1/ 2/}
(In percent of GDP)

Fiscal Balance						
Country	2006	2007	2008	2009	2010	2014
Argentina	-1.1	-2.3	-0.5	-3.6	-2.3	-0.4
Australia	2.1	1.6	1.7	1.8	1.7	1.7
Brazil	-2.9	-2.2	-1.1	-1.3	-1.2	-0.6
Canada	1.3	1.4	0.5	-1.5	-1.9	2.1
China	-0.7	0.9	-0.1	-2.0	-2.0	-0.5
France	-2.4	-2.7	-3.3	-5.5	-6.3	-2.7
Germany	-1.5	-0.2	-0.1	-3.3	-4.6	0.1
India	-5.7	-5.2	-7.8	-8.5	-7.4	-4.5
Indonesia	-0.2	-1.2	0.1	-2.6	-2.0	-1.6
Italy	-3.4	-1.6	-2.7	-3.9	-4.3	-4.2
Japan	-4.0	-3.4	-4.7	-7.1	-7.2	-6.4
Korea	...	3.8	1.4	-0.8	-0.8	0.6
Mexico	-0.6	-1.4	-1.7	-2.9	-2.8	-2.3
Russia	8.3	6.8	5.3	-2.6	-2.0	-3.5
Saudi Arabia	24.6	15.8	35.0	-1.2	1.7	2.6
South Africa	0.8	0.9	-0.2	-1.9	-1.7	-0.3
Spain	2.0	2.2	-3.1	-6.1	-6.0	-2.1
Turkey	-0.7	-2.3	-2.5	-2.3	-2.0	0.3
United Kingdom	-2.6	-2.7	-4.2	-7.2	-8.1	-4.8
United States	-2.2	-2.9	-6.4	-12.0	-8.9	-5.1
G-20	-1.2	-1.1	-2.6	-6.2	-5.3	-3.0
Advanced G-20 Countries	-1.9	-1.9	-4.1	-7.9	-6.8	-3.8
Emerging Market G-20 Countries	0.1	0.2	-0.1	-3.2	-2.8	...

Government Debt						
Country	2006	2007	2008	2009	2010	2014
Argentina	78.3	65.9	49.2	38.6	33.7	23.5
Australia	9.6	8.9	8.1	7.9	7.2	4.2
Brazil	63.7	67.7	65.4	64.7	62.9	54.1
Canada	67.9	64.2	60.8	63.0	62.6	46.5
China	16.5	20.2	17.9	22.2	23.4	18.6
France	63.6	63.9	66.1	72.3	77.1	79.4
Germany	66.0	65.0	68.7	76.1	80.1	77.2
India	82.0	80.5	80.6	82.7	82.9	71.6
Indonesia	39.0	35.0	32.5	31.8	31.3	28.3
Italy	106.9	104.1	105.6	109.4	112.4	118.0
Japan	195.3	195.5	202.5	217.0	225.1	222.3
Korea	...	32.1	32.8	32.9	33.0	29.3
Mexico	38.5	38.3	39.3	42.1	42.5	42.0
Russia	9.1	7.3	5.8	6.5	6.5	6.4
Saudi Arabia	27.3	18.7	12.9	11.6	9.7	5.8
South Africa	33.0	28.5	27.2	27.0	26.7	22.2
Spain	39.6	36.2	38.6	48.6	53.8	56.3
Turkey	46.1	38.9	38.7	40.4	40.4	29.7
United Kingdom	43.3	44.0	50.4	61.0	68.7	76.2
United States	61.9	63.1	68.7	81.2	90.2	99.5
G-20	62.7	63.5	65.5	72.5	76.7	76.8
Advanced G-20 Countries	77.6	78.8	83.2	93.2	99.8	103.5
Emerging Market G-20 Countries	37.6	37.7	35.7	37.6	37.8	32.0

Sources: January 2009 World Economic Outlook (WEO) projections; updated to reflect the final version of the stimulus package in the U.S., and recent financial support measures in the U.K.

1/ The fiscal balance corresponds to general government if available, otherwise most comprehensive fiscal balance reported in the WEO.

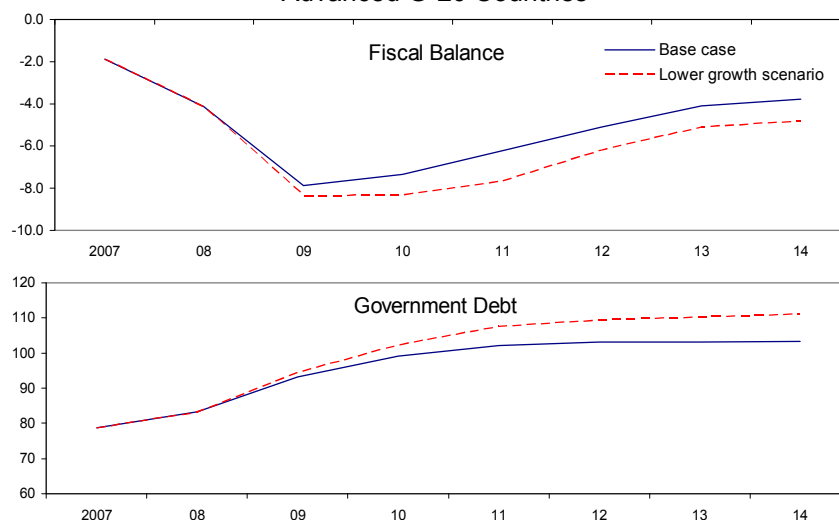
2/ Averages based on PPP GDP weights.

36. **It is worth stress-testing these projections for more pessimistic assumptions.** Two scenarios are explored:

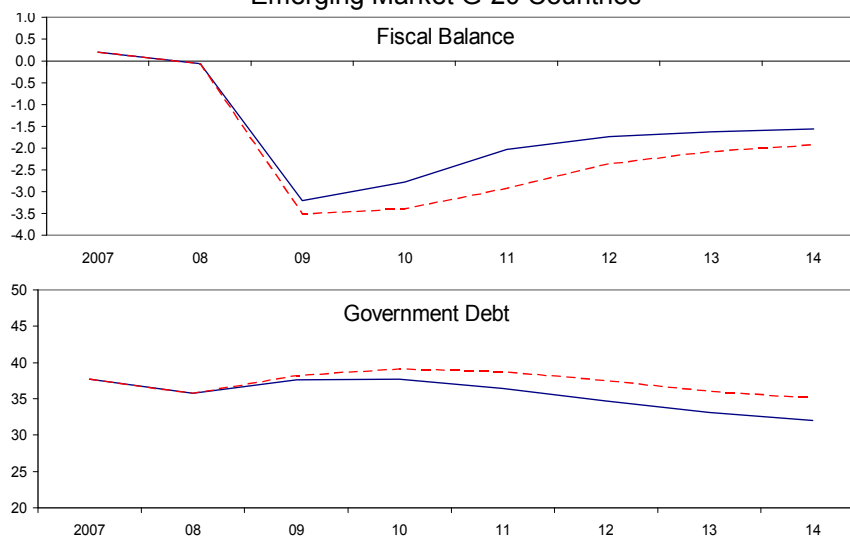
- **Lower growth in 2009–11:** If growth is 1 percent per annum below the baseline during 2009–2011, fiscal deficits would rise, on average, by 1 percent of GDP, and the debt to GDP ratio would increase by an additional 5½ percentage points by 2011 (Figure 6). This deterioration would mainly reflect the automatic stabilizers. Fiscal balances in emerging economies are less adversely affected, mainly due to their smaller automatic stabilizers (but could be affected more significantly through further declines in commodity prices).

Figure 6. Lower Growth Scenario ^{1/}

(In percent of GDP)
Advanced G-20 Countries



Emerging Market G-20 Countries

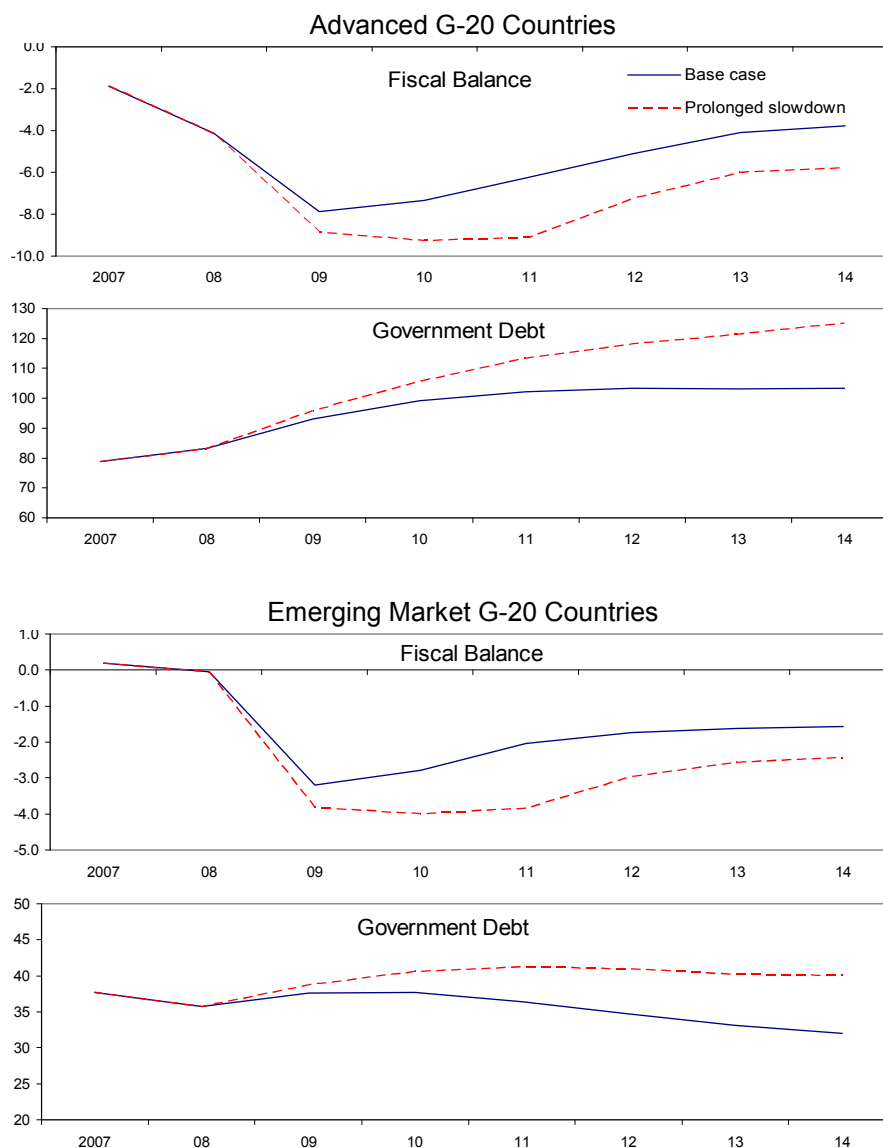


Source: IMF staff estimates.

1/ Figure reports results of a 1 percentage-point decline in growth relative to baseline during 2009–2011.

- ***A prolonged stagnation:*** What would be the effect of a protracted deflationary slump, akin to the experience of Japan in the 1990s? From 1991 to 2007, GDP annual growth in Japan averaged 1.6 percent, a drop of 2.3 percentage points compared with the 1970–90 average. In light of that experience, a decline in growth (relative to the baseline) of 2 percentage points during 2009–2013—was investigated. In this scenario, for the advanced countries, the fiscal balances would deteriorate, on average by 2 percentage points of GDP relative to the baseline, with debt ratios rising by 18 percentage points by 2013 (Figure 7). The deterioration is also notable for emerging economies.

Figure 7. Prolonged Slowdown Scenario ^{1/}
(In percent of GDP)



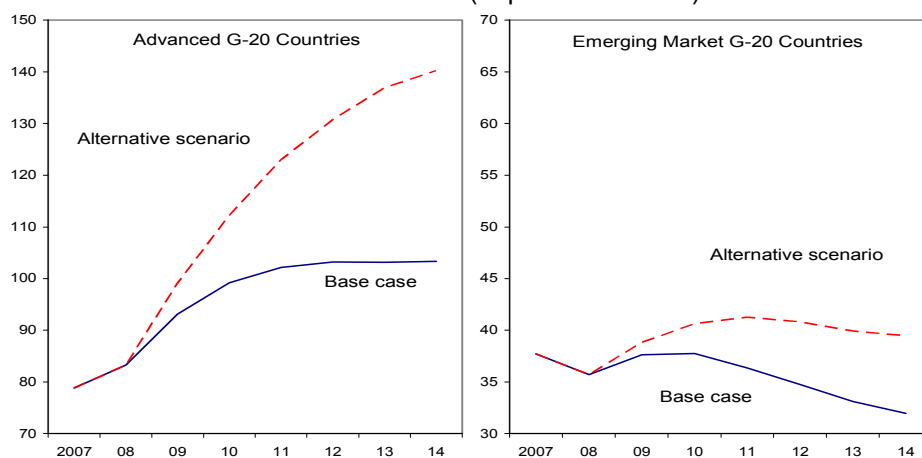
Source: IMF staff estimates.

^{1/} Figure reports results of a 2 percentage-point decline in growth relative to baseline starting in 2009. Averages based on PPP GDP weights.

37. There are other significant downside risks.

- Because of the considerable margin of uncertainty, the baseline estimates do not take into account the potentially large contingent liabilities of the government arising from explicit and implicit guarantees and central bank support operations. These additional costs could materialize in case of further financial instability, and further raise government debt in advanced countries (see paragraphs 12 and 13–14 above).
- Government intervention to support financial markets has so far been limited in emerging market countries. However, the ramifications of the crisis in these countries may not have yet been fully felt, and stronger government support may be needed.
- The recovery rates assumed in the baseline may not materialize. Recovery rates in the aftermath of this global crisis could be particularly low, for example, because of the dearth of external buyers and increased risk aversion.
- The baseline does not include the possible costs arising from the support that the public sector may be called to provide to fully-funded pension schemes. As discussed in Section IV, these costs could be significant.
- What makes things worse is that these additional risks are not independent from those arising from the shocks discussed in the previous paragraph. Indeed, they are more likely to arise in the context of weaker output growth. They could also be accompanied by heightened concerns about fiscal solvency, leading to higher interest rates. All these risks could materialize at the same time, with a major deterioration of the fiscal outlook with respect to an already weak baseline (Figure 8), and at a time when supportive fiscal action may, in principle, still be needed.

Figure 8. Prolonged Slowdown/Higher Interest Rate/Contingent Liability Shock ^{1/}
Government Debt (In percent of GDP)



Source: IMF staff estimates. 1/ Figure reports results of a 2 percentage-point decline in growth, and a 200 basis-point increase in real interest rates relative to the baseline starting in 2009; as well as a contingent liability shock corresponding to expected cost of guarantees (column A in Table 8 in Chapter IV of the Companion Paper). Averages based on PPP GDP weights.

VI. THE RISK FOR FISCAL SOLVENCY AND THE APPROPRIATE POLICY RESPONSE ²²

38. **The deterioration of the fiscal outlook highlighted in Chapter V raises issues of fiscal solvency, and could eventually trigger adverse market reactions.** Doubts about fiscal solvency—the risk that governments find it more convenient to repudiate their debt or to inflate it away—could lead to an increase in the cost of borrowing. In turn, higher interest rates (and exchange rate depreciations in countries with significant borrowing in foreign currency, like most emerging economies) could further add to government debts—in some cases, resulting in “snowballing” debt dynamics. This scenario would be deleterious for global growth. Indeed, economic agents’ confidence in governments’ solvency has been a source of stability and has, so far, helped to avoid a complete meltdown of financial markets.

39. **Thus far, government debt market reaction to the weaker fiscal outlook has been relatively muted, but not all signs are reassuring.** Long-term nominal interest rates have declined in the main advanced economies since the beginning of the crisis (Figure 9). However:

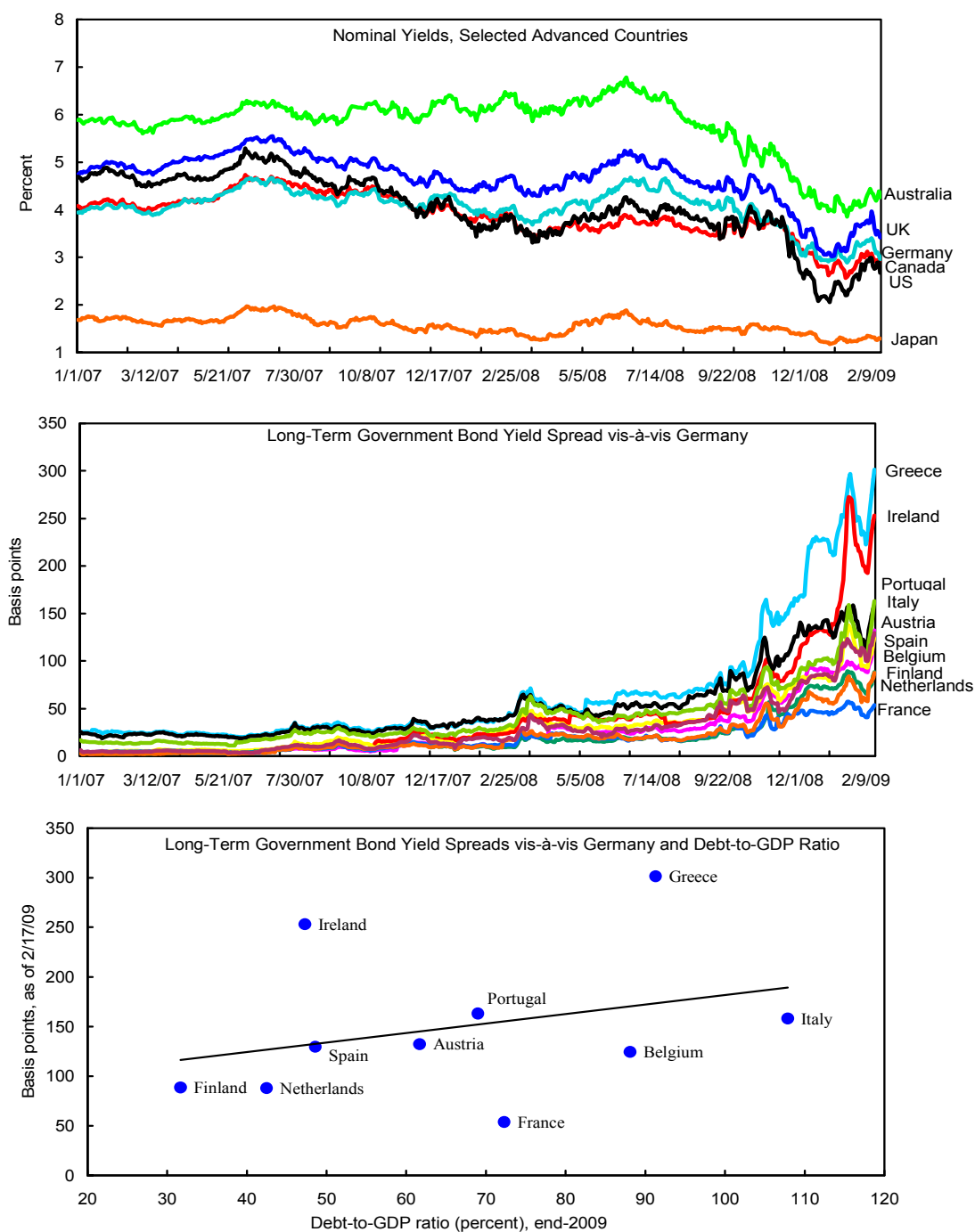
- Real interest rates are broadly the same as in early 2007 (where these can be reliably observed from long-term inflation-indexed bonds traded on liquid markets, e.g., in the U.S. and the U.K.),²³ although one might have expected a decline as a result of cyclical developments.
- For some highly indebted advanced economies (e.g., Greece and Italy), spreads have risen significantly, although government bond yields in those countries remain broadly similar to their pre-crisis levels (Figure 9).²⁴
- There has been an uptick in CDS spreads in recent months for some of the major advanced countries, including the U.S., though the implied perceived default risk remains relatively small.²⁵

²² Prepared by Manal Fouad, Daniel Leigh, Lusine Lusinyan, Paolo Mauro, and Jiri Jonas.

²³ This trend is also confirmed for other advanced countries using consensus inflation forecasts to estimate real bond yields.

²⁴ Spreads also rose to above 250 basis points for Ireland (Figure 9), where government guarantees provided to financial sector obligations amount to more than 250 percent of GDP.

²⁵ Credit default swaps (CDS) spreads for the U.S. rose from 8 basis points in June 2008 to 73 basis points on January 21, 2009. By the same date, CDS spreads for Greece, Italy, Austria, Spain, and Portugal had risen to 150 basis points or more.

Figure 9. Long-Term Government Bond Yields and Spreads, 2007–09

Sources: WEO database, Bloomberg, and IMF staff calculations.

Notes: 10-year government bonds. Nominal yields in the top panel; spreads vis-à-vis Germany in the middle and bottom panels. In the bottom panel, the slope coefficient is 1.7 (i.e., a 10 percentage point increase in the debt-to-GDP ratio is associated with a 17 basis point increase in spreads). The p-value is 0.11.

- Sovereign bond spreads for emerging economies have risen sharply—reflecting increased risk aversion, and far in excess of what would seem warranted on the basis of domestic fundamentals. The EMBI Global composite spread rose to 750 basis points in December 2008 from 170 basis points in the beginning of 2007, and primary bond issuance slowed sharply—issuance by all emerging markets in August–December 2008 was half of its level during the same period in 2007.

40. **More generally, recent history suggests that an abrupt market reaction to weakening fundamentals is possible.** Thus, it is necessary to look closely at the risks arising from the deterioration of the fiscal outlook, and to draw implications for fiscal policy in the medium term.

A. The Level of Government Debt

41. **The rise in government debt levels caused by the crisis does not, in itself, have major adverse implications for solvency.**

- Fiscal solvency requires that government debt is not on an explosive path (as this would violate the government's intertemporal budget constraint—that is, the no-Ponzi game condition that the government does not borrow just to pay interest on debt).²⁶ Following the simple arithmetic of changes in the debt-to-GDP ratio (Box 2), a one-off rise in the government debt ratio only requires a small increase in the primary balance to ensure solvency: for example, a rise in the government debt-to-GDP ratio by 10 percentage points requires an improvement in the primary balance of less than 0.1 percentage point of GDP to stabilize the debt ratio (assuming an interest rate/growth differential of 1 percentage point, in line with the average of the past few decades).
- The rise in government debt observed so far in advanced countries, while sizable, is not exceptional from a long-term perspective. Historically, large debt accumulations (bringing the debt to 100–200 percent of GDP) have resulted from war-related spending, prolonged recessions, or protracted fiscal problems (Table 7 and Figure 10).
- Highly disruptive ways of reducing debt/GDP ratios have occurred in some instances, but not since the 1940s for advanced countries.²⁷

²⁶ Strictly speaking, the no-Ponzi game condition is equivalent to the stabilization of the debt-to-GDP ratio only if the interest rate on government debt exceeds the growth rate of the economy (otherwise, it is more stringent). It is, however, common to assume that this is the case in the long run.

²⁷ Hyperinflations occurred in the aftermath of major wars and in a context of domestic political instability, although moderate inflation has also occasionally played a significant role in reducing the real value of debt—especially until the 1950s. Partial defaults occurred during the interwar period, for example, in Italy in the late

(continued)

- A rise in debt ratios does not seem likely, in itself, to cause a large increase in interest rates. While such an increase would make the solvency arithmetic less favorable, empirical evidence shows that, in normal circumstances and in advanced countries, even a 10 percentage point of GDP increase in debt ratios would raise interest rates only by a few basis points (at least, if debt ratios are below 100 percent). (See CP, Chapter VII)

Box 2. Debt/GDP Stabilizing Primary Balance

$$\Delta\left(\frac{D}{Y}\right)_t = \left(\frac{r-g}{1+g}\right)\left(\frac{D}{Y}\right)_{t-1} - pb$$

where D is the debt stock, Y is GDP, r is the nominal interest rate, g is the nominal growth rate, pb is the primary fiscal balance as a share of GDP, and Δ indicates a change over the previous year. The debt ratio is constant when $pb = (D/Y)(r-g)/(1+g)$.

42. However, the rise in government debt cannot be ignored:

- There is a need to avoid the perception that all one-off shifts in debt ratios would be accommodated: in order to allow government debt to act as shock absorber in bad years, it must improve in good years. Thus, particularly in countries with relatively high debt ratios, it will be necessary not just to *stabilize* the debt ratio but to bring it back to its pre-crisis level (or even below, if the initial level was excessive). In this respect, in 2012, gross government debt ratios would stand above 100 percent of GDP in three advanced economies (Iceland, Italy, and Japan) and between 60–100 percent of GDP in eight (Table 8).²⁸ This level of debt sets a more demanding requirement on the primary balance: for example, for a 10 percent increase in the debt ratio, the primary balance would have to rise by more than 1 percentage point to bring back the ratio to its original level within 10 years.
- Debt tolerance seems to be lower for emerging economies. Indeed, government debt was below 60 percent of GDP in most default cases recorded in emerging economies in recent decades, though there has been wide variation (Reinhart and others, 2003; IMF, 2003). Lower debt tolerance in these countries may reflect factors related to liquidity and

1920s (Alesina, 1988), and in the U.S. in 1933, when the abrogation of “gold clauses” in debt contracts prevented a 25 percentage point increase in the government debt/GDP ratio (Kroszner, 2003).

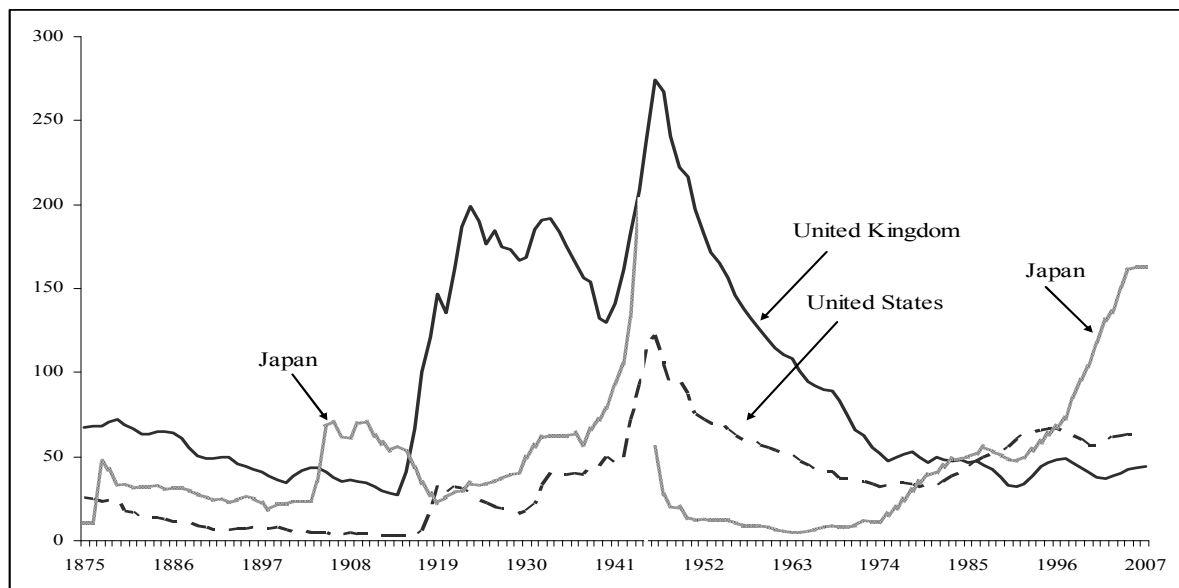
²⁸ Some advanced countries have exhibited strong resilience to high government debt. Japan is the most noteworthy example. See CP, Chapter VIII for a discussion of the idiosyncratic reasons that may explain such resilience.

solvency risks, such as greater reliance on financing by non-residents, low shares of long-term, domestic currency denominated debt, and low and volatile revenue-to-GDP ratios.

Table 7. Major Accumulations and Decumulations of Government Debt
(as a Share of GDP, in Percent), Historical Episodes

Country	Accumulation	Cause	Debt Decumulation	Method of Debt/GDP Ratio Reduction
Post-war hyperinflations				
Germany	From 63 in 1913 to 72 in 1919 (excluding war reparations)	World War I	95 percent of debt value cut by 1923	Hyperinflation (1921–23), supported by double-digit real growth
Japan	From 23 in 1919 to 40 by 1929, rising sharply after 1937 to 204 (peak in 1944)	Tokyo earthquake (1923); financial crisis (1927); Japan-China War (1937); World War II	To 56 in 1946	Hyperinflation
Post-war economic growth and expenditure reductions				
UK	From 90 in 1795 to 160 in 1816, peaking at 185 in 1822	Napoleonic Wars; followed by sharp deflation	To 30 by 1914, with minor interruptions	Sharp peacetime decline in military spending; healthy growth; fiscal balance or surplus was the norm
US	From 16 in 1929 to 40 over 1933–38; then peaking at 121 in 1946	Great Depression; World War II	To 50 by 1965	Rapid real growth; also expenditure cuts, and some inflation
Japan	From 23 in 1903 to 71 in 1910	Japanese-Russian War (and aftermath); associated rise in risk premia on foreign debt	To 23 by 1919	Fiscal tightening; mandated contributions to debt consolidation fund; reduced risk premium on foreign debt after victory against Russia; rapid growth
Decumulation through virtuous circles of fiscal adjustment and rapid growth				
Ireland	From 64 in 1979 to 109 in 1987	Prolonged macro-fiscal problems; large interventionist public sector	To 38 by 2000; 25 by 2007	Strong growth and fiscal adjustment; tax base widening stabilized revenues despite lowering of rates; sharp decline in debt interest costs with improved debt management
Denmark	From 47 in 1980 to 82 in 1984, stabilizing there till 1993	Growth slowdown; large fiscal deficits	To 45 in 2000	Growth pickup, supported by expenditure-led fiscal reforms
Belgium	From 61 in 1976 to 132 in 1993	Large primary deficits, growth slowdown, higher interest costs	To 85 in 2007	Initially through tax increases, lower interest costs and revival of growth; lately through balanced budgets and moderate growth
Canada	From 47 in 1981 to 102 in 1996	Large structural deficits, cyclical downturn, soaring interest rates in early 1980s	To 64 in 2007	Robust growth, sharp and enduring expenditure cuts at federal level matched by similar rationalization at provincial and community levels
Netherlands	From 40 in 1979 to 79 in 1993	Growth slowdown; interest rate hike in early 1980s; intermittent rise in structural deficits	To 51 in 2001	Sharp expenditure-reduction, which permitted growth-enhancing tax cuts
Decumulation through mixes of inflation, declines in risk premia, growth, and fiscal adjustment				
France	From 67 in 1913 to 140 in 1919, rising further to 185 by 1922	World War I; post-war political deadlock over distribution of fiscal adjustment burden	To 139 by 1925; 100 by 1929	Initial decline driven by inflation and growth, followed later by increases in income taxes on middle classes and indirect taxes (1926–29); policy to keep the Franc from appreciation also helped; high share of short-term debt prevented recourse to inflating away debt upfront
UK	From 26 in 1913 to 130 in 1919, rising gradually to 178 in 1933	World War I, zero growth in the 1920s; Great Depression (1929–33)	To 141 by 1938	Debt reduction was slow and limited because, with fiscal balance maintained during 1919–33, growth was weak. Subsequently, abandonment of Gold Standard allowed pound to depreciate which, in turn, helped reduced real interest rates and spur growth.

Figure 10. Public Debt-to-GDP ratio (in percent), Selected Countries, 1875–2007



Sources and notes: United Kingdom: Goodhart (1999) and WEO database. United States: *Historical Statistics of the United States*, Millennial Edition Online; Office of Management and Budget; and U.S. Census Bureau. Japan: *Hundred-Year Statistics of the Japanese Economy*, Bank of Japan; and *Estimates of Long-Term Economic Statistics of Japan since 1868*, Toyo Keizai Shinposha. Data for Japan refer to the central government.

- Roll-over risks are likely to increase. Market analysts have recently focused on increased debt issuance by advanced countries in 2009. While roll-over risk has in the past been seen as affecting primarily emerging economies, higher-debt advanced countries may also be more exposed in coming years.
- When considering lessons from history, it is important to bear in mind two important differences. First, in wartime episodes, debt financing was facilitated by comprehensive government control over the economy, including capital controls. Moreover, citizens may feel the “moral duty” to support the war effort by purchasing government debt. Second, the current crisis involves truly novel features compared with historical episodes: in particular, it involves large contingent liabilities associated with guarantees of financial sector obligations; and it takes place, in many countries, in a context where pension and health care systems will give rise to large future spending increases. We turn to these factors in the next section.

Table 8. Debt and Primary Balance (PB), in percent of GDP

	Pre-crisis WEO projections 1/				Current WEO projections				Debt-stabilizing PE or PB needed to bring debt to benchmark level (shaded) 2/
	Debt		PB		Debt		PB		
	2009	2012	2009	2012	2009	2012	2009	2012	
Advanced economies									
Australia	7.8	6.0	0.9	0.6	7.9	5.6	1.4	1.1	0.1
Austria	56.8	51.5	2.2	2.0	61.7	59.9	-0.2	1.8	0.6
Belgium	79.2	71.2	3.7	3.5	88.1	88.5	0.9	-0.1	2.6
Canada	61.0	51.3	1.2	0.5	63.0	56.0	-1.4	0.3	0.5
Denmark	16.1	6.6	3.5	2.3	22.0	22.2	0.4	-0.9	0.2
Finland	29.6	26.8	3.2	1.8	31.7	26.3	0.9	-0.6	0.3
France	63.0	60.5	-0.3	0.8	72.3	80.3	-3.6	-2.2	2.0
Germany	61.1	59.4	2.1	2.0	76.1	78.9	-1.1	0.0	1.9
Greece	75.0	70.1	1.5	1.7	91.3	90.9	-0.1	0.3	2.8
Iceland	28.8	27.4	-1.6	-0.6	108.6	100.7	-8.5	2.8	3.5
Ireland	23.6	23.2	0.5	0.4	47.3	76.4	-10.8	-6.3	1.8
Italy	104.1	102.0	2.5	2.6	109.4	116.7	1.1	0.9	4.7
Japan	194.2	189.6	-1.8	-0.2	217.0	224.3	-5.6	-4.4	9.2
Netherlands	42.4	33.1	2.8	2.9	42.5	34.0	1.9	2.7	0.3
New Zealand	20.8	20.7	2.3	2.1	24.5	40.6	-1.4	-3.1	0.4
Norway	43.8	43.8	13.0	9.6	52.0	52.0	2.8	5.6	0.5
Portugal	63.6	57.0	1.3	2.1	69.0	74.6	-1.3	0.4	1.6
Spain	32.4	29.7	1.6	1.5	48.6	55.6	-4.9	-2.2	0.5
Sweden	33.6	21.1	2.1	2.7	39.8	37.4	-2.3	-0.7	0.4
United Kingdom	42.9	42.5	-0.5	0.2	61.0	74.7	-5.6	-2.6	1.6
United States	63.4	65.8	-0.8	-0.3	81.2	97.3	-9.9	-2.6	3.3
Emerging market economies									
Argentina	51.0	39.6	2.8	2.4	38.6	27.2	0.3	1.7	0.3
Brazil	67.7	62.7	3.4	3.4	64.7	58.3	3.8	3.4	1.7
Bulgaria	20.8	15.6	3.1	1.1	18.4	16.3	2.9	3.1	0.2
Chile	3.8	2.8	4.4	3.1	3.3	2.0	-2.8	1.2	0.0
China	13.4	11.2	-0.4	-0.6	22.2	20.2	-1.5	-0.2	0.2
Hungary	66.0	65.6	0.3	0.2	69.6	70.2	1.2	3.2	2.6
India	69.8	61.6	0.2	0.5	82.7	78.2	-3.2	0.0	3.1
Indonesia	32.8	27.7	0.1	0.6	31.8	29.9	-0.6	0.1	0.3
Korea	33.7	32.9	0.7	1.4	32.9	32.4	0.7	1.4	0.3
Malaysia	40.7	35.8	-1.1	-1.6	36.4	41.9	-3.4	-2.8	0.5
Mexico	40.9	41.3	0.9	0.2	42.1	41.0	-0.2	0.1	0.5
Nigeria	11.1	8.9	8.1	4.2	9.9	7.0	-6.7	1.6	0.1
Pakistan	48.9	43.2	0.7	0.5	56.7	52.8	0.6	0.8	1.3
Philippines	46.1	42.7	2.2	1.9	46.0	42.2	2.4	2.3	0.5
Poland	45.6	44.6	-0.7	-0.2	46.2	48.3	-1.4	-0.8	1.0
Russia	3.9	2.3	1.7	1.5	6.5	6.5	-2.1	-2.0	0.1
Saudi Arabia	14.8	11.4	19.2	16.8	11.6	7.3	-0.8	4.3	0.1
South Africa	24.0	18.1	2.5	1.9	27.0	24.6	0.4	1.8	0.2
Turkey	48.7	37.3	6.3	6.3	40.4	38.6	3.7	3.9	0.4
Ukraine	13.5	12.1	-1.7	-1.6	17.7	16.2	0.3	1.0	0.2

Sources: January 2009 World Economic Outlook (WEO); updated to reflect the final version of the stimulus package in the U.S., and recent financial sector support measures in the U.K., and IMF staff calculations.

Notes: 1/ October 2007 WEO; 2/ Average primary balance needed to stabilize debt at end-2012 level if the respective debt-to-GDP ratio is less than 60 percent for advanced economies or 40 percent for emerging market economies (no shading); or to bring debt ratio to 60 percent (halve for Japan; 40 percent for emerging market economies) in 2027, otherwise (case shaded). The analysis is illustrative and makes some simplifying assumptions: in particular, beyond 2012, an interest rate-growth rate differential of 1 percent is assumed, regardless of country-specific circumstances; moreover, the projections are "passive" scenarios based on constant policies.

B. The Dynamics of Government Debt: Current and Future Deficits

43. **Debt solvency is a forward-looking concept.** Public debt dynamics are driven not only by current but also future deficits. As discussed earlier, the crisis has led to a weakening of fiscal flows, not just stocks.

44. **Primary balances, in particular, are now at levels that, in many countries, are insufficient to ensure debt stabilization, let alone to reduce debt to pre-crisis levels.** For some of the main advanced countries where the crisis has resulted in large increases in debt—including the U.K. and the U.S.—the primary fiscal balance would have to improve, starting in 2012, by a few percentage points of GDP (compared with “unchanged policies” projections) to gradually bring the debt back to, say, 60 percent of GDP over the following 15 years (Table 8). More generally, four-fifths of the advanced countries reported in Table 8 will still have primary balances in 2012 that are below what is required to stabilize their government debts (or bring them gradually down to 60 percent), in spite of the projected cyclical recovery of output and revenues (assuming an interest rate/growth rate differential of 1 percent). The percentage is lower (two-fifths), but still significant, for a sample of selected emerging markets (with a benchmark debt ratio of 40 percent of GDP). Primary gaps would be larger if the risks to the baseline materialize.

45. **To make things worse, primary balances are projected to weaken further owing to the demographic shock.**

- For the EU25 countries, Eurostat 2008 projections suggest on average a doubling of the old-age dependency ratio (population older than 65 relative to working-age population) from 2005 to 2050, with the modal age-cohorts moving from mid-30s to late 50s. These changes will exert upward pressure on public spending for pensions and health care (Table 9). The European Commission (EC, 2006) projects that for the EU25, average spending will increase by 3.4 percent of GDP, with an increase in pension expenditures of 2.3 percent of GDP, and the rest accounted for by health and long-term care spending.²⁹
- For the U.S., the CBO projects annual federal budget spending on pensions to increase from 4.3 percent to 6.1 percent of GDP from 2007 to 2050 (CBO, 2007).³⁰ Significant

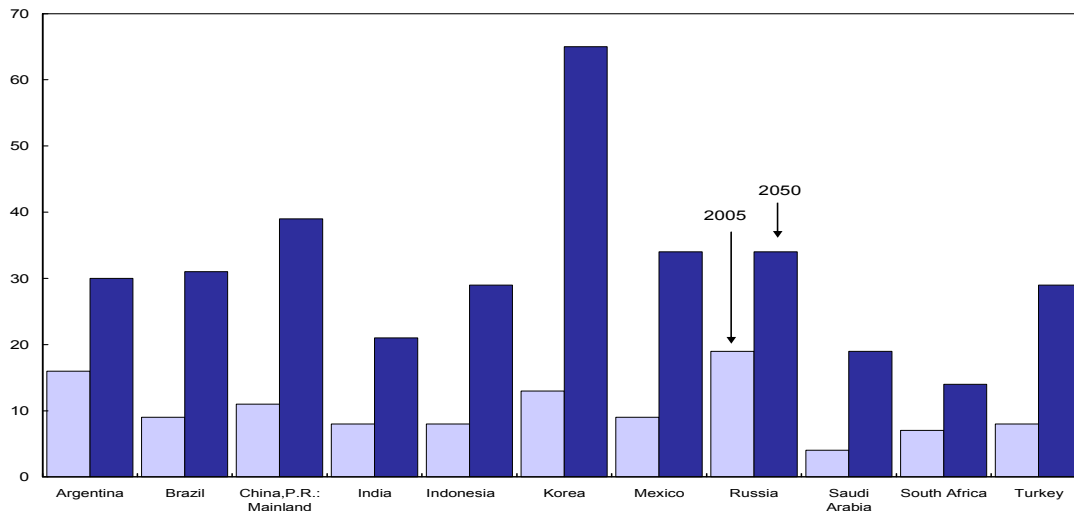
²⁹ The EC projections of pension and health care costs are currently being updated. The baseline scenario assumes that the increase in life expectancy will lead to some postponement of the need for additional care. The health care projections assume an elasticity of demand higher than unity (1.1) in the short-term, gradually declining to unity over the projection period.

³⁰ The relatively small increase in U.S. health care spending in Table 9 reflects the fact that only the demographic effect is considered and not the impact of high income elasticity of demand and/or faster growth of health care costs relative to GDP (see last bullet of this paragraph).

aging-related budgetary pressures are also present in Japan, particularly from spending on health and long-term care.

- While less affected, the share of the populations older than 65 is projected to increase in all emerging economies, with the old-age dependency ratio expected to triple, on average, by 2050 (United Nations, 2006). Korea faces the steepest increase, but there are also significant pressures in China and many other countries (Figure 11). Outside the G-20, demographic trends are expected to be particularly negative in most of central and eastern Europe. Overall, budgetary aging-related spending is likely to increase in emerging economies, but given the smaller role of the public sector in the provision of pensions and health care (with some exceptions such as in Eastern Europe), less so than in advanced economies.
- An illustrative additional “cost pressure” scenario (Table 9, 2050 CPS columns) indicates that budget strains could be substantially larger if the increase in the relative price of health and long-term care services are higher than assumed in the relatively conservative baseline scenario. The high income elasticity shown by the price of these services in many countries and the rapid increase in social demand for them make this alternative scenario a plausible possibility.³¹

Figure 11. Population Aging in Emerging Market Countries, 2005–2050
(Old-age dependency ratio)^{1/}



Source: United Nations, 2006.

1/ Population aged 65 or over relative to population aged 15–64, in percent.

³¹ The above outlook does not take into account, on the one hand, additional costs that may arise for public finances from climate change (IMF, 2008b), and, on the other hand, some savings associated with demographic change, e.g., lower costs for education.

Table 9. Fiscal Costs of Aging
(In percent of GDP)

Country	t	Pension		Health		Long-term health care			Total increase 2/
		2050	2005	2050	2050 CPS 1/	2005	2050	2050 CPS 1/	
Australia	3.0 (2000)	4.6	5.6	6.5	9.7	0.9	2.2	2.9	3.8
Canada	5.1 (2000)	10.9	6.2	7	10.2	1.2	2.3	3.2	7.7
France	12.8 (2004)	14.8	7	7.3	10.6	1.1	2.3	2.8	3.5
Germany	11.4 (2004)	13.1	7.8	8.2	11.4	1	1.9	2.9	3
Italy	14.2 (2004)	14.7	6	6.5	9.7	0.6	2	3.5	2.4
Japan	7.9 (2000)	8.5	6	7.1	10.3	0.9	2.3	3.1	3.1
Korea	2.1 (2000)	10.1	3	4.6	7.8	0.3	4.1	4.1	13.4
Mexico	...	...	3	4.3	7.5	0.1	2	4.2	3.2
Russia	5.4 (2006)	8.4	3.2	3.3	...	...	...	...	3.2
Spain	8.6 (2004)	15.7	5.5	6.4	9.6	0.2	1	2.6	8.8
Turkey	...	...	5.9	6.7	9.9	0.1	1.8	1.8	2.5
UK	6.6 (2004)	8.6	6.1	6.5	9.7	1.1	2.1	3	3.4
US	4.3 (2007)	6.1	6.3	6.5	9.7	0.9	1.8	2.7	2.9

Sources: OECD (2001) and (2006); European Commission (2006); Hauner (2008); World Bank (2006); Congressional Budget Office (2007). Data for other G-20 countries were not available.

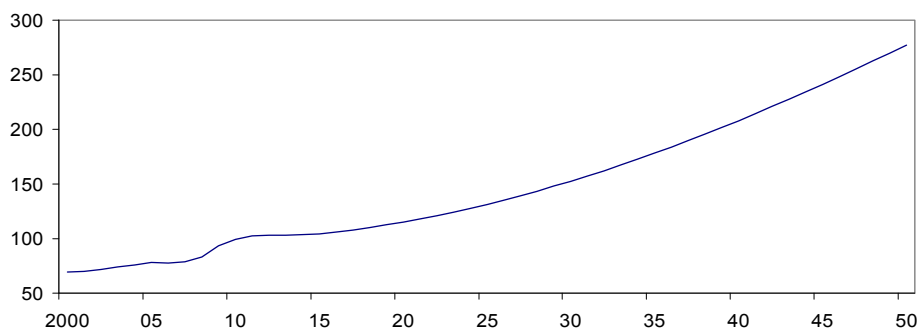
1/ CPS = cost pressure scenario. For health spending, assumes additional 1percent annual growth in spending on top of the demographic and income effect. For long-term health care, it assumes full 'Baumol' effect, that is, long-term costs per dependant increase.

2/ Total increase includes change in the fiscal cost of aging due to pension, health, and long-term health care between t and 2050 for the base-case scenario only.

46. **Altogether the global fiscal outlook is somber.** The debt ratio of G-20 advanced countries is projected to increase by about 50 percentage points by 2030 (Figure 12).³² Strains are also likely to appear in emerging economies, (as demographic forces will operate also there) though long-term projections in those economies are subject to greater uncertainty, owing to data limitations.

³² The projection assumes an interest rate-growth differential as projected in the January 2009 World Economic Outlook update until 2014 and converging thereafter to one percentage point; and pension and health contributions remaining constant as a ratio to GDP after 2014.

Figure 12. Advanced G-20 Countries: Government Debt ^{1/ 2/}
(In percent of GDP)



1/ January 2009 World Economic Outlook (WEO) projections up to 2014; updated to reflect the final version of the stimulus package in the U.S., and recent financial sector support measures in the U.K. Afterwards, projections assume (i) structural primary balance deteriorates due to demographic factors (Table 9); (ii) if the debt-to-GDP ratio falls below 20 percent, the fiscal balance loosens to ensure the debt ratio remains above 20 percent; in the case of Korea, which faces particularly severe demographic pressures, the debt ratio is permitted to fall below 20 percent; and (iii) the interest rate/growth differential converges to 1 percentage point. 2/ Debt data corresponds to general government if available, otherwise most comprehensive fiscal aggregate reported in the WEO. Averages based on PPP GDP weights.

C. The Way Forward

47. **This somber outlook raises two critical, and related, questions:**

- Should the economic outlook deteriorate further, how much room does fiscal policy have to continue its supportive action?
- What should be done to reassure markets that fiscal solvency is not at risk?

48. **The issue of how much further room there is for fiscal support cannot be answered in absolute terms, but should be addressed as a risk management issue.**

Governments will have to balance two opposite risks:

- *The risk of prolonged depression and stagnation:* From this perspective, the economic and fiscal costs of inaction could be even larger than the costs of action. The higher this risk, the more it will be necessary for governments to take risks on the fiscal side by providing further support (to the financial sector—as a key priority—but possibly also to directly support aggregate demand).³³

³³ To the extent that fiscal action is effective in supporting growth, its net fiscal cost is reduced by the automatic stabilizers. For example, the net cost of a 1 percentage point of GDP of fiscal stimulus, assuming a unit multiplier, is about $\frac{3}{4}$ percentage point of GDP for the G-20. More generally, if fiscal action succeeds in rescuing the economy from a downward expectations spiral, its long-run costs could be lower than in the absence of intervention.

- *The risk of a loss of confidence in government solvency:* Fiscal balances are expected to deteriorate in bad times. But the risks have increased and there is a need to closely monitor developments in real interest rates, spreads, and debt maturity. The more these indicators weaken, the less would be the room for further fiscal action.³⁴

49. **Balancing these risks will be challenging but the trade-off can be improved if governments clarify, in a credible way, their strategy to ensure fiscal solvency.** Indeed, greater clarity is urgently needed. The problem cannot simply be ignored.

50. **A strategy to ensure fiscal solvency should be based on four pillars:**

- Fiscal stimulus packages should consist as much as possible of temporary measures;
- Policies should be cast within medium-term fiscal frameworks that envisage a gradual fiscal correction, once economic conditions improve, with proper arrangements to monitor progress;
- Governments should pursue growth enhancing structural reforms; and
- There should be a firm commitment and a clear strategy to contain the trend increase in aging-related spending in countries exposed to unsustainable demographic shocks.

These prescriptions are, of course, not new. Some of them are part of the long-standing policy advice provided by the Fund. However, the weaker state of public finances has now raised the cost of inaction.

The composition of the stimulus package

51. **The fiscal stimulus should not raise deficits permanently.** As noted in Spilimbergo and others (2008), fiscal stimulus measures will likely have to be prolonged—because the decline in private sector demand is likely to be long-lasting—but should not be permanent. Ideally, what is needed is an intertemporal shift that, with respect to the pre-crisis baseline, raises deficits for the expected duration of the crisis and reduces them later, so as to leave long-run debt levels unchanged. Stimulus measures (or sets of measures) should thus be self-reversing, to the extent possible, or at least temporary.

52. **Thus far, not all the stimulus provided conforms to this prescription.** The deficit increases related to automatic stabilizers will, of course, be reversed when output recovers, but only part of the announced stimulus packages involves temporary or self-reversing

³⁴ Indeed, as noted in Spilimbergo et. al. (2008), even in 2008, not all countries were in a position to implement fiscal stimulus.

measures. It will, therefore, be important that governments indicate at an early stage how these measures will be offset over the medium term.

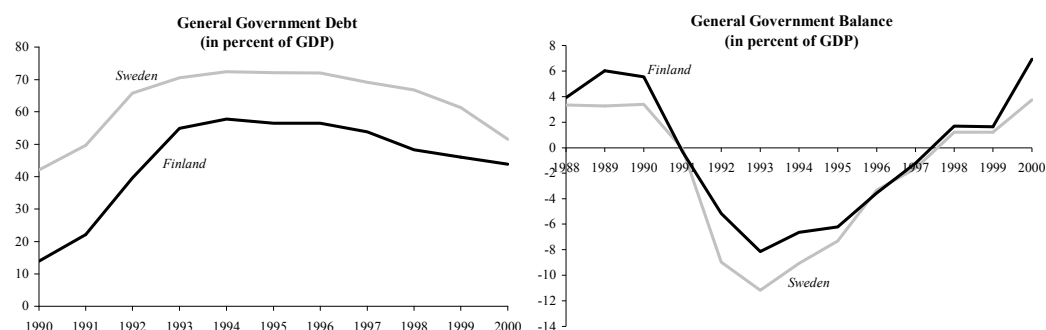
Medium-term fiscal frameworks

53. **Ensuring fiscal solvency would be facilitated by medium-term fiscal and debt targets buttressed by a clear adjustment strategy and strong institutional setup** (Kumar and Ter-Minassian, 2007). Governments should have a medium-term plan on how to move public finances back to a more sustainable level, backed up by clear policies and supported, where appropriate, by fiscal responsibility laws, fiscal rules, or independent fiscal councils. With the recovery, this approach would help mitigate pressures from procyclical spending increases or tax cuts, allowing more robust buffers to be built. Such an approach has been followed successfully by some countries that had to face a surge of government debt as a result of financial crises (Box 3; see also Henriksson, 2007). More specifically:

- Medium-term frameworks setting credible targets over the following 4–5 years can help clarify vulnerabilities, and impel policymakers to take steps to improve the medium-term viability of public finances. But stating medium-term targets is not sufficient: the credibility of these targets—more than in the past—should be buttressed by the definition of clear policy actions through which they will be reached. This is not always the practice in countries with medium-term scenarios.
- To capture fiscal risks, such frameworks should also assess debt solvency under different scenarios. This is particularly important in the current context in which the contingent liabilities of governments have increased.
- Effective and transparent processes should be set in place to maximize revenues from management and recovery of assets acquired during the financial support operations. Losses incurred by central banks as a result of support to financial institutions should be promptly covered through transfers recorded in the government's budget.
- Fiscal rules may help to maintain or restore solvency if they are supported by the requisite political commitment; allow sufficient flexibility to respond to exceptional circumstances; and are designed and implemented in a way that avoids excessive constraints on policy or is simply nonbinding. Whether or not formal rules are introduced, governments should be committed to tighten fiscal policy in good times, now that fiscal policy has been relaxed during bad times.
- A complementary role can be played by fiscal councils, already established in many countries, to provide independent monitoring and forecasts.

Box 3. Post-Banking Crisis Fiscal Consolidation—Finland and Sweden during the 1990s

In the early 1990s, both Finland and Sweden experienced recession and sharply deteriorating fiscal positions following major banking crises. The general government balances of both countries deteriorated by about 14 percent of GDP from 1990 to 1993, to -8 percent of GDP in Finland and -11 percent of GDP in Sweden. This contributed to a substantial increase in general government debt, up to 58 percent of GDP in Finland and 72 percent of GDP in Sweden by the mid-1990s, some of which was attributable to the gross direct fiscal costs of the banking crises, estimated at 13 and 4 percent of GDP for Finland and Sweden, respectively. The fiscal expansions in 1992–94 fueled anxiety over fiscal indiscipline; moreover they did not stimulate private sector activity, because they preceded the financial sector resolution. Thus, risk premia spiked in 1994.



To restore sustainability, fiscal consolidation programs were adopted, based primarily on spending restraint and supported by institutional reforms.

In Finland, two key reforms were adopted. First, a medium-term expenditure framework was introduced to prioritize resource use in a strategic and transparent manner, and to provide spending departments with greater autonomy in managing their resources. Second, entitlements were reformed to reduce spending and structurally increase employment. This included: tighter qualification rules and temporary lifting of inflation adjustment for unemployment benefits; reduction of benefits for early retirement; and determination of the pensionable wage on the basis of the last ten (rather than four) years of employment.

In Sweden, the authorities implemented a Consolidation Program aimed at achieving fiscal balance. Key measures included: tighter rules on transfers to households (housing grants and subsidies, sick leave benefits, unemployment insurance, family allowances and social insurance benefits); and revenue enhancing measures, such as increases in income taxes, social security fees, and employee payroll taxes.

These fiscal consolidations helped entrench the economic recovery (post-1994) and reduce general government debt/GDP ratios to below 45 percent in Finland and 55 percent in Sweden by 2000. The economic recovery, which contributed to the improvement in the fiscal position, was led by falling interest rates and the rise in exports (following the currency devaluations and the restoration of financial sector health). The redirection of policy toward fiscal balance reduced interest rates and reinforced the economic turnaround.

Growth-enhancing structural reforms

54. **Rapid growth has been a key factor in bringing about sustained improvements in government debt ratios.** For example, the aftermath of World War I saw a further increase in the debt ratios in several advanced economies (e.g., France and the U.K.) as a result of the Great Depression, whereas the aftermath of World War II was characterized by declining debt ratios fostered by rapid economic growth (Table 7). Strong growth has also been a key source of debt reduction in more recent emerging market episodes (Table 10; see also World Bank, 2005; and IMF, 2005).

Table 10. Emerging Economies: Selected Debt Reduction Episodes
(In percent of GDP)

Country/Time period	Initial level of debt	Debt reduction	Contribution to debt reduction			
			Primary surplus	Growth-interest rate differential	Real exchange rate appreciation	Other
Poland (1993-98)	84.3	47.7	3.3	22.6	9.6	12.1
Chile (1990-1998)	45.9	33.0	30.0	11.5	3.9	-12.5
Ecuador (1988-1990)	113.5	32.1	4.1	11.4	-11.8	28.4
Pakistan (2001-07)	84.8	29.7	6.4	17.1	5.1	1.0
Egypt (2003-07)	114.9	27.7	-11.0	29.9	1.9	6.8
Jamaica (2002-07)	122.0	27.4	50.8	-30.3	3.8	3.2
Brazil (2002-05)	85.0	20.8	12.4	1.7	4.6	2.1
Colombia (2002-07)	49.8	16.4	14.4	1.0	4.6	-3.6
Malaysia (2003-07)	44.4	14.5	-4.3	8.3	2.4	8.1
Tunisia (2001-07)	62.7	11.8	-0.7	8.1	6.4	-2.0
Average (unweighted)	80.7	26.1	10.6	8.1	3.0	4.4

Source: *World Economic Outlook* and IMF staff estimates.

55. **Thus, together with other structural reforms, expenditure and tax policies will need to focus on fostering growth** (Daniel and others, 2006; Gupta and others, 2004). Expenditure-led adjustments supported by tax base broadening, creating scope for tax rate reductions, have in some cases reduced interest costs and spurred economic growth, resulting in especially successful debt reductions (see Box 3). More specifically:

- *Expenditure policies.* The fiscal stimulus measures that are being adopted should be consistent with boosting growth potential. Similarly, in identifying the measures needed to consolidate the fiscal accounts, governments should seek to reduce unproductive spending while preserving expenditures that are likely to yield high-quality growth and a high social rate of return (e.g., basic transportation infrastructure, education, preventive health care). Distributional objectives should be pursued by targeted spending measures.

- *Tax reform.* Reforms should focus not only on broadening the tax base and reducing rates, so as to minimize distortions and promote equity, but also on improving incentives to work and to invest, simplifying administration and compliance, and enhancing the transparency of the tax code. Changes to the tax structure should give greater emphasis—beyond externality-correcting taxes (e.g., carbon pricing schemes)—to consumption taxes (especially a broad-based VAT), and property taxes (with income tax and benefit systems addressing equity considerations more directly), and reduce remaining taxes on international trade. It will also be important to reduce the bias in favor of debt vis-à-vis equity financing, present in most tax systems.

Containing age-relating spending

56. Two considerations are relevant in the current context:

- In spite of the large fiscal costs of the crisis, the major threat to long-term fiscal solvency is still represented, at least in advanced countries, by unfavorable demographic trends. Net present value calculations illustrate the differential impact of the crisis vis-à-vis aging: in particular, for advanced countries, the burden of the crisis is about 5 percent of the total burden (Table 11, last column). Addressing pressures arising from aging can go a long way in allaying market concerns about fiscal solvency, in spite of the current fiscal weakening.
- The strategy followed so far in many advanced countries (notably in Europe) has focused not only on entitlement reforms, but also on pre-positioning the fiscal accounts for the demographic shock, by cutting the level of debt and reducing spending in other areas (or keeping relatively high tax rates) to make room for expected future increases in pension and health spending. However, this strategy has been derailed, or at least delayed, by the crisis (see Figure 13, reporting the pre- and post-crisis outlook in the fiscal balances of five large European countries).

57. The fiscal impact of the crisis thus reinforces the urgency of entitlement reform.

With larger headline debt and lower primary balances, pressures from aging will need to be addressed directly by reforming pension and health entitlements. The amount and speed of adjustment should be country-specific, depending on factors such as demographic and economic growth prospects, cost of borrowing, debt tolerance, and public attitudes toward the tax burden, expenditure needs, and the size of the public sector. Nevertheless, for most countries, postponing required reforms would likely result in larger and more painful adjustment in later years. Moreover, compared with the previously pursued strategy of pre-positioning the fiscal accounts for the demographic shock, a direct reform of health and pension entitlements may have some advantages, as it involves smaller cuts in other priority spending (or lower taxation).

Table 11. Net Present Value of Impact on Fiscal Deficit of Crisis, and Age-related Spending^{1/ 2/}
(In percent of GDP)

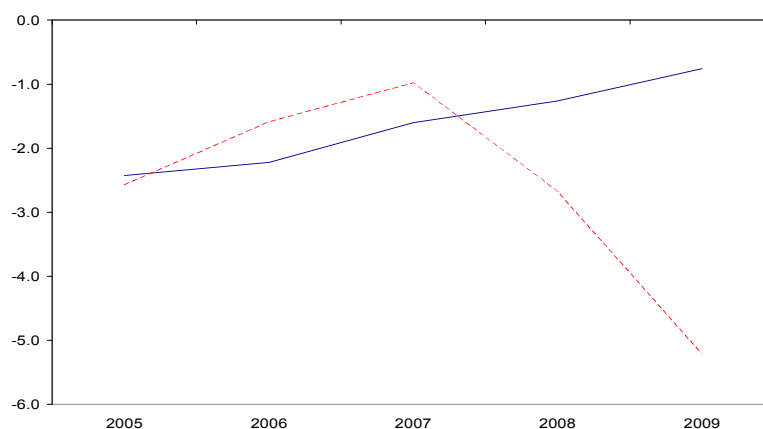
Country	Crisis	Aging	Crisis/(Crisis + Aging)
Australia	26	482	5.1
Canada	14	726	1.9
France	21	276	7.1
Germany	14	280	4.9
Italy	28	169	14.2
Japan	28	158	15.1
Korea	14	683	2.0
Mexico	6	261	2.2
Spain	35	652	5.1
Turkey	12	204	5.6
United Kingdom	29	335	7.9
United States	34	495	6.4
Advanced G-20 Countries	28	409	4.9

Source: IMF staff estimates.

1/ Table reports net present value of the impact on fiscal balance of the crisis, and of age-related spending increases reported in Table 9. The third column reports the ratio of the first column to the sum of the first and second columns in percent. The discount rate used is 1 percent per annum in excess of GDP growth for each country. Given that real growth is expected to average 3 percent per annum, this is equivalent to applying an average real discount rate of 4 percent per annum. For years after 2050, the calculation assumes the impact is the same as in 2050.

2/ Averages based on PPP GDP weights.

Figure 13. Outlook for Fiscal Balance (percent of GDP) Versus 2006 Stability Program, EU-5 Countries^{1/}



1/ Solid line refers to 2006 Stability Program.

Dashed line refers to World Economic Outlook (January 2009 update) estimates and projections. EU-5 denotes simple average of France, Germany, Italy, Spain, and United Kingdom.

58. **Effective entitlement reform should abide by well known principles:** In the area of pensions, savings must be attained while sufficiently preserving intergenerational equity. The main tool should be increases in the effective retirement age, although other parametric changes may be needed. Any assistance to funded pension plans which incurred major losses as a result of the financial crisis should be targeted to lower-income households for whom current retirement income is likely to be seriously reduced. Regarding health care, reforms will need to be equitable to secure broad public support when limiting the service coverage, or shifting costs to the private sector (Verhoeven and others, 2007).

59. **A specific challenge in the current conjuncture is to take early action in these areas without undermining ongoing efforts to jumpstart economic growth.** The key objective should be to ensure that entitlement reform yields savings for the government without reducing aggregate demand. Some steps are less controversial, from an economic perspective. For example, in the area of pensions, an increase in the retirement age would seem unlikely to lead to a decline in consumption. Other steps are more controversial: an increase in contribution rates would reduce workers' disposable incomes and, as a result, consumption; this latter type of measure would thus seem less desirable in the current conjuncture. In the area of health care, while most countries will need to limit the types of services covered under public systems to ensure solvency, reforms aimed at expanding the provision of basic health care coverage to greater shares of the population—in countries where no major fiscal correction is needed even after the crisis—could help reduce precautionary savings by households. Consideration could also be given to reducing entitlements in a gradual way so that any adverse economic reaction would be spread out over time. What is critical, in any case, is the clear communication of a stronger commitment than in the past to address entitlement reforms decisively, supported by the identification of the necessary actions and their timing.

60. **Enacting major reforms in this area at times of severe economic weakening is likely to be challenging from a political economy perspective, but there are opportunities too.** If the fiscal stimulus succeeds in supporting activity, the climate for reform would also improve. Indeed, it may also be that the crisis environment offers in some countries an opportunity for a comprehensive “big bang” approach, where a strong package of immediate stimulus to support the economy would provide the quid pro quo for the introduction of long-lasting reforms in entitlements and other areas. Moreover, times of crisis have in the past provided opportunities for enacting politically difficult reforms.

Monitoring developments and promoting reform

61. **Close monitoring of fiscal developments will be needed in the above areas by the Fund.** In addition to individual country monitoring, a cross-sectional approach to monitoring, following for example the methodologies used in the previous chapters, can help identify the countries where progress is more limited and vulnerabilities are building up more rapidly in terms of primary gap, debt accumulation, medium-term and long-term fiscal trends. Financial

market developments—on interest rates, spreads, maturity and currency composition of government debt—should also be closely followed to identify at an early stage signs of market distress. To allow this, it will be important to overcome existing data constraints on close monitoring, including in the availability of general government debt data for some key emerging economies. The promotion of statistical frameworks, such as GFSM2001, that allow a comprehensive and integrated coverage of government balance sheets, would also be important.

62. **The Fund, together with other international financial institutions, also has a role to play in promoting the fiscal reforms that are part of the recommended strategy.** This involves both the Fund's policy work agenda and technical assistance to its member countries. Given its global membership, the Fund has a key role in this area, particularly in dealing with issues, such as those discussed in this paper, that, albeit in different degrees, are affecting virtually all member countries. Work efforts in the areas of entitlement reform, medium-term fiscal frameworks, and fiscal rules are among those that are likely to come to the forefront in the coming years.

VII. ISSUES FOR DISCUSSION

Directors may wish to discuss the following issues:

- Do Directors agree with the assessment of the direct fiscal costs related to the financial crisis from operations supporting troubled financial institutions (Chapter II)? Do they agree that a transparent treatment of these operations is critical to properly assess the state of fiscal accounts and ensure a high recovery rate?
- Do Directors agree that, in addition to revenue losses and expenditure increases related to the output deceleration, the crisis is also likely to bring about significant revenue losses related to sharply declining equity, housing, and commodity prices (Chapter III)? Directors may wish to comment on the scale and composition of the discretionary fiscal measures enacted so far by member countries.
- Do Directors agree with the identification of an emerging fiscal risk from the impact on pension fund assets of the sharp asset price declines (Chapter IV)? Do Directors share the view that any exceptional assistance to pension plans should be targeted primarily at lower-income households?
- Do Directors share the assessment that the state of public finances has been severely weakened by the crisis, as discussed in Chapter V? Do they concur that, while fiscal stimulus has been necessary, a clear and strong strategy to ensure fiscal solvency is a key component of the policy set needed to restore sustainable growth?
- Do Directors agree with the fiscal strategy presented in Chapter VI, and, in particular, with its four pillars (appropriate composition of the fiscal stimulus, transparent medium-term fiscal frameworks, structural reforms to boost growth, and a strategy to contain health and pension entitlements in rapidly aging countries)? Do Directors agree the Fund has an important role to play in monitoring developments in the implementation of this strategy and in promoting reform, including through cross-country work and technical assistance?

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