
Fiscal Outlook in Advanced and Emerging Markets

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16.1 Introduction

The financial crisis left many countries, especially advanced economies, with a dangerous combination of high debt to GDP ratios not seen since World War II (figure 16.1) and overall deficits unheard of in at least thirty years (figure 16.2). While overall balances are expected to improve over the medium term as economic activity recovers and countries implement ambitious structural reforms, this improvement is expected to make only a small dent in the debt stock, as countries struggle to address the enduring legacies of the crisis. These legacies include a tepid recovery of revenues as potential GDP is not expected to recover to its pre-crisis trend and rising expenditure pressures are linked to debt service and entitlement spending. The crisis also left countries facing greater risks to debt dynamics owing to greater macroeconomic volatility, uncertainty related to policy implementation, and large contingent liabilities.

The chapter is organized as follows. Section 16.2 takes stock of the fiscal positions of advanced and emerging economies following the financial crisis and analyzes the main challenges countries face over the medium term—including those arising from the crisis—that constrain their ability to recoup their pre-crisis fiscal positions. Section 16.3 identifies ongoing risks—some of which are also remnants of the crisis—that are likely also to weigh negatively on the fiscal outlook, in particular those risks related to uncertainty with respect to macroeconomic performance, policy implementation, and contingent liabilities. Section 16.4 concludes.

16.2 Baseline Outlook: Subdued Revenues amid High Spending

Even as stimulus measures are unwound, headline deficit to GDP ratios are not expected to return to pre-crisis levels as the recovery in revenues to GDP is not enough to offset the higher share of expenditures to GDP. To a large extent, this comes as a

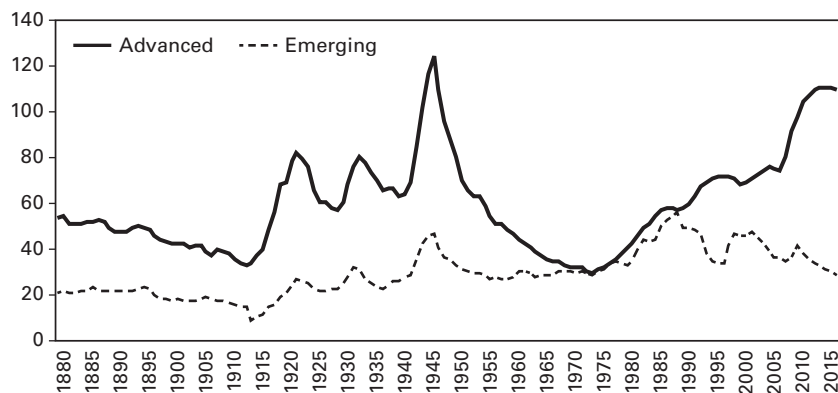


Figure 16.1

Historical public debt (percent of GDP). The “world” public debt-to-GDP series is based on debt-to-GDP data for a constant sample of 68 countries, weighted by PPP GDP. Debt data were drawn from the Historical Public Debt Database, which has almost full data coverage from 1880 to 2011 for all advanced and some emerging economies. Gaps for earlier years in both the PPP GDP and debt data series were populated through back-extrapolation using the debt and PPP GDP growth rates of countries for which data were available. Data for 2012 to 2017 are from the IMF *Fiscal Monitor*, April 2012. Sources: IMF Historical Public Debt Database; IMF, *Fiscal Monitor*, April 2012

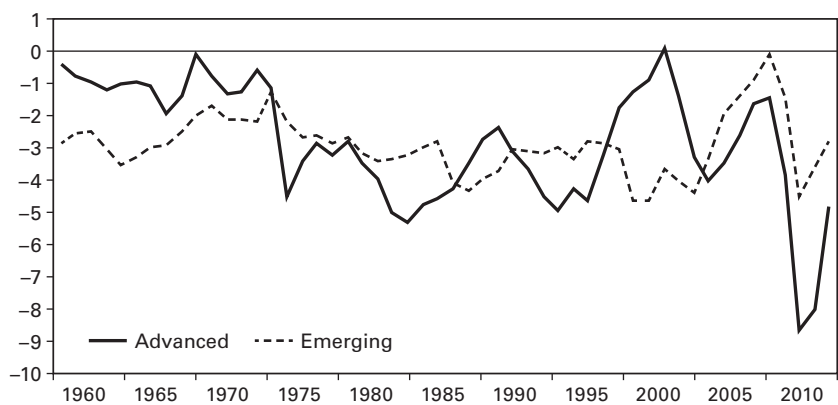


Figure 16.2

Overall balances, 1960 to 2011 (percent of GDP)

Source: Mauro et al. (2013)

result of an expected permanent loss in the level of potential GDP as a consequence of the global crisis.

Based on analyses of previous crisis episodes, several studies argue that output is not likely to recover to its pre-crisis trend.¹ IMF (2009) finds that following banking crises, the path of output tends to be depressed substantially and persistently, with no rebound on average to the pre-crisis trend over the medium term as a result of enduring losses of capital and employment relative to trend. European Commission (2009) also finds that a crisis can reduce potential output in the short and medium term through its adverse impact on investment due to credit constraints—which would not only depress capital accumulation, but also slow the process of industrial restructuring and limit spending on research and development, curtailing total factor productivity—and on the labor force through hysteresis effects.² DeLong and Summers (2012) and Romer (2012) also underscore the risk of hysteresis effects in the recent crisis in light of the share and persistent increase in unemployment rates. With this in mind, medium-term forecasts by IMF staff typically expect potential output to remain below its pre-crisis trend, especially among advanced economies (figure 16.3). Output losses associated with the crisis—calculated as the difference between the level of potential per capita GDP in the baseline and the level that would have

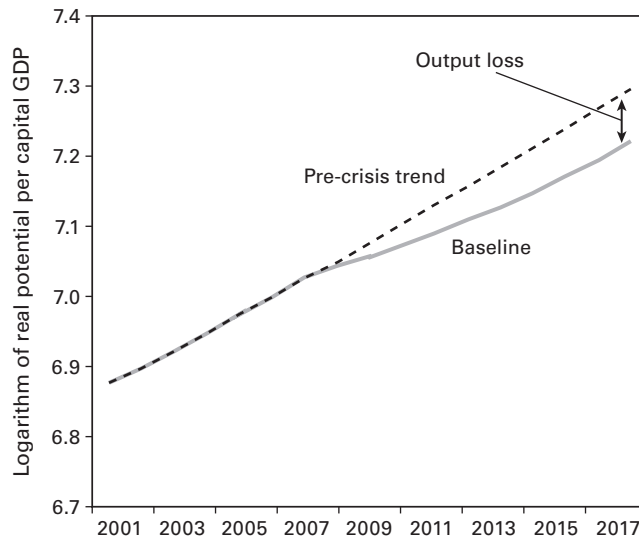


Figure 16.3

Advanced economies: Potential per capita GDP, baseline and pre-crisis trend. The pre-crisis trend is estimated as the average over 2000 to 2006, and extrapolated linearly thereafter, based on methodology in IMF (2009).

Sources: *World Economic Outlook (WEO)*, October 2012; authors' estimates and projections

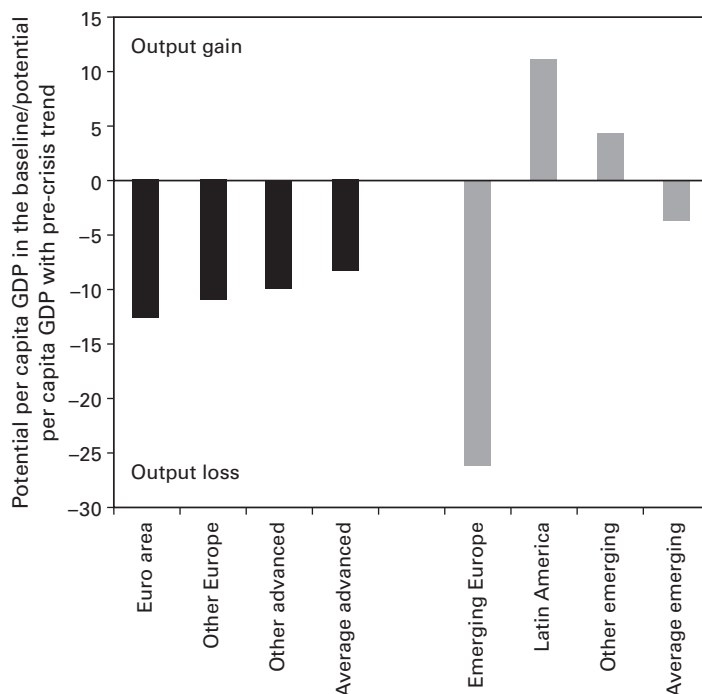


Figure 16.4

Output loss by region (percent). Output loss associated with the crisis is the difference between the level of potential GDP in the baseline and the level that would have been expected based on the prevailing pre-crisis trend. The pre-crisis trend is estimated as the average over 2000 to 2006, and extrapolated linearly thereafter, based on methodology in IMF (2009).

Sources: *World Economic Outlook (WEO)*, October 2012; authors' estimates and projections

been expected based on the prevailing pre-crisis trend—are estimated at 8.5 percent of GDP for advanced economies and 3.66 percent of GDP for emerging economies, though the loss is especially high for emerging Europe (figure 16.4).

Over the medium term, even as revenue to GDP ratios are expected to recover to their pre-crisis levels, revenues in nominal terms would remain subdued by weaker potential GDP. The ratio of revenues to GDP is indeed expected to return to its pre-crisis level in most advanced economies by 2014, and even earlier in the case of emerging economies (figure 16.5). This reflects in part an improvement in the cyclical position, as tax collections would improve as real GDP returns to its potential. However, in light a lower expected level of potential GDP, revenue losses—estimated as the difference between the level of revenues in the baseline and the level that would have been expected if potential GDP had remained on the pre-crisis trend—would amount to close to 4 percent of GDP in advanced economies, 2 percent of GDP in emerging economies, and significantly higher for countries in Europe (figure 16.6).

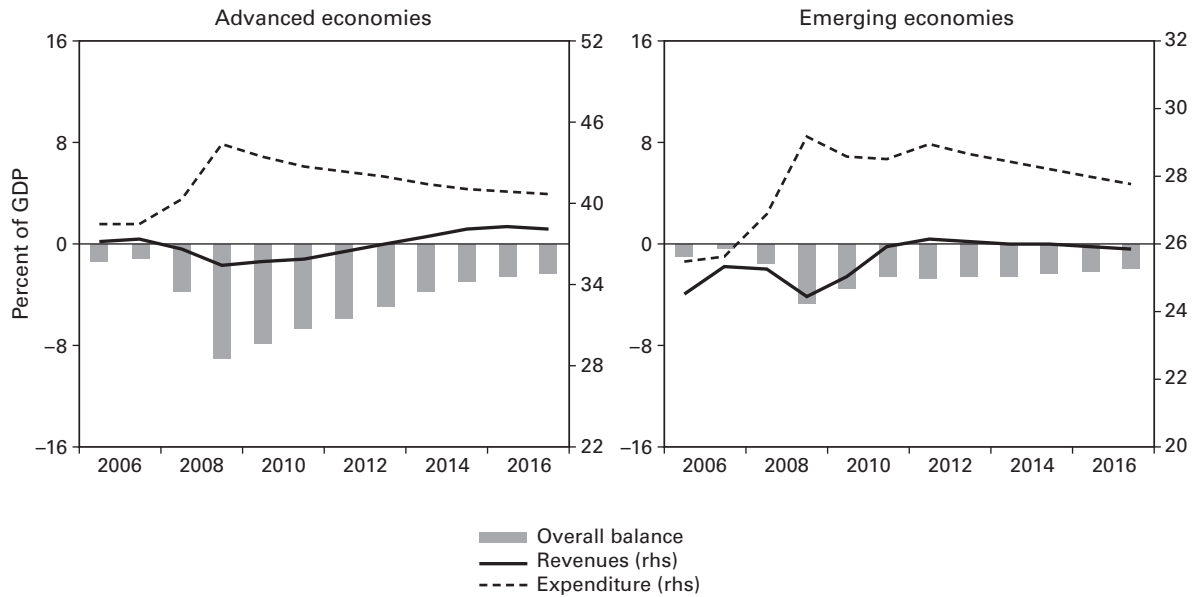


Figure 16.5
Revenue, expenditure, and overall balance (percent of GDP)
Source: IMF, *Fiscal Monitor*, October 2012

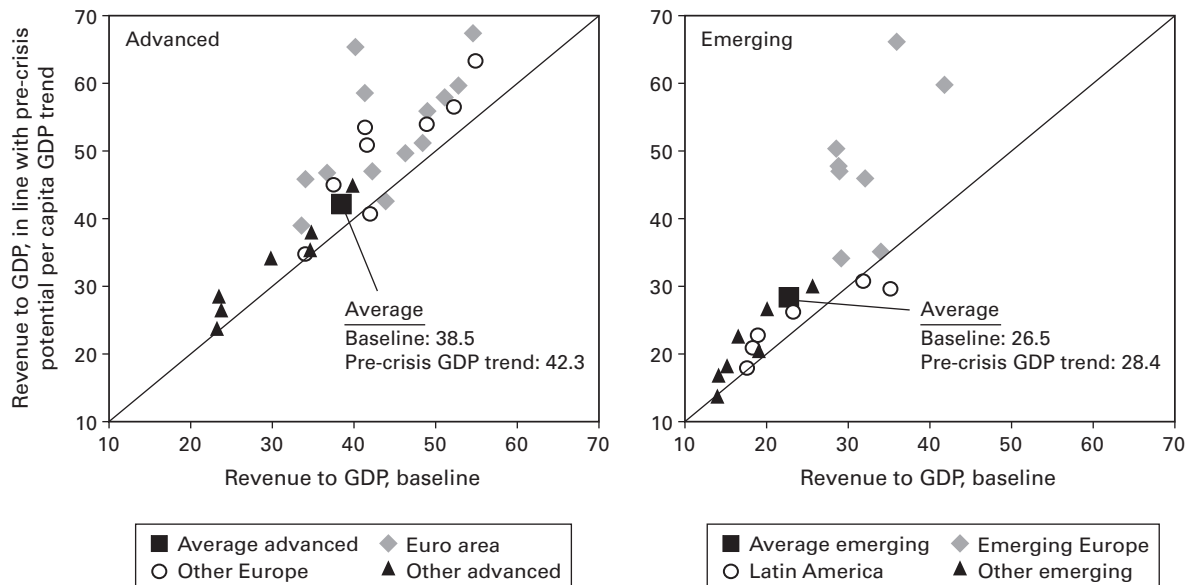


Figure 16.6
Baseline revenue forecast versus revenues in line with pre-crisis potential GDP trend (percent of GDP). The pre-crisis potential GDP trend is estimated as the average over 2000 to 2006, and extrapolated linearly thereafter, based on methodology in IMF (2009).
Sources: IMF, *Fiscal Monitor*, October 2012; authors' estimates and projections

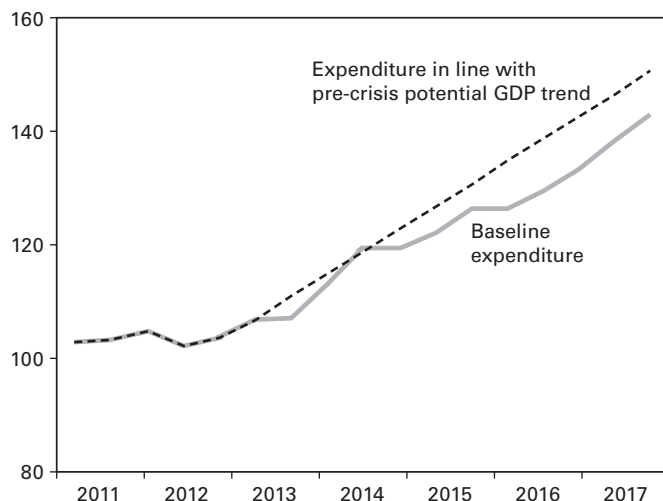


Figure 16.7

Expenditure in line with baseline potential GDP versus expenditure in line with pre-crisis potential GDP Trend (index 2006 = 100). The pre-crisis potential GDP trend is estimated as the average over 2000 to 2006, and extrapolated linearly thereafter, based on methodology in IMF (2009). Sources: IMF, *Fiscal Monitor*, October 2012; authors' estimates and projections

Furthermore expenditure is expected to remain high in terms of GDP, despite the implementation of sizable expenditure cuts over the medium term, owing to a combination of lower expected potential GDP and new spending pressures. Most of the expansion in outlays during the crisis is expected to be reversed as temporary stimulus measures expire and countries embark on fiscal consolidation, with expenditure falling by about 3 percent of GDP in advanced and 1 percent of GDP in emerging economies, between 2010 and 2017.³ In the absence of measures to curb spending, expenditure could indeed be higher by about 5 percent in advanced economies over the medium term if it is allowed to continue to grow in line with the pre-crisis potential GDP trend (Figure 16.7). Nevertheless, spending to GDP in 2017 is still expected to remain more than 2 percent of GDP above the pre-crisis ratio in both advanced and emerging economies. Of this, about 1 percent of GDP is explained by the gradual increase of entitlement spending over the next years (which is expected to continue to rise considerably over the long term). In the case of advanced economies, interest expenditure to GDP is also expected to remain elevated from servicing a larger debt stock, even as real interest rates are expected to remain broadly in line with pre-crisis levels. In emerging economies, the increase in public investment during the crisis is not expected to be rolled back (figure 16.8).

These revenue and expenditure trends in advanced economies imply that overall balances are expected to narrow only gradually over the medium term, and will

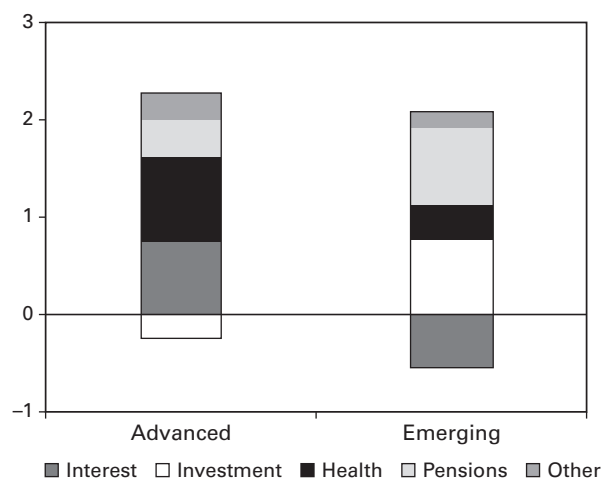


Figure 16.8

Change in expenditure by component, 2007 to 2017 (percent of GDP)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

therefore continue to add to the debt stock.⁴ Between 2011 and 2017, debt to GDP in advanced economies is expected to rise by about 7 percentage points, keeping debt at close to peak levels. Primary balances are expected to contribute about 5 percent of GDP, and stock flow adjustments (in some cases linked to financial sector support measures) another 5 percent, while a favorable interest-rate–growth differential helps contain debt accumulation (figure 16.9). In several large advanced countries, debt to GDP ratios would remain above 80 percent (figure 16.10), which could take a toll on potential growth through crowding out effects on private investment.⁵

In contrast, in emerging economies, debt is expected to decline by close to 8 percent of GDP, with strong GDP growth as the most important contributor. Emerging economies are also expected to maintain primary surpluses (favored by relatively strong growth prospects), which would also help bring debt ratios down. On average, debt ratios are expected fall below 30 percent of GDP, but will remain above 40 percent of GDP in some large emerging economies, a level associated with greater vulnerability.⁶

16.3 Risks to the Outlook: Macroeconomic and Political Uncertainty

Underlying the baseline debt path over the medium term are relatively benign assumptions regarding interest rates and growth trends. Some sensitivity analysis

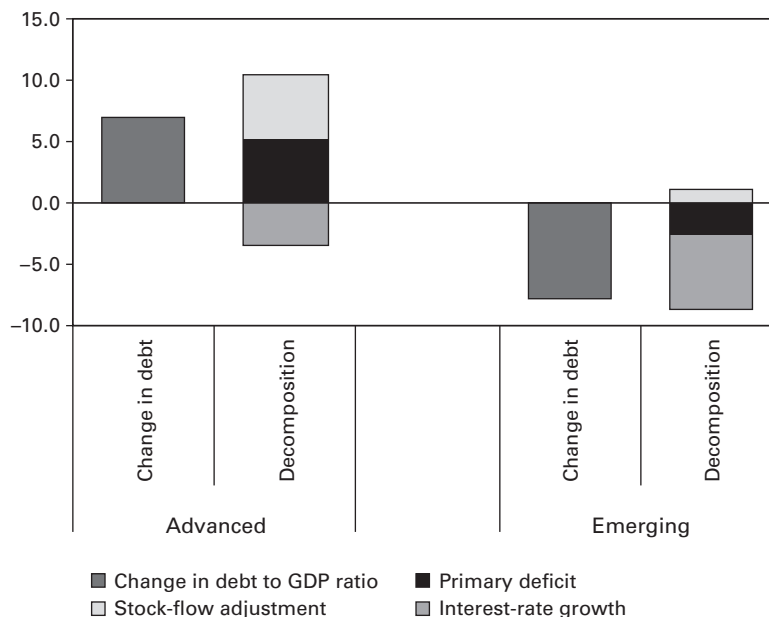


Figure 16.9

Decomposition of debt accumulation, 2011 to 2017 (percent of GDP)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

is warranted to gauge the impact alternative macroeconomic assumptions and to quantify some fiscal risks.⁷ For example, real interest rates are expected to be below those before the crisis, with growth also lower (figure 16.11). However, market volatility since the start of the crisis implies that there is considerable downside risk that lower real interest rates will not materialize. On the upside, growth prospects could be stronger than currently anticipated. Table 16.1 provides a risk assessment matrix with the relative likelihood that alternative sources of risk materialize and impact of such risks on debt sustainability.

16.3.1 Implementation Risk

Several countries have announced ambitious consolidation plans to improve fiscal positions over the medium term. Assuming that such plans are implemented fully, the baseline scenario of the October 2012 *Fiscal Monitor* forecasts that debt in advanced economies would stabilize by 2014. While in many cases these measures have already been incorporated into law, there is a nonnegligible risk that policy measures are not fully executed, owing to lack of public support or shortcomings in implementation capacity. Debt in advanced economies would be on a steeper trajec-

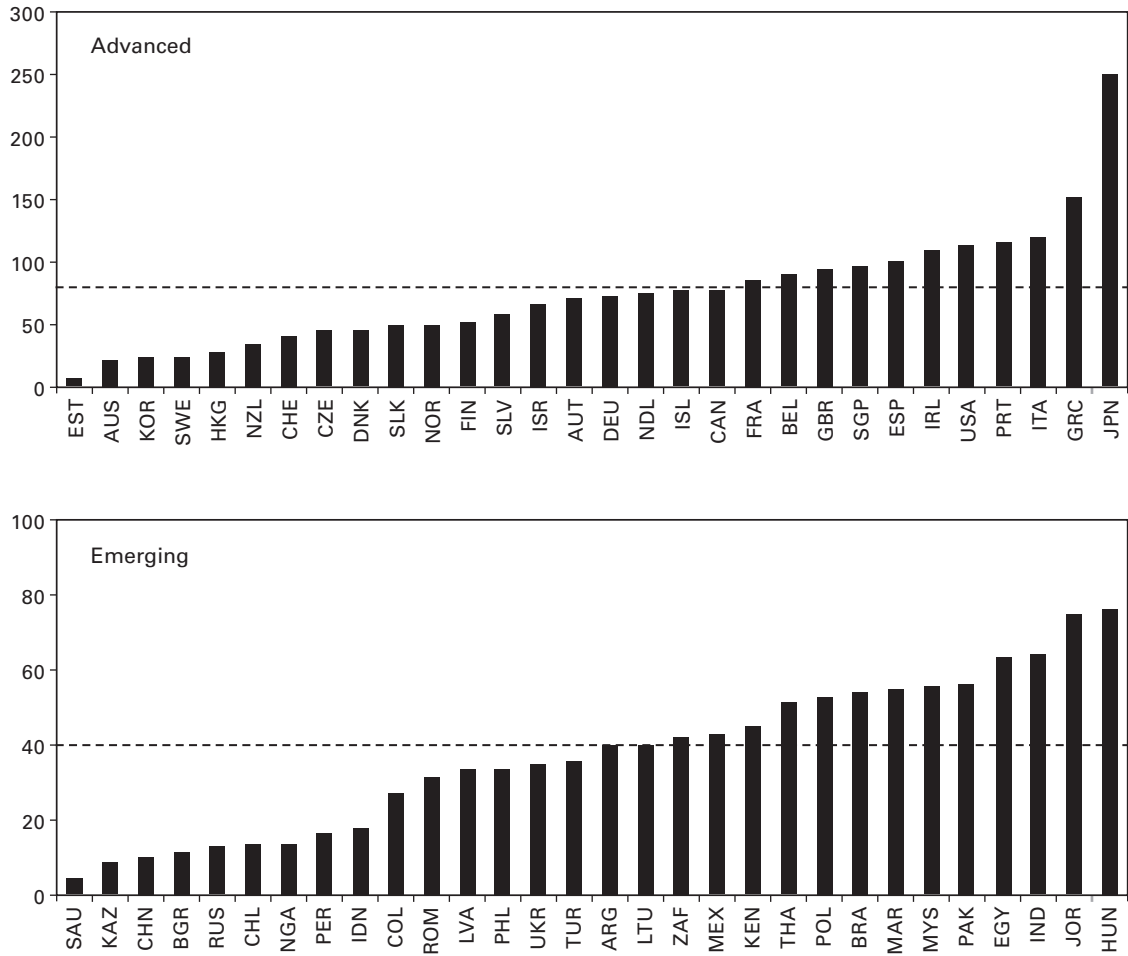


Figure 16.10
 General government gross debt (percent of GDP)
 Source: IMF, *Fiscal Monitor*, October 2012

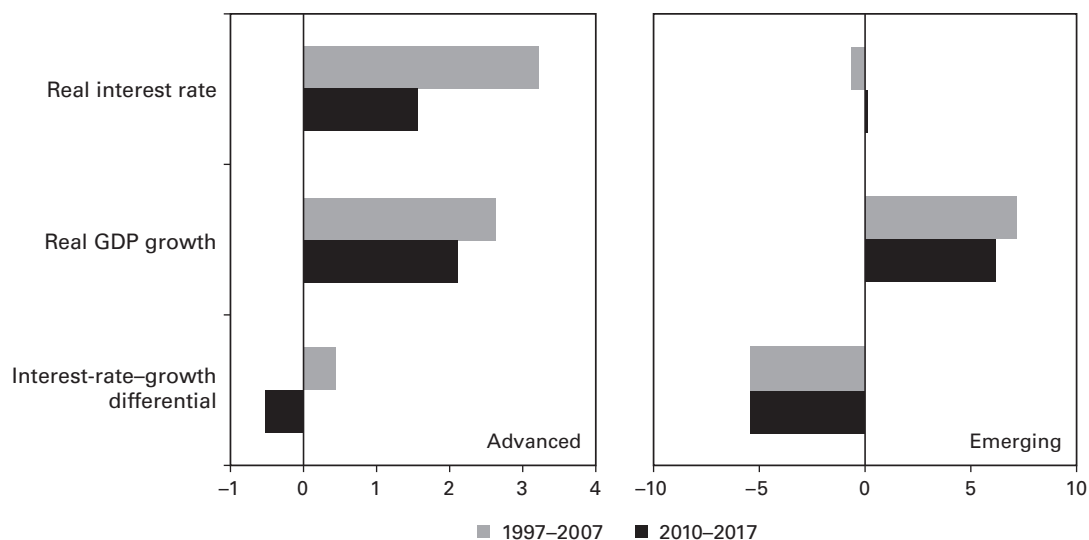


Figure 16.11

Difference between interest rate and growth (percent)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

tory if, owing to policy slippages and/or a slower recovery, the primary balance gets stuck at its 2011 level (figure 16.12). Debt would reach close to 130 percent of GDP by 2017. If the primary balance remains instead at its 2012 level, where some adjustment is expected to have taken place, debt would reach just above 120 percent of GDP in the medium run. And if it is fixed at its 2013 level, it would be 118 percent of GDP.

In contrast, emerging economies as a group are not expected to implement large fiscal adjustment over the medium term. As noted earlier, changes in the primary balance are playing almost no role in explaining the debt reduction that is projected in the baseline scenario. The debt path in emerging economies as a group would be almost invariant if the primary balance remains constant at its 2011 level (figure 16.13), with the exception of countries with relatively high debt (e.g., Jordan, Poland, Morocco, and Malaysia).

16.3.2 Increase in Financing Cost

The crisis brought about a structural change in the way markets perceive credit risk among advanced economies, in particular in the euro area. Prior to the crisis, there tended to be little discrimination among bond spreads across advanced economies in Europe. With the crisis, markets started to price in more credit risk, introducing greater volatility into sovereign bond markets and greater differentiation across sov-

Table 16.1
Debt sustainability: Risk assessment matrix

		Relative likelihood			Impact if realized		
		Advanced	Emerging	Advanced	Advanced	Emerging	
Slippage in implementation of fiscal consolidation	<i>Medium</i> Many consolidation measures have already been incorporated into legislation. However, the negative impact of austerity on growth and equity could wither public support for adjustment.	<i>Low</i> Many countries have not announced sizable fiscal consolidation measures, and in many cases fiscal adjustment needed to bring debt down over the medium-term is relatively small.	<i>High</i> Debt ratios would continue rising without sufficient fiscal adjustment. Also, lack of progress in implementing fiscal adjustment could trigger loss of market credibility.	<i>Low</i> Debt ratios would continue on a downward path, supported by beneficial debt dynamics.			
	<i>Medium</i> Ongoing market uncertainty could push interest rates up for some countries. However, in countries with monetary policy, central banks are expected to maintain easy monetary conditions until growth is on firm footing.	<i>Medium</i> Risk is contained by relatively low global interest rates. However, capital markets in emerging economies are thin and less liquid, and are vulnerable to sudden shifts in market sentiment.	<i>High</i> Debt ratios would continue rising, in particular in the context of subdued growth.	<i>Medium</i> Interest-rate shock would have to be significant to put debt ratios on an upward path. However, if higher interest rates make a dent on growth, then debt dynamics could worsen.			

(continued)

Table 16.1
(continued)

	Relative likelihood			Impact if realized	
	Advanced	Emerging	Advanced	Advanced	Emerging
Lower growth	<i>Medium</i> Medium-term growth forecasts are already subdued. However, fiscal consolidation could weaken growth further if fiscal multipliers are larger than expected.	<i>High</i> Growth in these countries has been above historical trends over the past decade or so, supported in part by financial deepening and rapid credit growth, which may well have generated overly optimistic expectations about potential growth.	<i>High</i> Implementing fiscal adjustment and reducing debt to GDP ratios with tepid growth is very challenging.	<i>High</i> Debt reduction in the baseline hinges on robust growth. Many countries continue to run primary deficits notwithstanding years of strong growth. A slowdown would compromise debt reduction.	<i>High</i> Many countries have a significant share of debt denominated in foreign currency.
Exchange-rate depreciation	<i>Low</i> Most debt is in domestic currency	<i>High</i> Shifts in global risk aversion could lead to sudden capital outflows. For commodity exporters, a fall in commodity prices could affect sustainability of public finances for those that followed procyclical policies.	<i>Low</i> Most debt is in domestic currency	<i>High</i> Many countries have a significant share of debt denominated in foreign currency.	<i>High</i> Many countries have a significant share of debt denominated in foreign currency.
Banking sector recapitalization	<i>High</i> Financial sector reform has not been fully implemented. Some countries continue to be exposed to contagion from further escalation of financial stress in the euro area.	<i>Medium</i> Sharp credit expansion in some countries during recent years raises concern about asset quality if growth were to underperform.	<i>High</i> Banking sector liabilities in advanced economies are high. Compared to the direct cost of financial sector support in previous crises, the cost of the recent crisis has been relatively small so far.	<i>Medium</i> Banking sector liabilities in emerging economies are relatively lower than in advanced economies.	<i>Medium</i> Banking sector liabilities in emerging economies are relatively lower than in advanced economies.

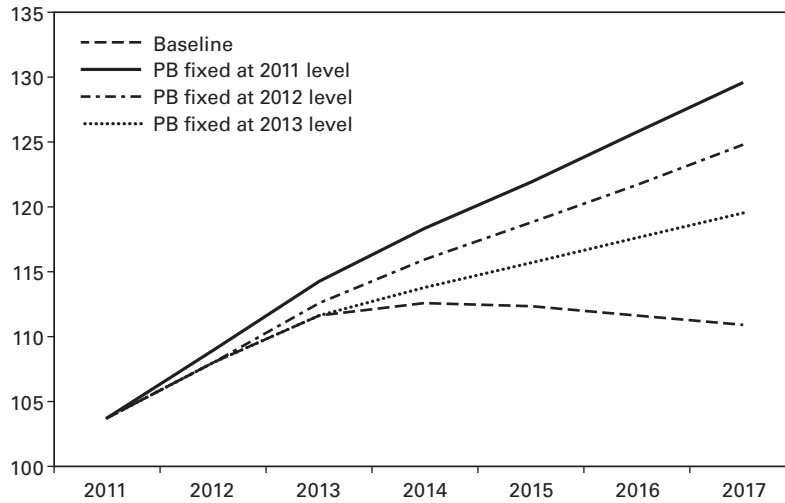


Figure 16.12
Advanced economies government gross debt (percent of GDP)
Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

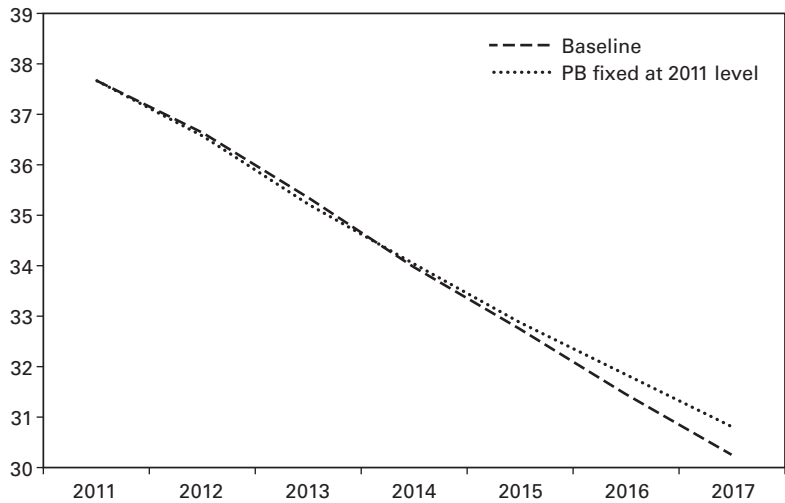


Figure 16.13
Emerging economies government gross debt (percent of GDP)
Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

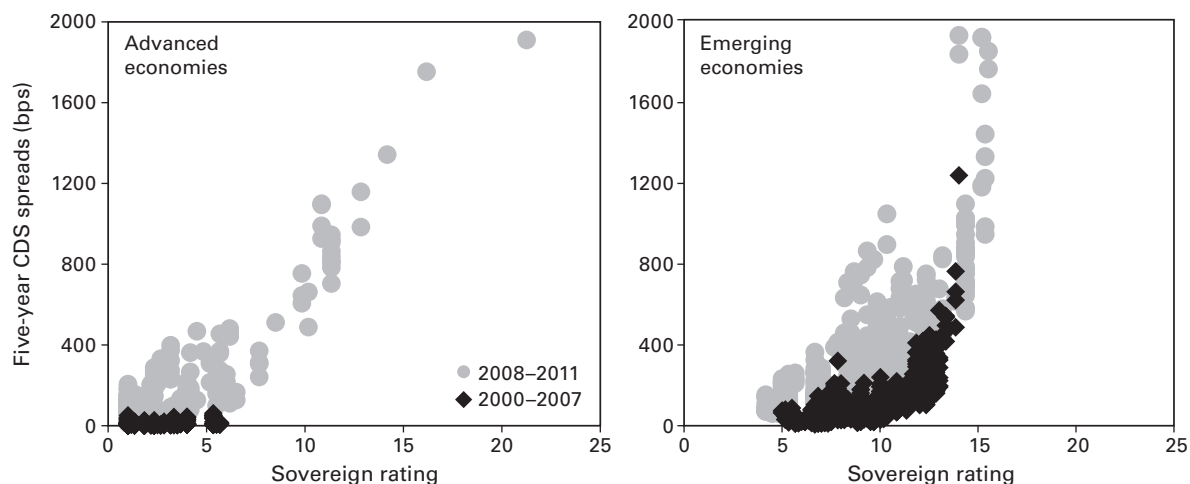


Figure 16.14

Sovereign CDS spreads and ratings. CDS: credit default swap. Sovereign credit ratings and outlooks from Fitch Ratings, Moody's Investor Services, and Standard & Poor's are converted into a linear scale, and then averaged across the three agencies, with AAA equal to 1.

Source: IMF, *Fiscal Monitor*, April 2012

ereigns (figure 16.14). Mirroring sovereign bond markets, rating agencies have also altered their behavior, in particular toward advanced economies. Before the crisis, upward revisions were common place, but since the crisis, downgrades seem to be the norm (figure 16.15).

If high interest rates faced by some countries now become more permanent, debt dynamics would become severely affected. Debt accumulation in advanced economies would in fact accelerate if interest rates over the medium term were higher than in the baseline scenario (figure 16.16). For example, if interest rates were 100 basis points higher than in the baseline every year between 2011 and 2017, and all else remains equal, debt-to-GDP ratios would climb by 6 percentage points to reach 117 percent by 2017, and would fail to stabilize. If interest rates each year were 200 basis points higher than the baseline, then debt ratios would reach 125 percent of GDP in the medium term, an even more worrisome scenario.

Debt reduction in emerging economies would continue, even if at a slower pace, if interest rates picked up (figure 16.17). Even if interest rates increase 300 basis points each year compared to the baseline, debt ratios would be, on average, slightly lower in 2017 than in 2011, given the strong growth assumptions incorporated in the baseline.⁸ However, this shock would imply an explosive path for debt in some countries with relatively high initial debt (e.g., Hungary, Jordan, and Malaysia).

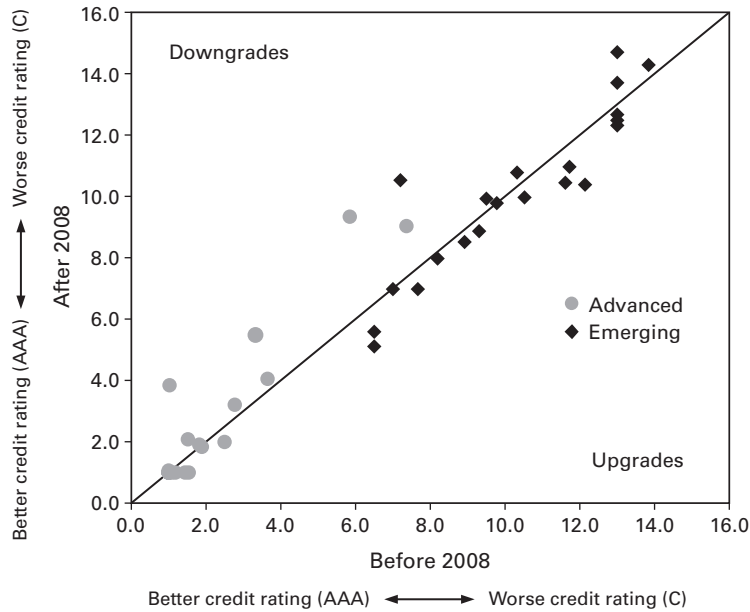


Figure 16.15
Sovereign ratings
Sources: Fitch Ratings; Moody's Analytics; Standard & Poor's; authors' calculations

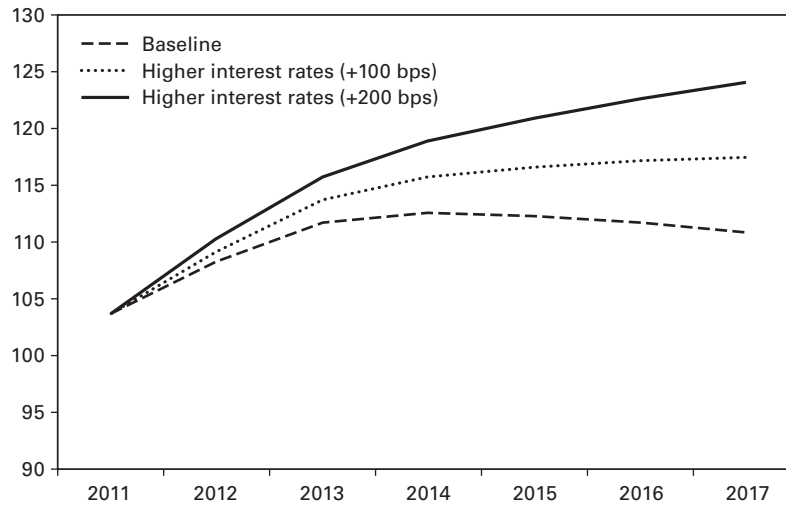


Figure 16.16
Advanced economies government gross debt (percent of GDP)
Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

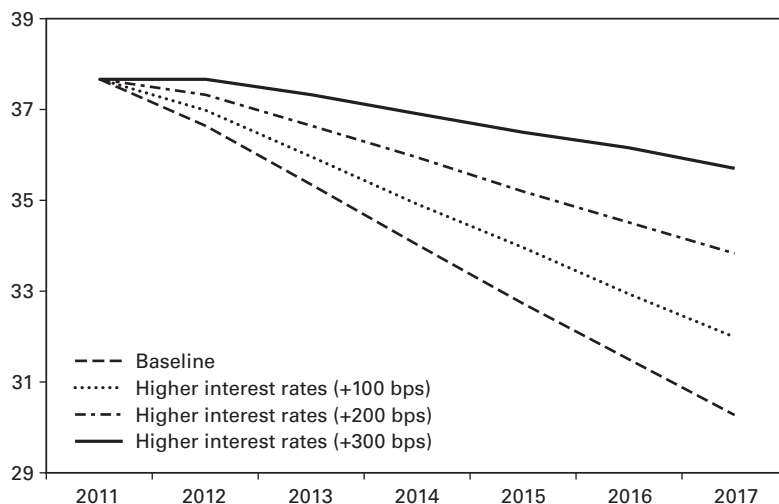


Figure 16.17

Emerging economies government gross debt (percent of GDP)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

16.3.3 Worsening Growth Outlook

There is a considerable amount of uncertainty regarding the path of real growth in coming years. On one hand, if the potential GDP trend were not as negatively affected by the global crisis as currently assumed in the baseline (and were to return to its pre-crisis trend), economic recovery could take place at a much faster pace than currently envisaged facilitating deleveraging.⁹ On the other, as mentioned earlier, high debt stocks could also depress growth prospects, making them lower than current assumptions (see chapter 5 in this volume). The fiscal landscape in advanced economies could be significantly different under alternative growth scenarios (figure 16.18). A permanently lower growth (–1 percentage point each year) in the case of high debt countries would imply an increase in debt of more than 15 percent of GDP in the medium term. In contrast, lower growth in low debt countries would imply lower debt reduction in the medium term. This highlights the importance of growth for high debt countries.

Only a dramatic reduction in growth could jeopardize the envisaged deleveraging in emerging economies (figure 16.19). In the case of high-debt countries, a 1 percentage point lower growth each year coupled with the resulting lower primary balances would imply an increase in debt by 1 percent of GDP in 2017. In the case of low-debt countries, public debt would still go down more than 5 percent of GDP with 1 percent lower growth. Two percentage points lower growth each year would result

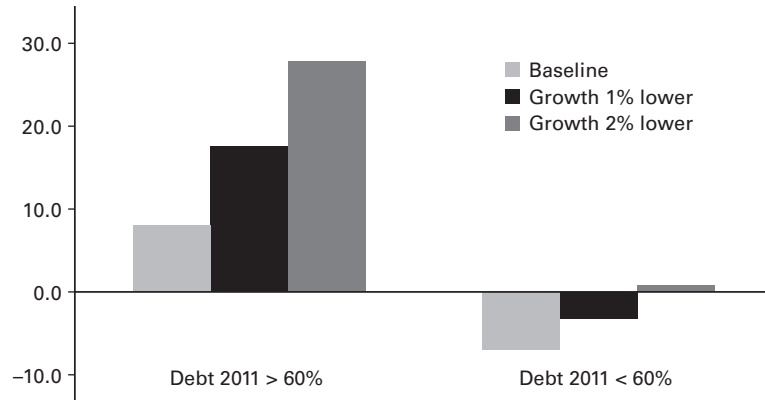


Figure 16.18
Advanced economies increase in debt, 2012 to 2017 (percent of GDP)
Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

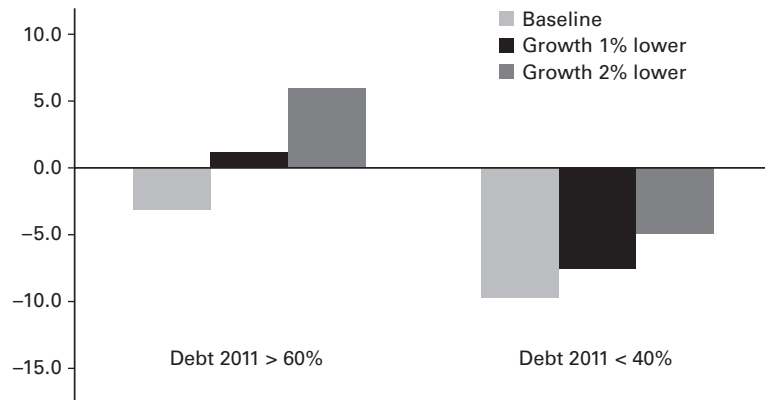


Figure 16.19
Emerging economies increase in debt, 2012 to 2017 (percent of GDP)
Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

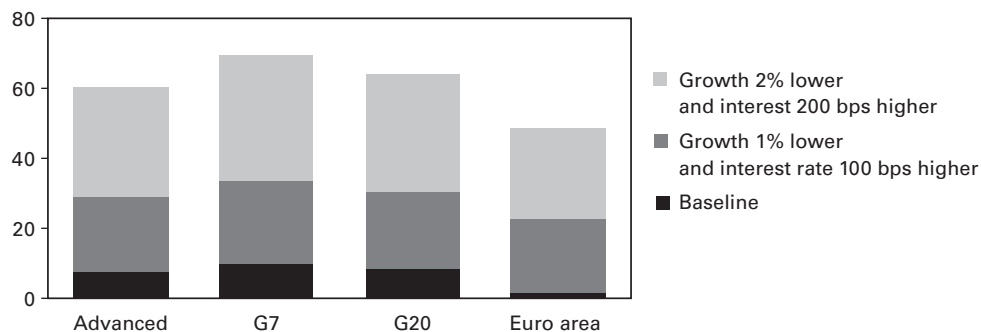


Figure 16.20

Advanced economies increase in debt, 2012 to 2017 (percent of GDP)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

in a significant increase in public debt in the case of high-debt countries raising fiscal sustainability concerns. Low-debt countries would still look good.

16.3.4 Increase in Financing Cost Combined with Worsening Growth Outlook

So far we analyzed an interest-rate shock and a growth slowdown in isolation. However, in practice, both such shocks are likely to hit a country simultaneously. Moreover there could also be interactions, as slower growth leads to a higher debt stock, which results in higher interest rates and thus still slower growth and higher debt.¹⁰

Figure 16.20 shows that a combination of lower growth (1 percentage point) and higher financing costs (100 bps) in advanced countries could result in an increase in public debt of almost 30 percent of GDP in the medium term, with the debt ratio continuing on an upward trend over the medium term. The increase would be more dramatic if growth is 2 percentage points lower and interest rates are 200 bps higher since public debt would increase 60 percent of GDP in the medium term.

Figure 16.21 shows that a combination of lower growth (1 percentage point) and higher interest costs (100 bps) would bring to an end the deleveraging process envisaged in emerging economies. The public debt-to-GDP ratio would in fact increase slightly in the medium term. Not surprisingly, public debt would increase by 10 percent of GDP in the medium term in a more pessimistic scenario.

16.3.5 Exchange Rate Risk

An additional source of risk over the medium term is related to exchange rate volatility, especially in emerging economies.¹¹ An exchange rate shock might materialize as a result of a financial turmoil in some advanced economies that could lead to an increase in global risk aversion and capital outflows from emerging economies, or as a result of rising monetary policy rates in advanced economies over the medium term

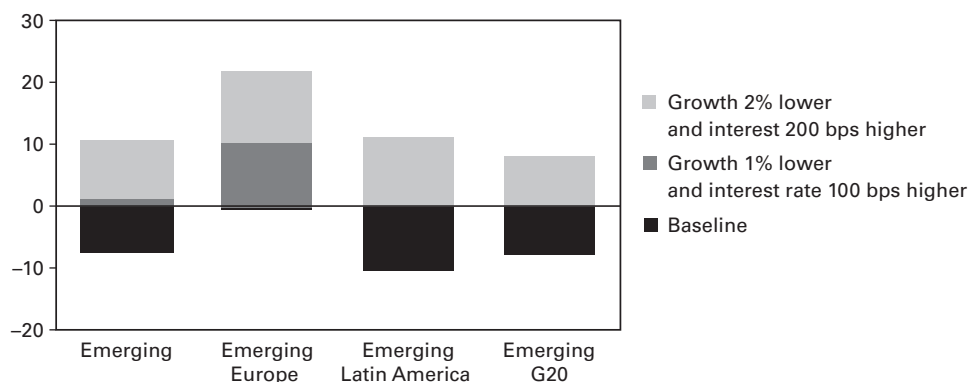


Figure 16.21

Advanced economies increase in debt, 2012 to 2017 (percent of GDP)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

as central banks unwind monetary stimulus. Another driver could be a fall in commodity prices that could raise questions about the sustainability of public finances in countries that followed procyclical policies. The projected downward trend in public debt in emerging economies with a significant share of foreign currency debt (at least 20 percent of total debt in 2010) would be reversed in the event of an exchange rate shock (figure 16.22). In the most extreme case, where the exchange rate depreciates by 30 percent, the debt ratio in the medium term would be 24 percent of GDP higher than in the baseline. An exchange rate shock is less relevant in the case of advanced economies since only a couple of them issue foreign currency denominated debt.

16.3.6 Risks from Financial Sector

Financial sector weaknesses that led to the global crisis have not been fully resolved. Therefore countries continue to face significant risks if an unexpected shock was to force governments to step in once again to support the financial sector. Compared to the direct cost of financial sector support in previous crises, the cost of the recent crisis has been relatively small so far: the average net fiscal outlay is below 5 percent of GDP, and one-third of the support has already been repaid. However, explicit contingent liabilities in guarantee schemes are, in some cases, much larger than the direct support itself. Implicit contingent liabilities could also arise if the economic outlook deteriorates further, weakening private sector balance sheets.¹² Therefore debt accumulation in advanced economies could skyrocket if contingent liabilities from the rescue of the financial system were to materialize, given that banking sector liabilities in advanced economies were, on average, around 55 percent of GDP in 2011 (figure 16.23).¹³

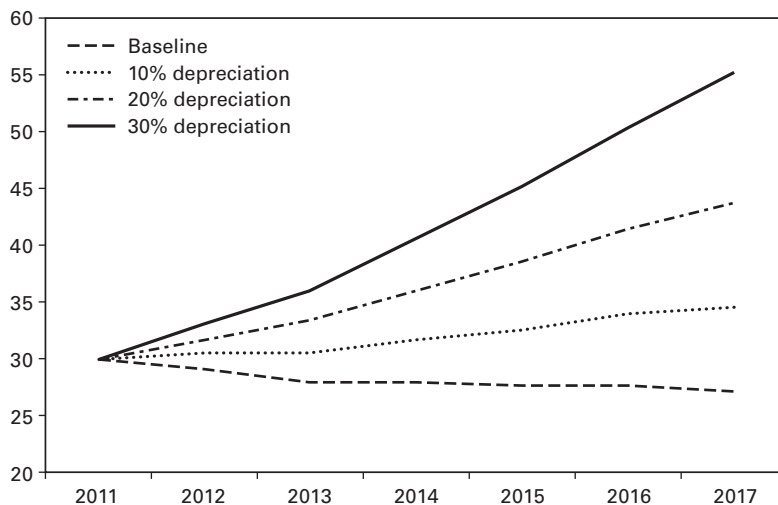


Figure 16.22
Emerging economies government gross debt (percent of GDP)
Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

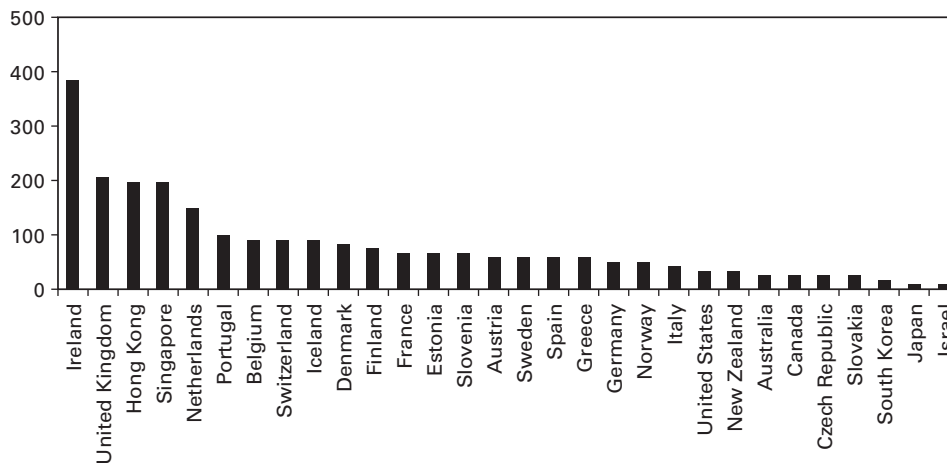


Figure 16.23
Advanced economies banking sector liabilities, 2011 (percent of GDP)
Sources: Bank of International Settlements; authors' estimates

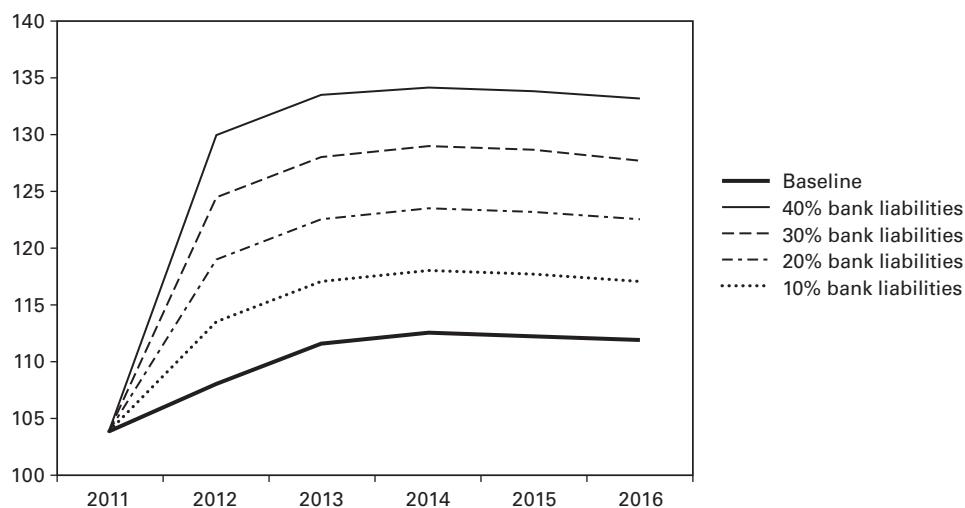


Figure 16.24

Advanced economies government gross debt (percent of GDP)

Sources: IMF, *Fiscal Monitor*, October 2012; authors' calculations

The scenarios illustrate the debt path assuming that the government has to support banks to meet a certain fraction of its liabilities. In countries where the size of the banking system is significant (e.g., Ireland, United Kingdom, Greece, Singapore, and Netherlands), the impact on public debt is higher (figure 16.24). In emerging economies, the liabilities of the banking system were, on average, around 10 percent of GDP, making the analysis of this shock less interesting.

16.4 Conclusions

Fiscal positions worsened dramatically with the global crisis, especially in advanced economies, as revenues contracted and expenditures claimed a higher share of GDP. While fiscal positions are expected to improve as temporary factors unwind and countries implement adjustment packages, many countries are not expected to recover to their pre-crisis fiscal position over the medium term. Revenues as a percentage of GDP are expected to recover, but to a lower overall nominal level as potential GDP is not expected to recover to its pre-crisis trend. The rise in expenditure to GDP during the crisis is not fully reversed, owing to lower expected potential GDP and new spending pressures, in particular the increase in debt-servicing costs and the upward trend in health and pension spending linked to an aging population.

The crisis left countries facing important risks that could derail their consolidation plans. Medium-term debt sustainability is now subject to greater uncertainty

stemming from macroeconomic volatility—of interest rates, growth, and the exchange rate—policy implementation, and large contingent liabilities.

Until debt is solidly on a downward trend, advanced economies need to remain committed to medium-term consolidation. While the appropriate pace of adjustment in the short run is country specific (depending on market access and the risks to growth), there is much to be gained from strengthening medium-term plans that include both revenue enhancing measures and expenditure reforms that address rising age-related spending pressures.

While medium-term debt dynamics in emerging economies are more favorable than in advanced economies, they hinge on sustained strong growth over the medium term. These countries should therefore aim to rebuild their fiscal policy buffers (pacing adjustment as necessary in the short run) to address potential negative shocks down the road.

Notes

1. A debate is ongoing about the impact of the crisis on potential output, with some authors more skeptical about the negative impact of the crisis on potential growth (e.g., see Paul Krugman's post at http://krugman.blogs.nytimes.com/2010/05/15/misinformation/?_r=0).
2. Hysteresis effects can occur when long unemployment spells cause a permanent destruction of human capital, leading to an irreversible rise in the nonaccelerating inflation rate of unemployment (NAIRU).
3. Note that the October 2012 *Fiscal Monitor* assumes sizable expenditure cuts as part of fiscal consolidation plans in 2012 and 2013.
4. Fiscal forecasts in the October 2012 *Fiscal Monitor* assume no further policy action beyond 2013 and therefore could overestimate the size of fiscal deficits over the medium term.
5. Kumar and Woo (2010), Reinhart and Rogoff (2010), and Cecchetti et al. (2011) all find that beyond a certain threshold (about 80 to 90 percent of GDP) higher public debt lowers potential growth. However, Panizza and Presbitero (2012) find no evidence of an effect of public debt on medium-term growth. For further discussion, see chapter 3 in this volume.
6. IMF (2002) suggest that the probability of a debt crisis in emerging economies is much higher when total external debt (public and private) exceeds 40 percent of GDP. Reinhart and Rogoff (2010) find that beyond 60 percent of GDP, external debt has a significant negative effect on growth.
7. IMF (2011b) presents a useful framework in which to think about these issues.
8. Escolano et al. (2011) document that emerging economies have benefited for some time from negative interest rates. However, as financial markets become more developed this situation is unlikely to persist, which means that interest rates are likely to be underestimated in the baseline.
9. Irons and Bivens (2010) emphasize the key role of GDP growth in reducing the public debt-to-GDP ratio in United States economic history. IMF (2011b) and Abbas et al. (2011) also find that in post-World War II nondefault debt reductions were associated with notice-

ably large growth–interest differential components (arising from 4 to 5 percent growth and negative real interest rates).

10. See Cottarelli and Jaramillo (2012) for a discussion of the feedback loops between fiscal policy and growth in the short and long run.

11. Large emerging economies and smaller emerging economies in Asia tend to have undervalued exchanged rates according to IMF (2012b). However, several emerging economies in Europe and Latin America may have overvalued exchange rates and therefore exchange rate shock may be relevant.

12. See IMF (2012a).

13. Laeven and Valencia (2008) find that the fiscal costs, net of recoveries, associated with banking crisis management can be substantial, averaging about 13.3 percent of GDP, and can be as high as 55.1 percent of GDP.

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