CASE Network
Studies & Analyses

Fiscal Policy Options in light of Recent IMF Research

Mark Allen

No. 421/2011

Warsaw Bishkek Kyiv Tbilisi Chisinau Minsk

This publication has been produced thanks to the financial assistance of the RABOBANK Polska S.A.

Key words: **fiscal sustainability, debt dynamics, advanced economies, fiscal adjustment, public debt**

JEL codes: **F34, H60, H62, H63**

Graphic Design: Agnieszka Natalia Bury

EAN 9788371785320

Publisher:

CASE-Center for Social and Economic Research on behalf of CASE Network

12 Sienkiewicza, 00-010 Warsaw, Poland

tel.: (48 22) 622 66 27, 828 61 33, fax: (48 22) 828 60 69

e-mail: case@case-research.eu

http://www.case-research.eu

Contents

Mark Le Gros Allen *is the Senior Regional Representative of the International Monetary for Central and Eastern Europe. He studied at Cambridge University, Yale, and the Karl Marx Higher Economics Institute in Sofia, before joining the staff of the IMF in 1974. He was Assistant Director for Capital Markets, Senior Resident Representative in Poland and in Hungary, and Director of Policy Development and Review during his IMF career.*

Abstract

The financial crisis and recession have left a legacy of unusually large fiscal deficits and growing sovereign debt levels in most advanced economies. The paper uses recent research from the IMF to throw light on two questions: how much fiscal space is available to advanced countries before they will be compelled to tighten fiscal policy; and how likely are some countries in this group to default? The paper presents work of Ostry *et al. which* defines and measures fiscal space. Fiscal space is defined as the room the government has to borrow before it hits a debt limit, the level of debt to GDP at which the debt dynamics become unstable, unless the government undertakes exceptional fiscal action. The debt limit is a function of the past behaviour of the government in responding to fiscal deficits, and fiscal space depends both on the past policy record as well as the current level of debt. The analysis indicates that all advanced countries except Greece, Japan, Portugal and Spain, probably still have some fiscal space. On the likelihood of default, the paper presents work by Cottarelli *et al.* The paper concludes that the amount of fiscal adjustment needed to avert unsustainable debt dynamics for a number of countries, while large, is not unprecedented, and in any case would not be much reduced by default. The high spreads that have appeared on sovereign debt markets are a poor indicator of subsequent default. And the structure of debt makes default much less likely than in the cases of those (predominantly emerging markets) that have defaulted in the recent past.

Fiscal Policy Options in light of Recent IMF Research

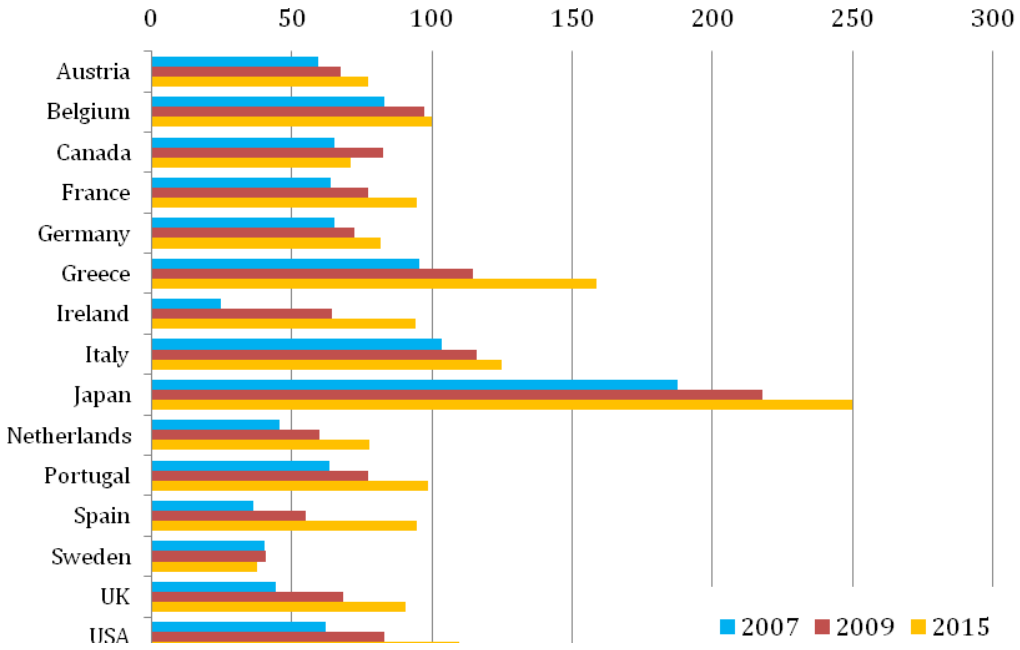
The global financial crisis has gone through several stages and will probably go through several more. What started as a crisis in the US financial sector spread to the financial systems of other advanced economies. It precipitated a temporary collapse in world trade and the sharpest dip in world output for eighty years. The crisis also took its toll on public finances, with markets raising concern about the size of fiscal deficits and the levels of debt in advanced economies. This can be measured by the rise in CDS spreads and the increase in default risk premia for the sovereign paper of advance countries.

This paper presents some of the results of recent analysis by the staff of the IMF that cast light on some of the issues at stake. Specifically, it is based on two recent papers:

- *Fiscal Space* by Ostry, Ghosh, Kim and Qureshi SPN/10/11 (September 1, 2010)
- *Default in Today's Advanced Economies: Unnecessary, Undesirable, and Unlikely* by Cottarelli, Forni, Gottschalk and Mauro SPN/10/12 (September 1, 2010)

Chart 1 shows the extent of the problem. Markets have become concerned, not only at the size of the government debt burdens of the advanced countries, most of which are over 50 percent of GDP and, in the case of Japan, over 200 percent, but also at the rapid growth of this debt over the period since 2007, and the expected continued growth in subsequent years. Apart from the case of Japan, the most eye-catching growth in debt is that of a number of countries in the periphery of the eurozone, notably Greece, Ireland and Spain.

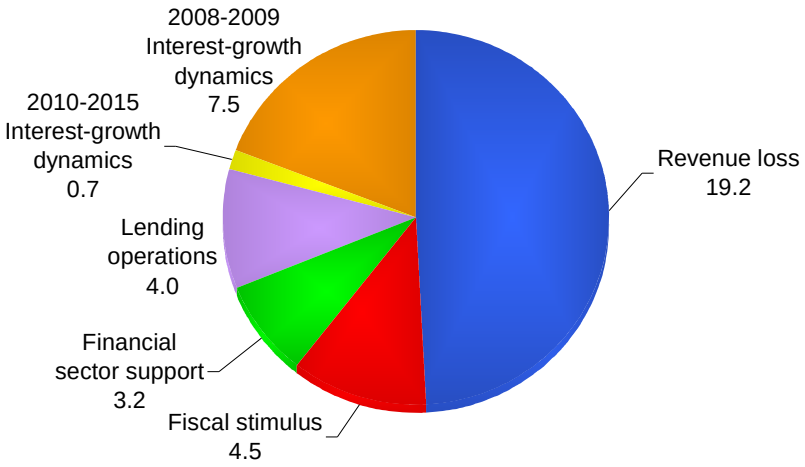
Chart 1. Sovereign Debt to GDP ratio *(percent)*



Source: World Economic Outlook database

The causes of this rapid increase in the deficits of advanced countries have not primarily been attempts to stimulate the economy. Chart 2 shows that fiscal stimulus strictly speaking, together with the costs of recapitalizing insolvent banking systems, only accounts for about a quarter of the increase in advanced economies' debt ratios. Almost as important has been the "debt dynamics" of the period 2008-9, in which the output collapse created a large gap between the interest rate payable on the debt and the rate of growth of the revenue base. (The large effect of this differential reminds us of how important growth can be in the process of reducing debt burdens.) Fully half of the increase in debt, however, reflects the revenue shortfalls caused by the recession and the policy decision to let automatic stabilizers work.

Chart 2. G-20 Advanced Economies: Increase in Public Debt, 2008-15
(Total increase: 39.1 percentage points of GDP; 2009 PPP weighted GDP)

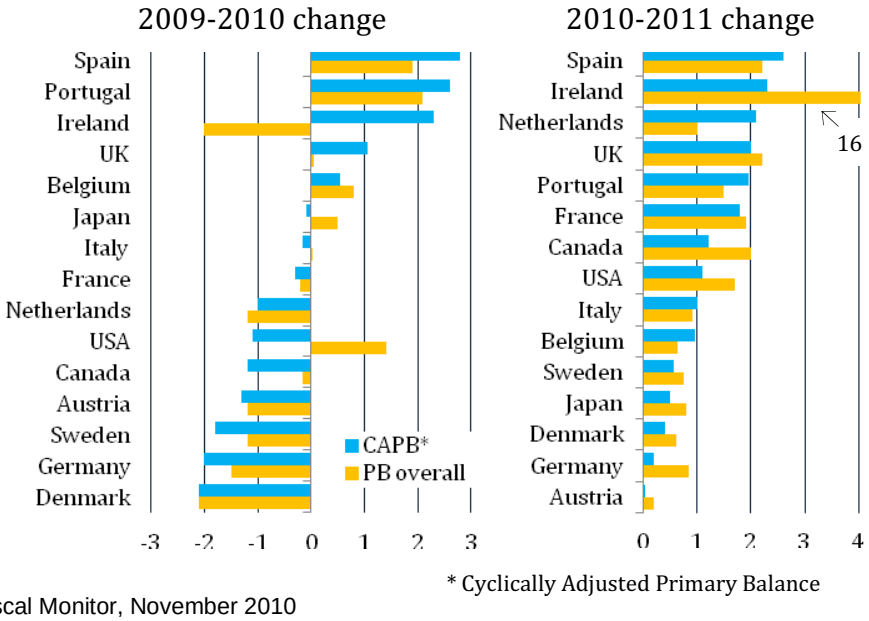


Source: IMF Fiscal Monitor, May 2010

Financial markets are concerned that these debt levels may be out of control, and that some sovereigns may default. However, drastic action to reduce deficits will have a depressing effect on growth and may make it more difficult to reduce debt ratios as the unpleasant debt dynamics described above run their course.[2] For some advanced economies, notably some of those in the eurozone periphery, the very high risk premia point to the need to start fiscal consolidation immediately, even if it hurts the fragile recovery: others, however, seem to have more fiscal space, and do not plan to start consolidation until 2011. (Chart 3)

[2] WEO October 2010, Chapter 3. "Will It Hurt? Macroeconomic Effects of Fiscal Consolidation."

Chart 3. Expected Fiscal Adjustment *(percentage of GDP)*



Source: IMF, Fiscal Monitor, November 2010

The existence of fiscal space gives an opportunity to postpone consolidation until economic recovery is more firmly established. But the concept of fiscal space has not been subject to rigorous analysis, which is the purpose of the paper by Ostry *et al.* This paper establishes two crucial definitions:

- Debt limit – the point at which debt dynamics become unstable without exceptional fiscal effort, and

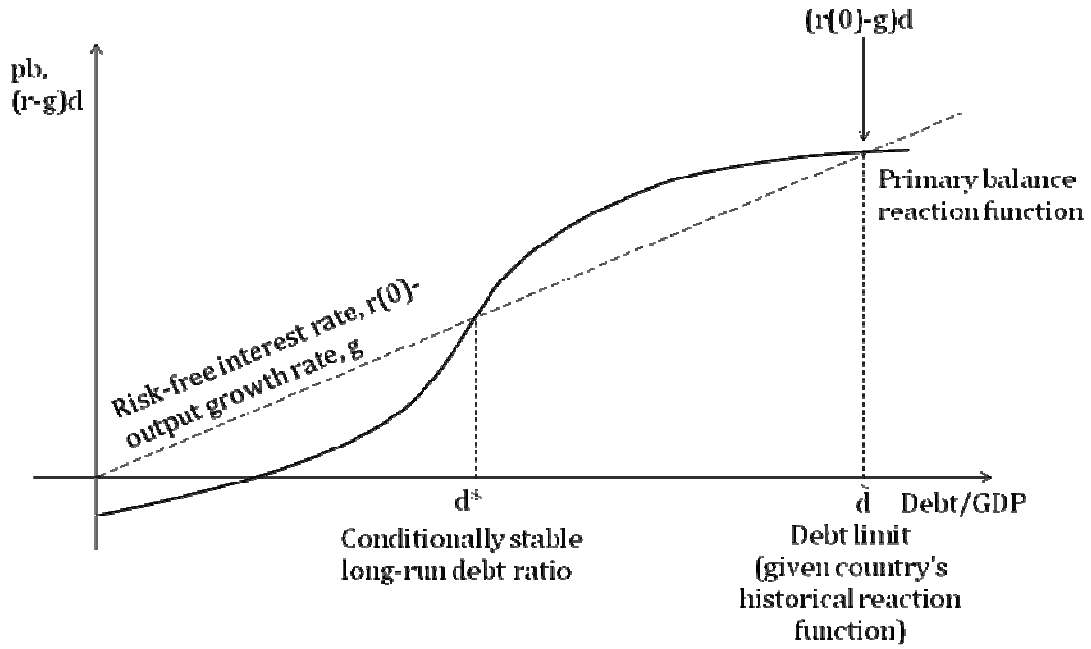
- Fiscal space – the room the government has to borrow before hitting the debt limit.

The authors argue that each country is characterized by a reaction function describing the relationship between the debt ratio and the primary balance. As the debt ratio increases, there will be a tendency for the country to run a larger primary surplus (smaller deficit), tending to bring the ratio down again. There will exist a “debt-ratio-stabilizing equilibrium,” a level of debt d*, at which the primary surplus will equal the differential between the interest rate and growth (i-g). When the debt ratio is above this level, the government will react by increasing the primary surplus, and when it is below, by reducing it. The strength of this reaction will vary country by

country, and is subject to the constraint that the primary balance cannot be increased, even notionally, beyond 100 percent of GDP.

The relationship between primary balance and debt will vary with the level of debt. The authors argue that the marginal response of the primary balance to higher debt ratios will be significantly weaker at higher levels of debt than at more moderates levels. (See Chart 4). This suggests that when debt ratios are very high, it may be more difficult to generate a primary balance that is sufficient to ensure sustainability. Thus d* is only a conditional debt-stabilizing equilibrium. In the chart below, over the range d* to d̃, the primary balance will be greater than the interest-growth rate differential, which will tend to push the debt ratio back towards d*. (In the range 0 to d*, the primary balance response will be less than the interest-growth differential, pushing the debt ratio up towards d*). Beyond, d̃, the response of the primary balance will be less than the interest-growth differential, causing the debt ratio to expand without limit. At this point, only an exceptional fiscal effort that differs from past practice can bring the ratio back under control.

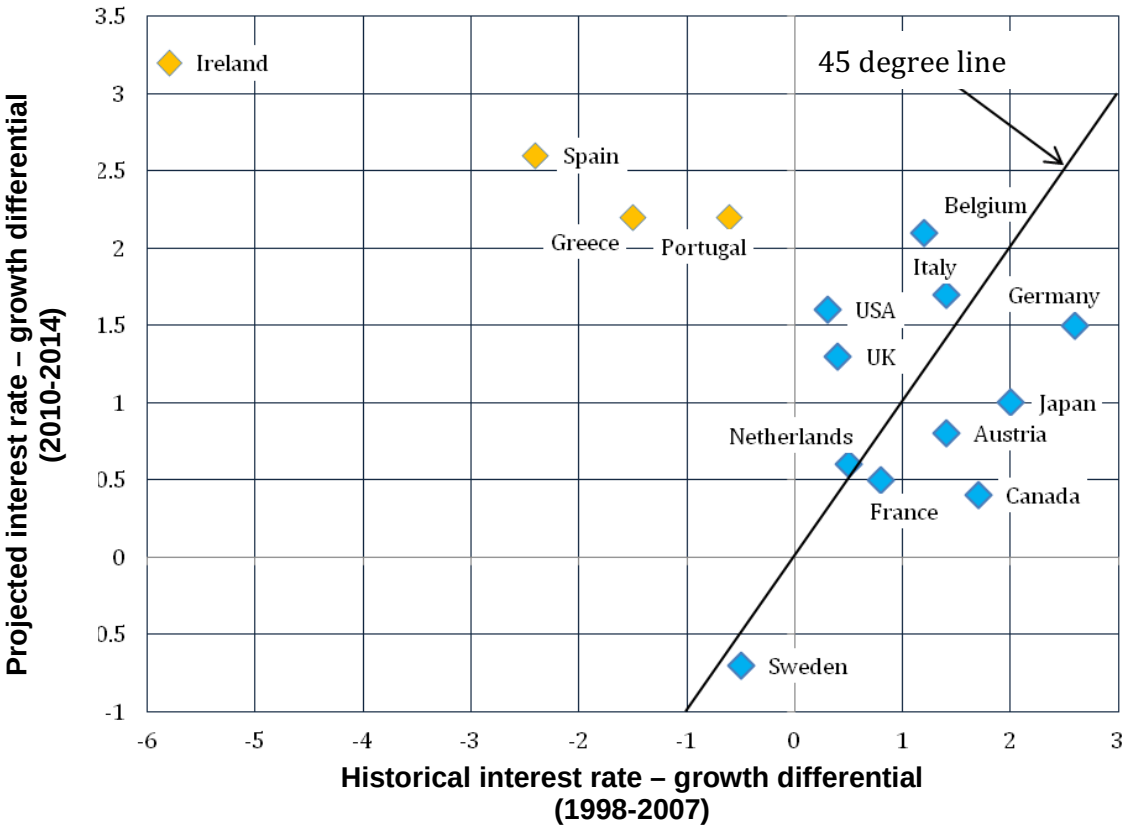
Chart 4. Determination of Debt Limit



Source: Ostry et al.

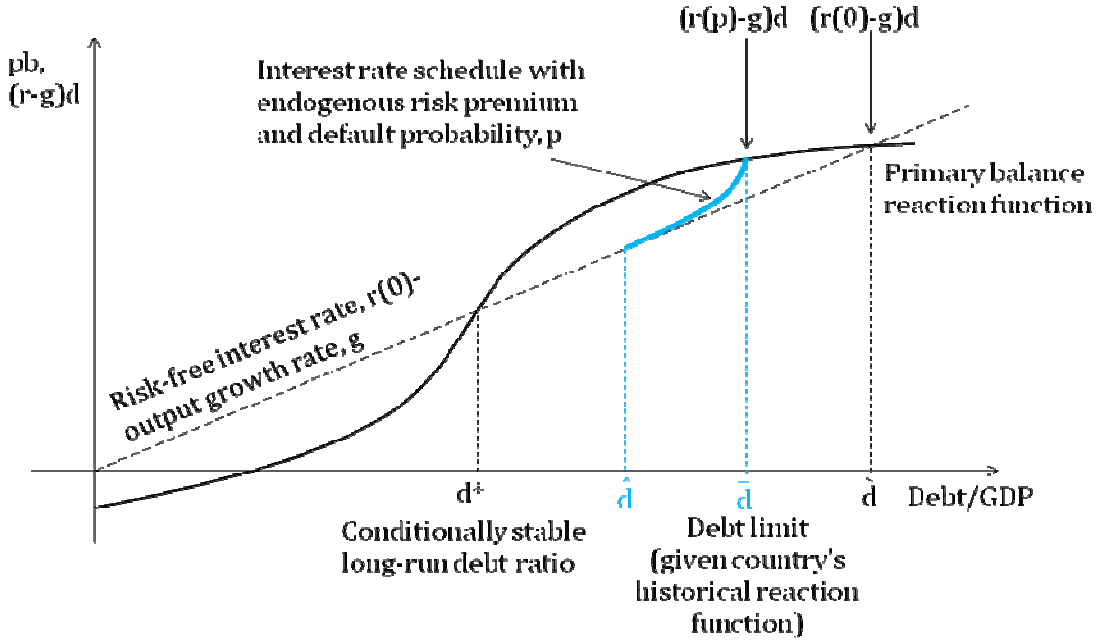
Chart 4 assumes that the interest rate charged on government debt, *i*, is indifferent to the actual debt ratio. In other words, that the markets do not respond to rising debt levels by raising the interest rate at which they are prepared to finance the government. The rising CDS spreads and yields on the debt of sovereigns in the periphery of the eurozone in the early months of 2010 shows how unrealistic this is. (See Chart 5) In fact, once the debt ratio reaches some point well short of $\tilde{d}$, the markets will begin to increase the rates that they charge on government debt. This is shown in Chart 6, where the effect starts at $\hat{d}$. As the debt ratio rises beyond this point, the interest rate charged by the markets will start to rise rapidly, so that the limit at which the debt dynamics become explosive, the debt limit, is no longer $\tilde{d}$ but $\bar{d}$.

Chart 5. Interest-growth differential *(percent)*



Source: World Economic Outlook database

Chart 6. Determination of Debt Limit with endogenous risk premium

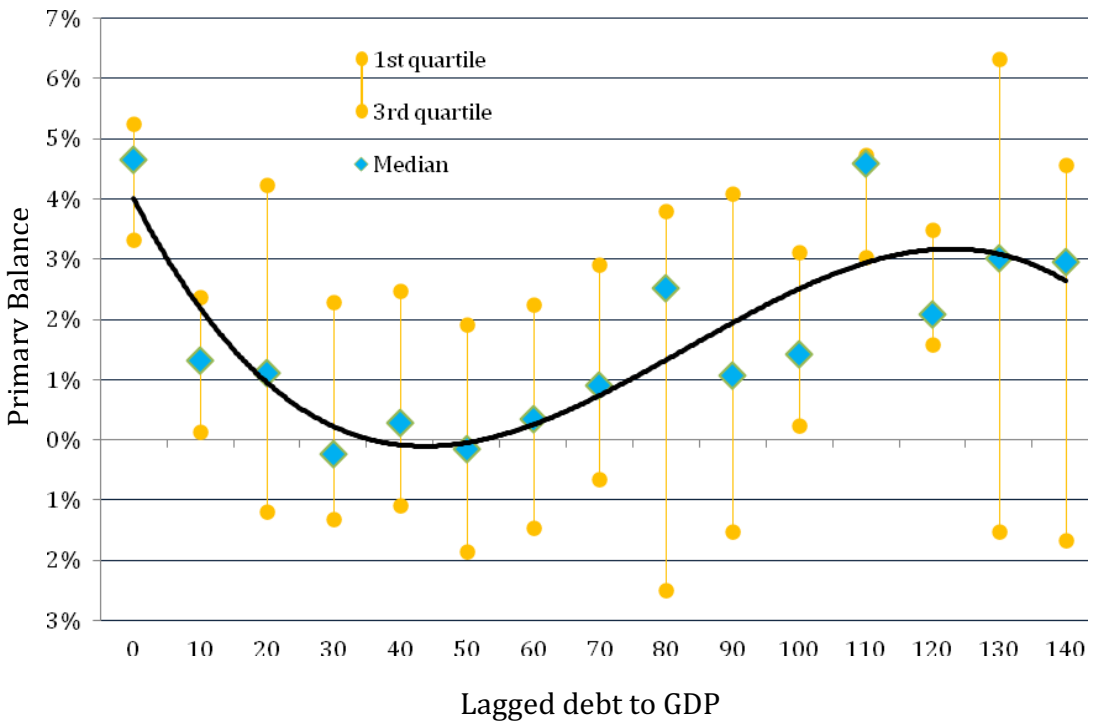


Source: Ostry et al.

With this approach, Ostry *et al.* arrive at an operational definition of fiscal space. It is the difference between the current debt ratio and the debt limit $\bar{d}$. This limit is defined by the country's historical record of fiscal response to the debt ratio.

What is the evidence that the primary balance does respond to the level of the debt ratio in the way described in Charts 4 and 6? Chart 7 presents the range of reactions of some 21 advanced economies between 1970 and 2008, and shows that an s-shaped (cubic) reaction function is indeed plausible.

Chart 7. Primary Balance and Lagged Debt to GDP Ratio *(percent)*

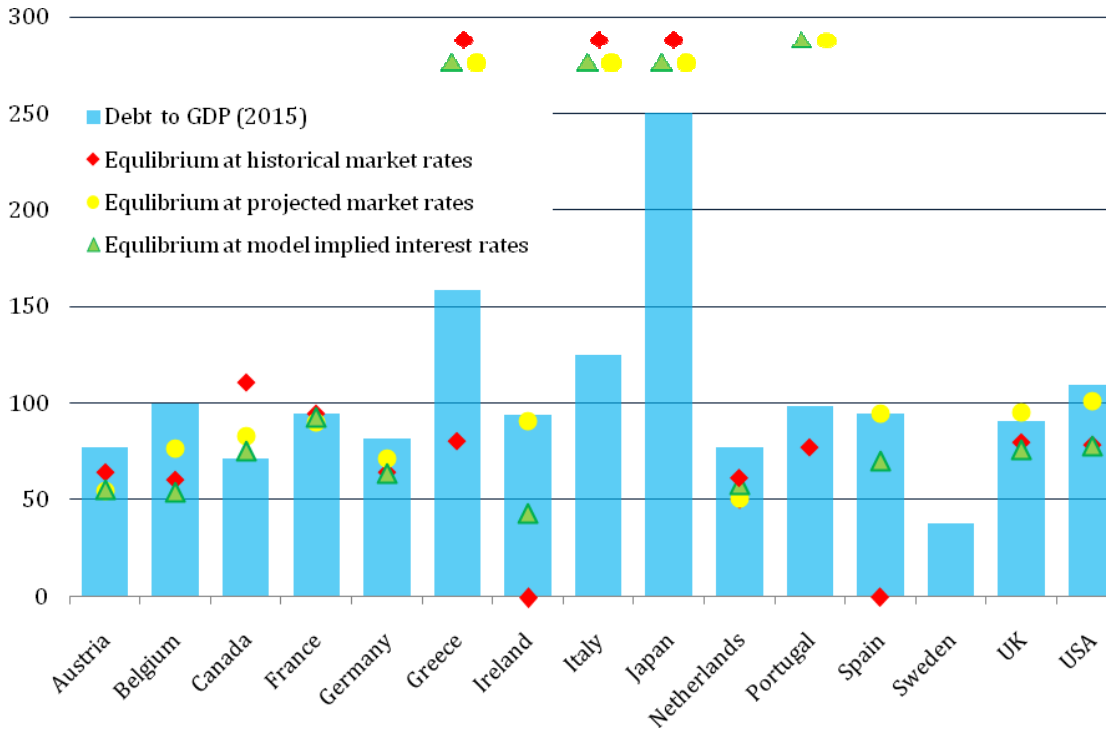


Source: World Economic Outlook database

Cross-country regression estimates show that the ratio of the general government primary balance to GDP is significantly related to the lagged debt ratio in cubic form, and to other well-known influences on the fiscal balance, including the output gap, the government expenditure gap,[3] and trade openness.

[3] The "government expenditure gap" is the difference between actual and potential real government consumption spending.

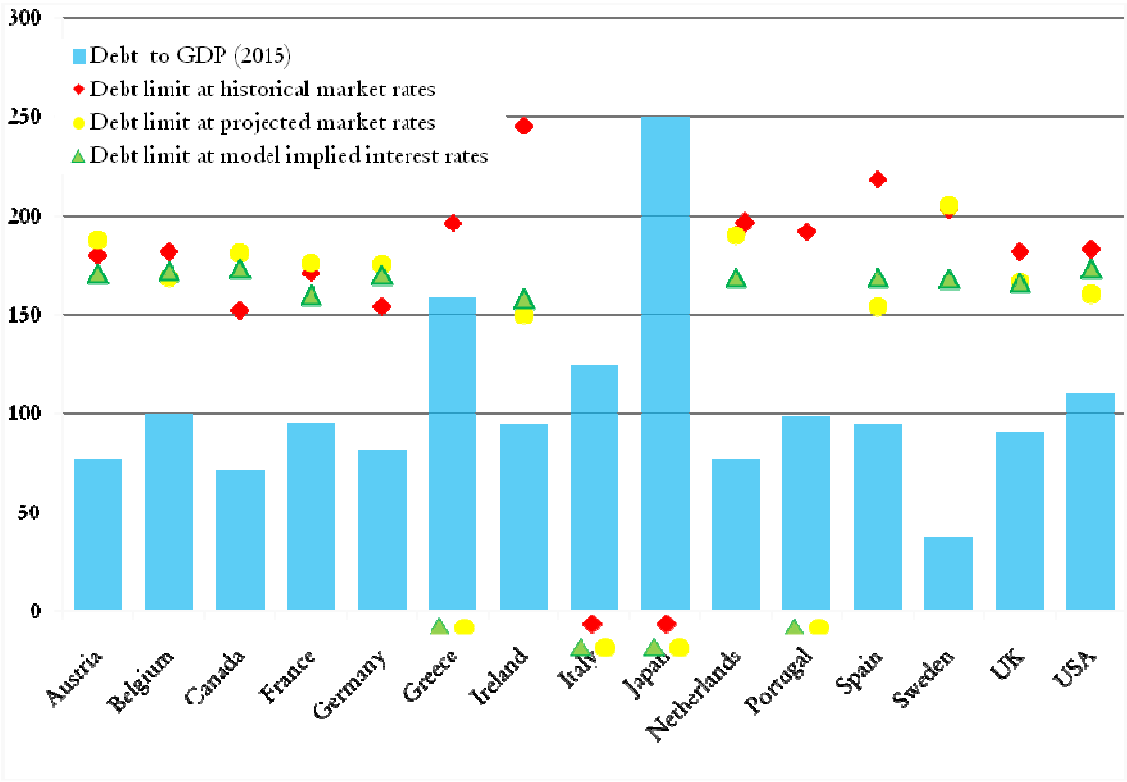
Chart 8. Conditional long-run equilibrium *(percentage of GDP)*



Source: Ostry et al.

Chart 8 shows projected debt levels for a number of countries for 2015, and estimates the equilibrium level of debt, d* in Charts 4 and 6, on various assumptions. For some countries the historical response function implies that the equilibrium debt level that will eventually be reached is zero (or possibly a net asset position). This appears to be true of Sweden, and without the recent crisis might have been true for Ireland and Spain. But for some countries (Greece, Italy, Japan and Portugal), the response function has been such that the equilibrium level of debt without a change in policy is infinite, in other words, without such action there is a risk of unstable debt dynamics in these cases.

Chart 9. Model Implied Debt Limit *(percentage of GDP)*



Source: Ostry et al.

Whereas Chart 8 showed the equilibrium point to which debt would tend in the various cases, Chart 9 shows the debt limit, the point at which the debt-dynamics become unstable, and compares those limits to the projected debt ratios for 2015. As expected, using recent data and an endogenous interest rate, Greece, Italy, Japan and Portugal are already over the limit, indicating a need to run tighter fiscal policies than they have hitherto. For other countries there is still a certain amount of fiscal space. In general, recent developments in terms of policy reactions and market sensitivity have tended to lower debt limits.

Chart 10. Estimates of Fiscal Space *(percentage of GDP)*

	Fiscal Space	p(FS>0)	p(FS>50)	p(FS>100)
Austria	93.4	0.81	0.81	0.38
Belgium	72.1	0.96	0.92	0.05
Canada	101.9	0.81	0.81	0.57
France	64.9	0.66	0.63	0.04
Germany	88.5	0.83	0.82	0.26
Greece	0	0.00	0.00	0.00
Ireland	63.6	0.61	0.59	0.04
Italy	0	0.00	0.00	0.00
Japan	0	0.00	0.00	0.00
Netherlands	91.3	0.81	0.81	0.35
Portugal	0	0.28	0.24	0.01
Spain	74	0.83	0.80	0.06
Sweden	130.2	0.71	0.71	0.71
UK	75.4	0.69	0.69	0.12
USA	63.4	0.82	0.71	0.03

Note: probability lower than 50% is highlighted in red.
Source: Ostry et al.

Chart 10 shows the estimates of fiscal space available to countries beyond their projected 2015 debt levels and based on the picture in Chart 9. This again shows no fiscal space available to Greece, Italy, Japan or Portugal, while Canada and Sweden have over 100 percent of GDP. These are point estimates, but actual fiscal space could be greater or less than this. So the probabilities that there is any fiscal space at all that it exceeds 50 percent of GDP, or 100 percent of GDP, are also shown.

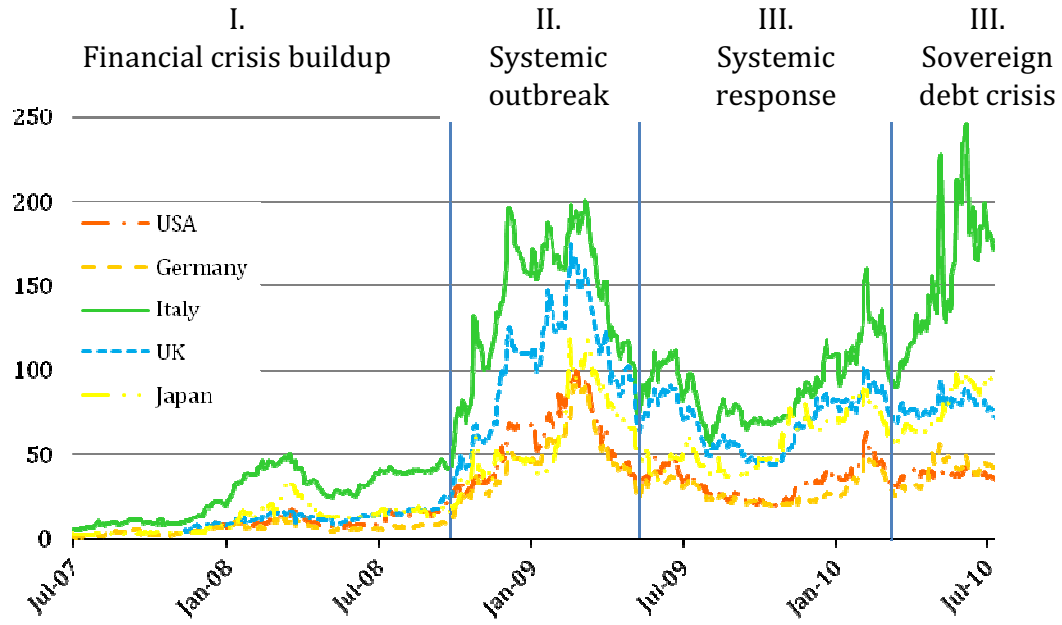
It is important to remember that not having fiscal space does not mean that the sovereign is insolvent. It means that to keep debt under control will require a fiscal consolidation effort greater than has been typical of the past. And on the other hand, shocks can push countries with fiscal space beyond their debt limits. Thus even if fiscal space exists, it may or may not be sensible for the authorities to use that space by running larger fiscal deficits.

If fiscal space is so constrained in some countries, are defaults likely? Cottarelli et al. ask this question in the second paper presented. In this paper, the authors contest the most common arguments that defaults are inevitable, and come to the conclusion that debt restructuring is generally unnecessary, undesirable, and unlikely.

The main arguments advanced by many commentators and market participants that default is inevitable are that:

- Needed fiscal adjustment is too large
- Interest rates make debt burden unsustainable
- Fiscal adjustment will hurt growth and make debt even less sustainable
- Once adjustment succeeds in reaching primary balance, it makes sense to default

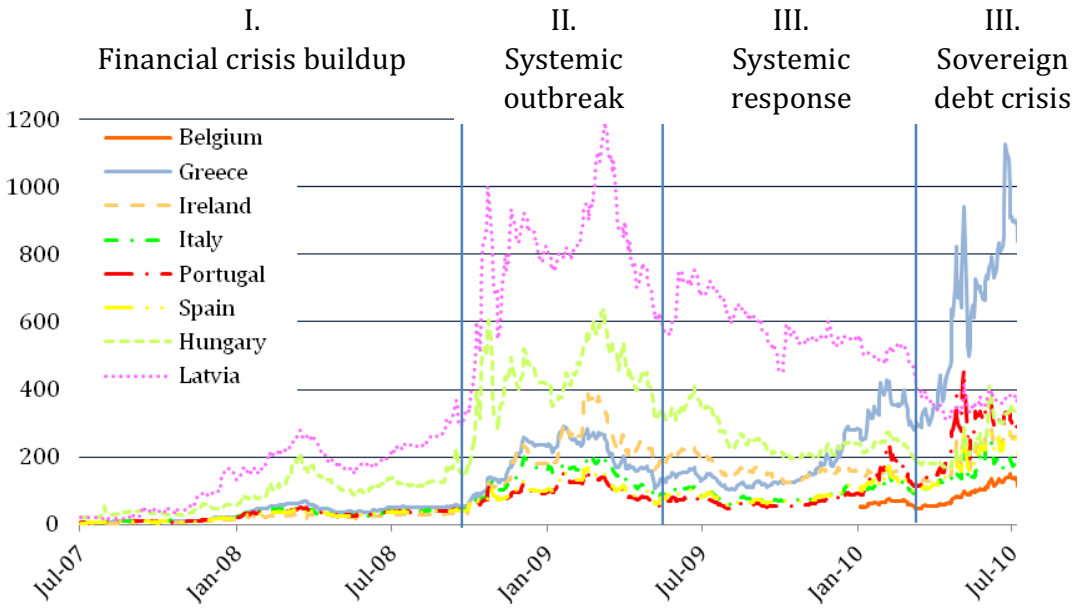
Chart 11. The Four Phases of the Crisis
(5-yr sovereign swap spreads, basis points)



Source: Bloomberg

The risk that a large advanced sovereign government might default on its debt has for long been considered negligible. The CDS spreads on major sovereigns has traditionally been very close to zero and unchanging, and the rate which markets charged to lend to the sovereign was known as the "risk-free rate." Indeed much of finance theory is predicated on the assumption that such a risk-free rate exists. But as Chart 11 shows, the risk premium for major G-7 sovereigns has become significantly positive, and has varied as markets have become concerned with the effect of the crisis on sovereigns' balance sheets.

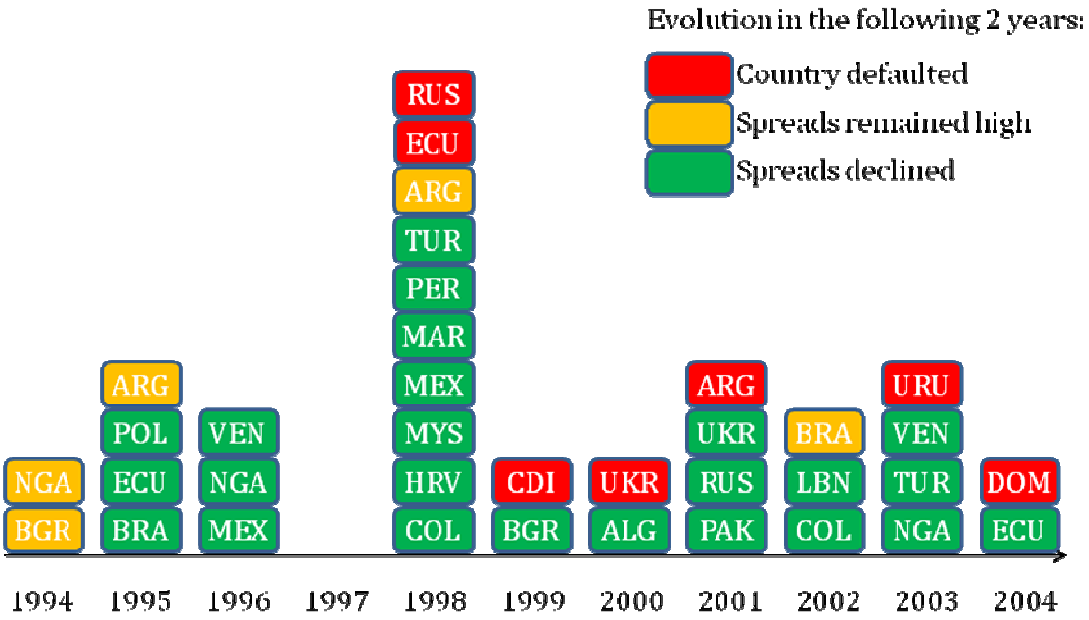
Chart 11. The Four Phases of the Crisis in Europe
(5-yr sovereign swap spreads, basis points)



Source: Bloomberg

The main concern of markets has not been G-7 countries, but smaller countries, primarily in Europe. In the earlier stages of the crisis, the markets rated highly the chance that certain Central and Eastern European governments, for example Latvia and Hungary, might default. But more recently concern has shifted to some of the peripheral members of the Eurozone, firstly Greece, but also to a lesser extent, Ireland and Portugal.

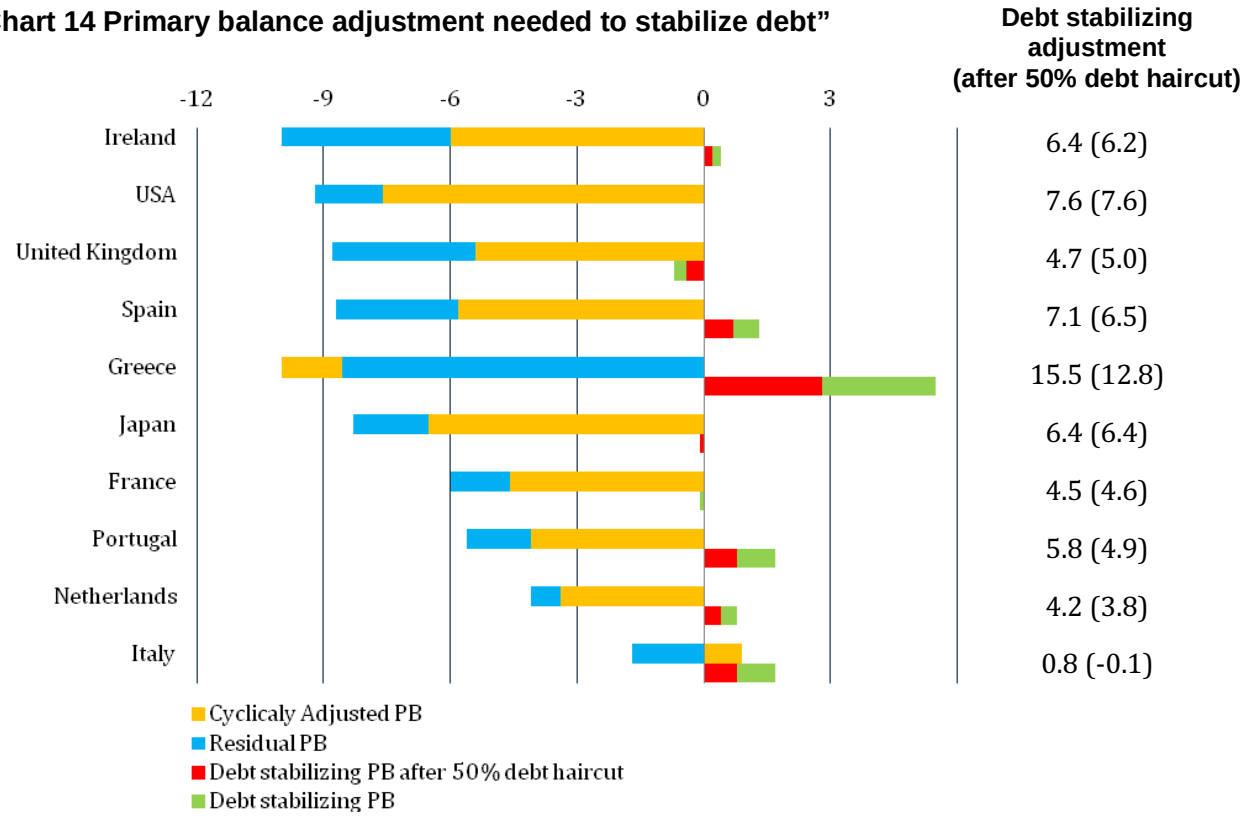
Chart 13. Episodes where EMBI exceeded 1000 points



But are high spreads a good leading indicator of default? The evidence is that they are not. Chart 13 shows some 36 episodes where the spreads (measured by the EMBI index) reached 1000 basis points, indicating a market assessment of a high default risk. In 24 of those cases, spreads declined substantially over the following two years, while in 12 cases they remained elevated, of which only seven were followed by default. So high spreads turn out to be a poor indicator that default is imminent.

The principal argument that certain sovereigns will default is based on the premise that the adjustment costs without default are too large for the country to bear. It is certainly true that several countries have large adjustments to make to bring their fiscal positions under control. However, Cottarelli *et al.* show that the amount of adjustment is only slightly reduced by a default. Even with a 50 percent haircut on debt, after a default financing costs will rise substantially and governments will have to run primary surpluses, which will require significant adjustment.

Chart 14 Primary balance adjustment needed to stabilize debt"



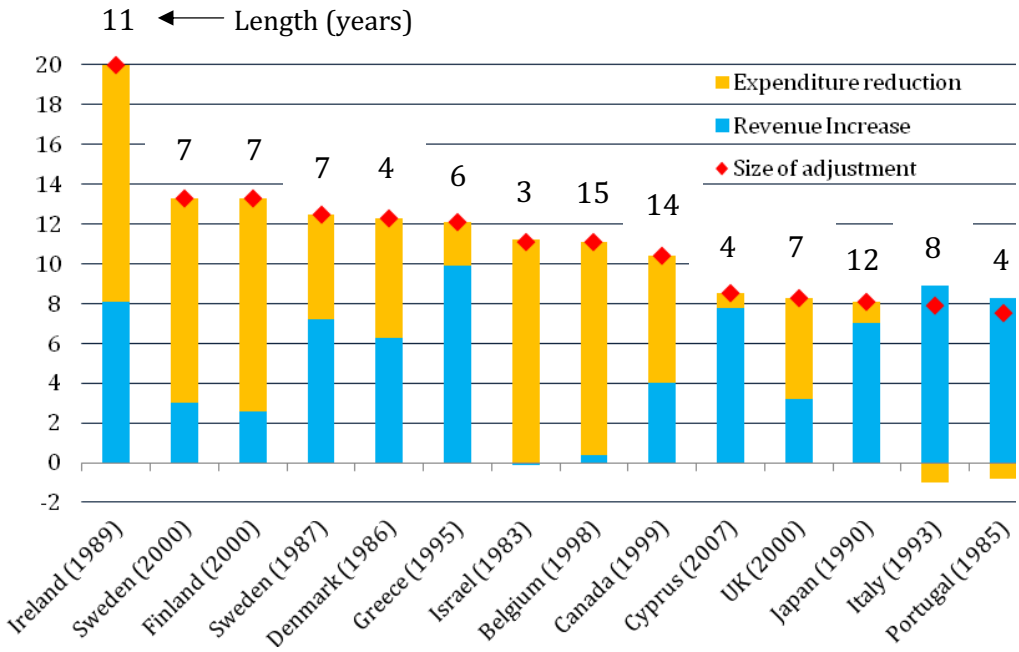
Source: Cottarelli et al.

Chart 14 shows the amount of adjustment certain countries need to make to stabilize the debt at the 2012 level. The size of the adjustment (shown in the right-hand column) is the difference between the cyclically adjusted primary balance and the debt stabilizing primary balance. While this adjustment is large in many cases, with Greece facing a 15.5 percent of GDP correction, it may underestimate adjustment needs, since further action would be needed in some cases to bring the debt down to the level of 60 percent of GDP, while the fiscal costs of aging pose further challenges. But for this paper's purposes, what is striking is that the size of the adjustment is not much reduced by a 50 percent haircut on the debt. Even in Greece, it only brings the needed correction to 12.8 percent, still a daunting challenge.

But how feasible is adjustment of the scale shown in Chart 14, in other words of between 7 and 15 percent of GDP? Cottarelli *et al*. look at a number of episodes of large fiscal adjustment in 14

advanced economies[4] and 26 emerging markets. Some features of these episodes where the fiscal adjustment exceeded 8 percent of GDP are shown in Chart 15.

Chart 15 Large Fiscal Adjustments Experiences (starting year)



Source: Strategies for Fiscal Consolidation in the Post-Crisis World (IMF 2010)

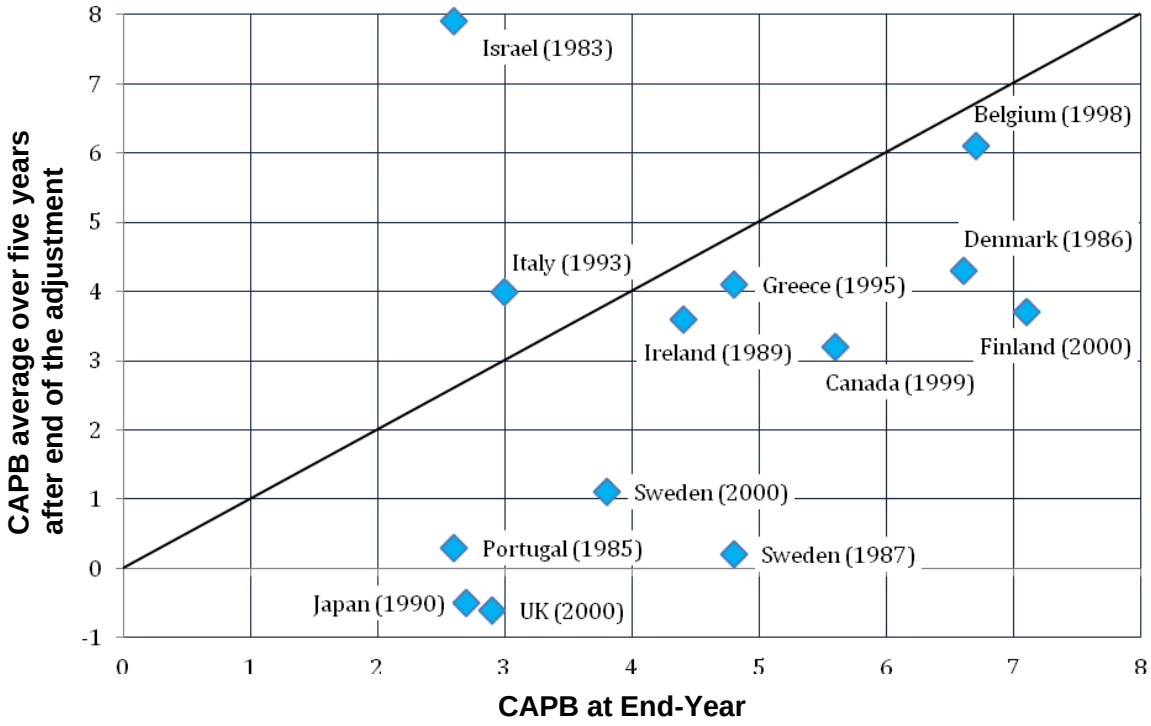
Some features to note are that these adjustment efforts were protracted, most of them taking over seven years, and a significant number over 10 years. The most impressive was adjustment undertaken by Ireland in 1989, which it improved its structural primary balance by 20 percent of GDP over 11 years. (This episode, which demonstrated the Irish authorities' capacity for adjustment, contributed to the finding in the previous study that Ireland retained significant fiscal space.) The chart also indicates that for the larger adjustments, much of the change had to be brought about by expenditure cuts.

While countries have been capable of making adjustment on the scale of that currently needed, their record in maintaining the improved fiscal position is more mixed. Five years after the end of

[4] The fourteen episodes in advanced countries are Belgium (1998), Canada (1999), Cyprus (2007), Denmark (1986), Finland (2000), Greece (1995), Ireland (1989), Israel (1983), Italy (1993), Japan (1990), Portugal (1985), Sweden (1987), Sweden (2000), United Kingdom (2000).

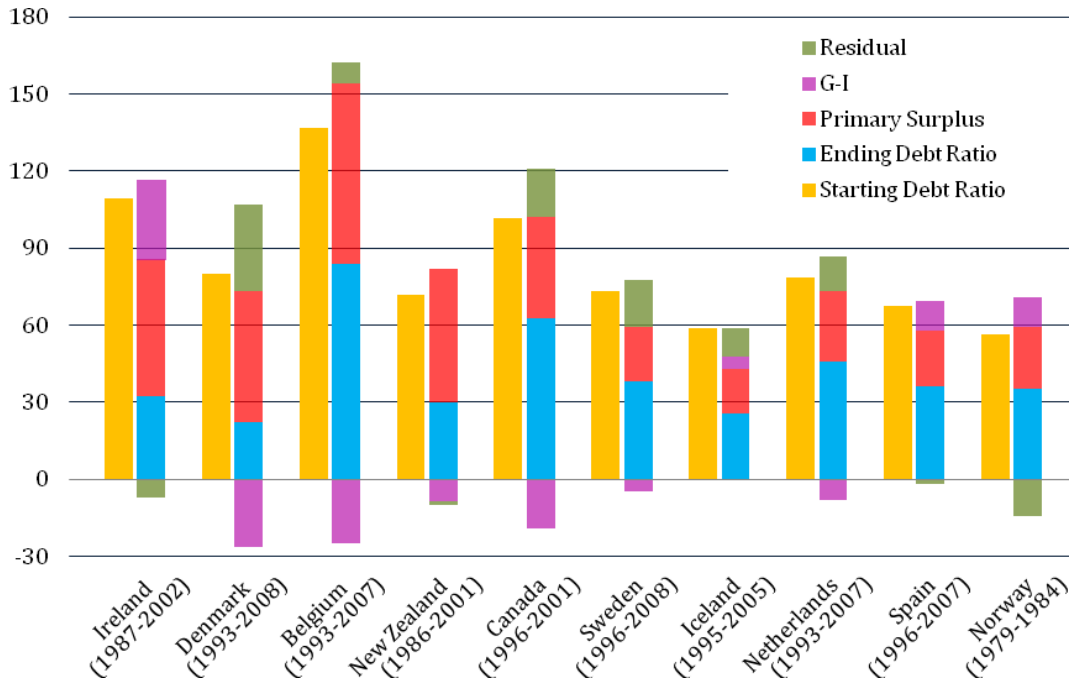
such episodes, most countries had allowed the primary surplus to be reduced (and in the cases of the UK and Japan, to swing into deficit again. (see Chart 16)

Chart 16 Fiscal Policy after Large Adjustments



Source: Strategies for Fiscal Consolidation in the Post-Crisis World (IMF 2010)

Chart 17 Contributions to Fiscal Adjustments

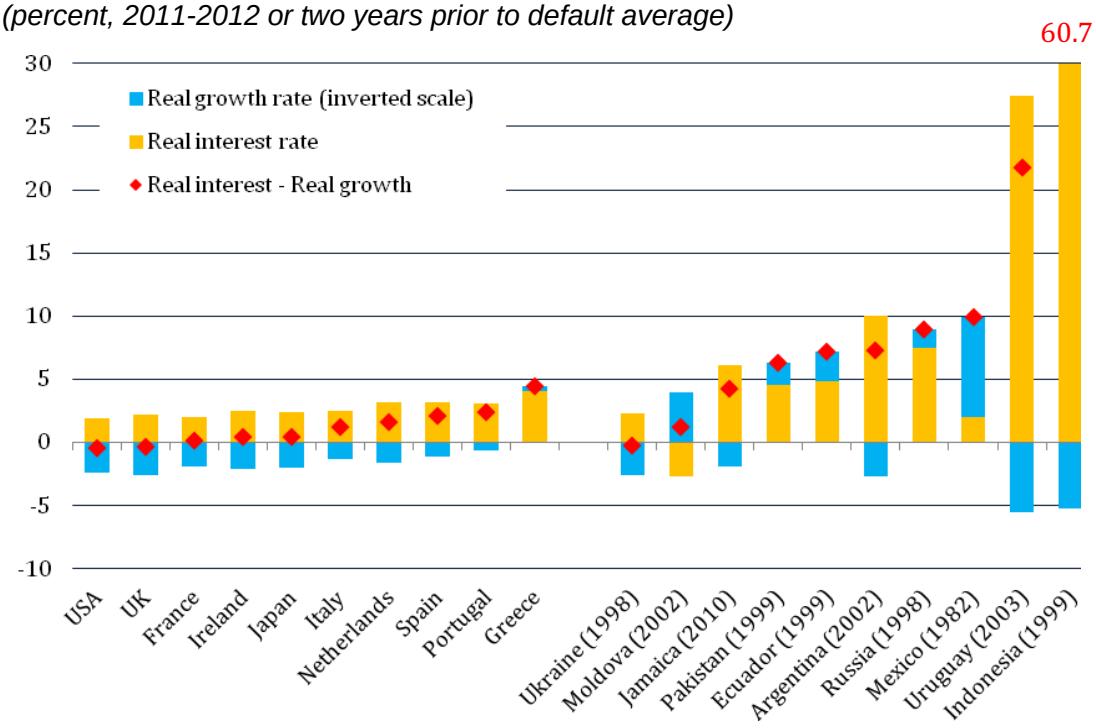


Source: Strategies for Fiscal Consolidation in the Post-Crisis World (IMF 2010)

Chart 17 looks at the underlying factors in selected cases where high ratios of debt to GDP were reduced. The improvement is broken down into that caused by running a primary surplus and that caused by the difference between the growth rate of revenues and the rate of interest on debt (g-i). There is also a residual reflecting other factors that might affect sovereign debt, such as asset sales or the calling of contingent liabilities. The chart shows the overwhelming importance of running a primary surplus in these cases. And in most cases, the growth-interest rate differential has a relatively small effect, being slightly negative in most cases.

Chart 18 Real Interest and Growth Rates

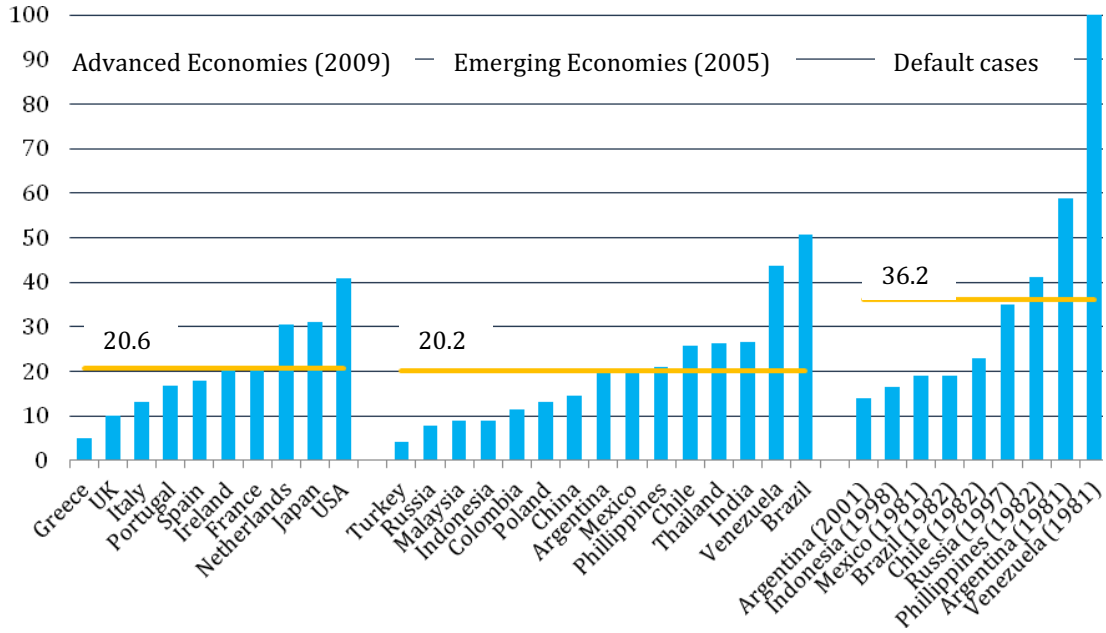
(percent, 2011-2012 or two years prior to default average)



Source: Cottarelli et al.

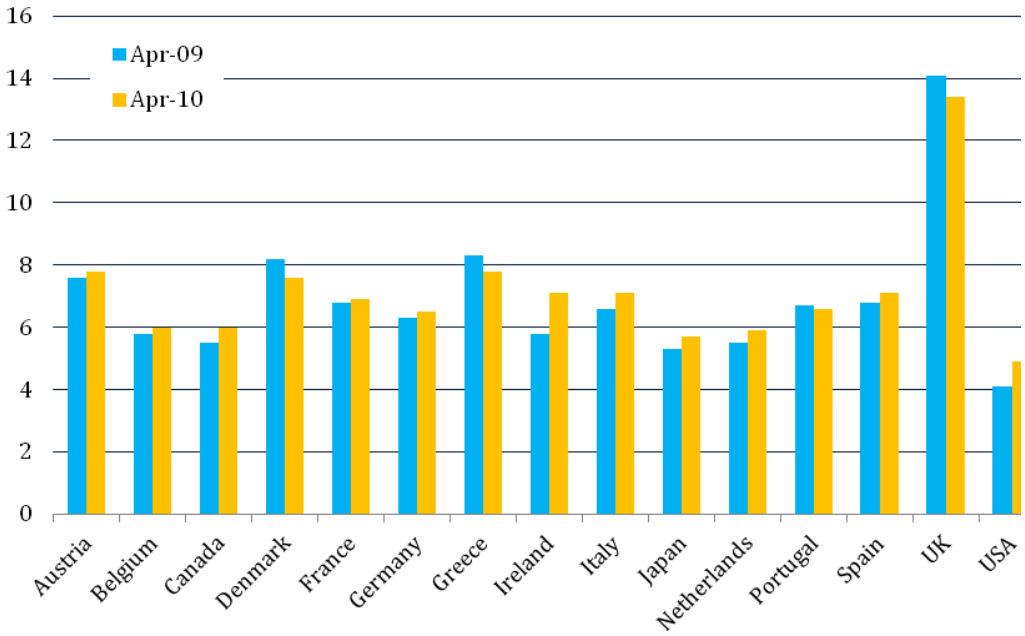
A negative growth-interest rate differential has been the key factor behind most emerging market defaults the authors studied. Chart 18 shows how in the two years before default in several emerging markets, this differential reached very high levels, making the debt ratio unstable and forcing a default. The expected differential for some advanced economies over the next two years is also shown, and indicates that the pressure on the debt dynamics is much less striking than in the default cases.

Chart 19 Maturities of Debt
(share of short-term debt, percent)



Source: Cottarelli et al.

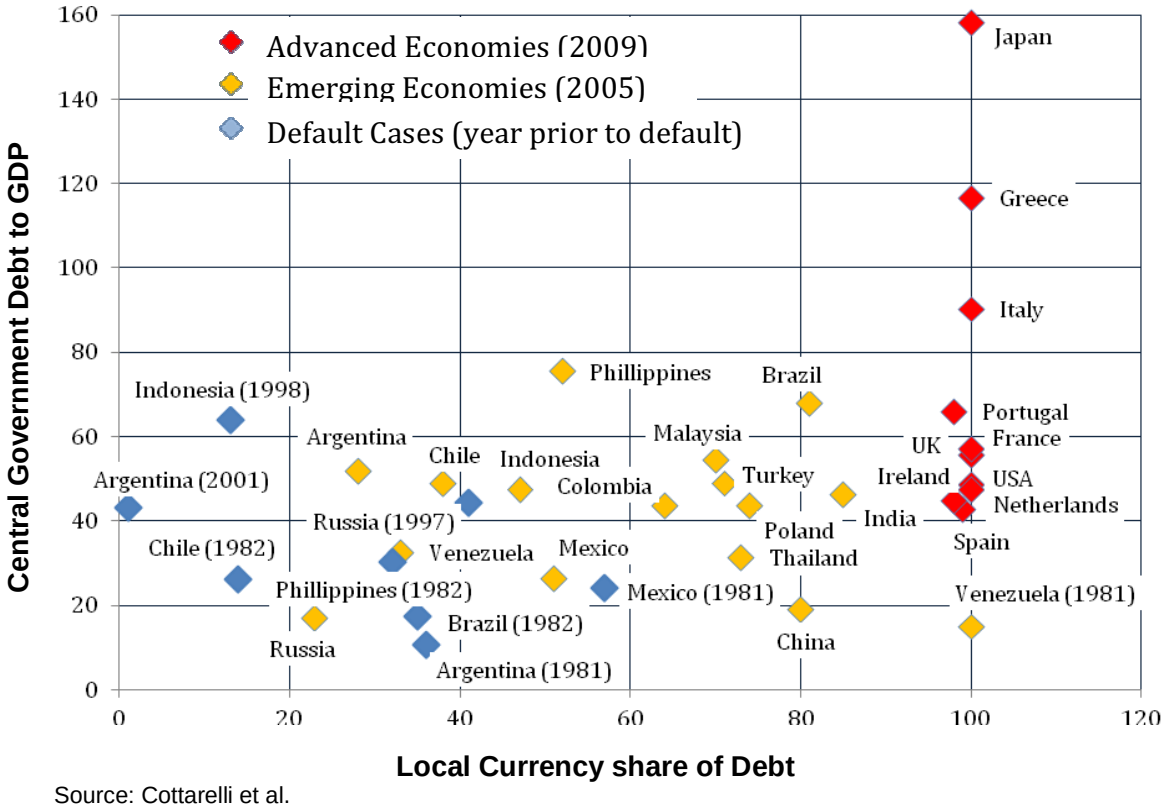
Chart 20 Average Maturity of Sovereign Debt *(years)*



Source: IMF, Fiscal Monitor, November 2010

The protection from adverse debt dynamics comes to some extent from the structure of the debt of the countries in question. Chart 19 shows that the amount of short-term debt of advanced countries (and most emerging markets at this point) is well below the shares characteristic of the default cases. And chart 20 shows the average maturity of the debt of the advanced countries. With such long average maturities, countries have a reasonable amount of time to show the markets that they are serious about adjustment. And in addition, the effect of rising interest rates on the growth-interest rate differential is gradual.

Chart 21 Currency Structure of Sovereign Debt *(percent)*

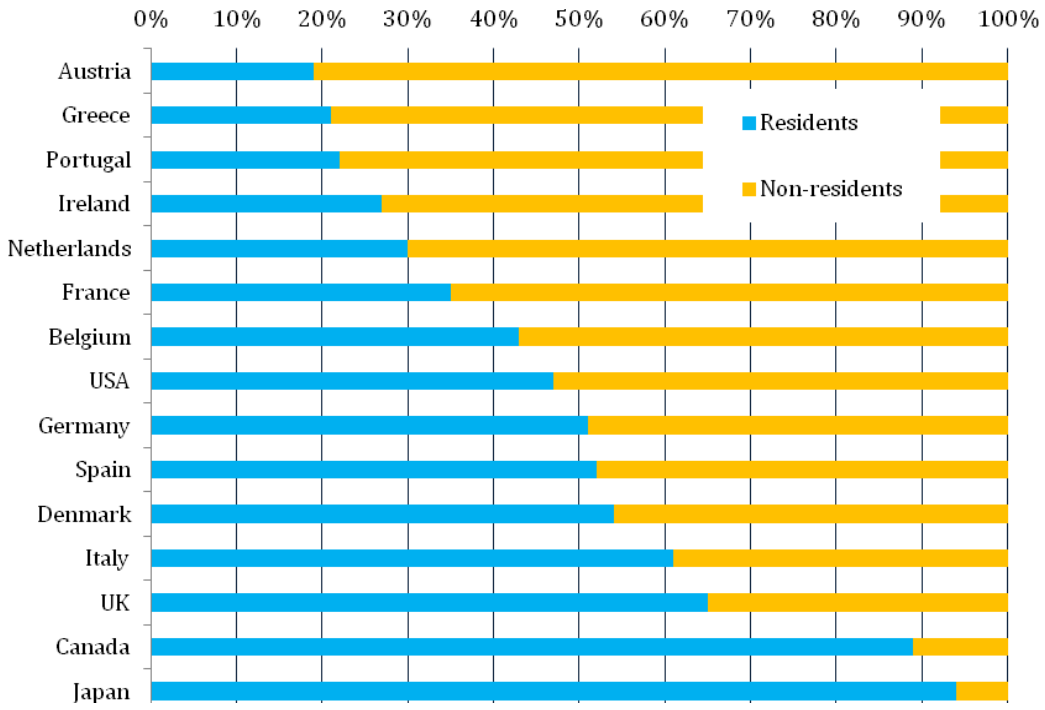


Source: Cottarelli et al.

Another factor that influences the probability of default is the currency structure of the debt and where the debt is held. Vulnerability to exchange rate fluctuations may easily shift the debt burden onto an unsustainable path, as the country is subject to an exchange rate shock as confidence declines or as the country tries to strengthen its balance of payments. The evidence shows that countries where the sovereign defaulted tended to have an above average amount of debt in foreign currencies, often because that constituted a cheaper form of financing when

contracted. Since the Asian crisis, most emerging markets have shifted to domestic markets for the financing of their debt, and advanced economies place almost all sovereign debt in their own currency.

Chart 22 Residency of Sovereign Debt Holders



Source: Strategies for Fiscal Consolidation in the Post-Crisis World (IMF 2010)

The residence of holders of debt may also help or hinder the likelihood of default. Not only may residents be more loyal in their holdings of their government paper, but they may need such paper more for their operations. And in addition, a government that defaults on debt held by residents will inflict more pain on its electorate than one where the debt holders are non-residents.

An extreme example of this may be Japan. The government would find it very painful to default, because 94 percent of sovereign debt is held domestically. A default would create very serious problems for Japanese financial sector, which in turn would require the government to step in and issue new debt as a part of a financial sector recapitalization, reversing some of the benefits (if any) of a default. The situation for smaller Eurozone countries is rather different, in that a

large part of the debt is held in other Eurozone countries. The extent of integration of the financial markets means that any default would hurt their peers, and this is one of the reasons for initiatives for concerted action within the eurozone.

Conclusions

The outlook facing the European and world economy is unusually uncertain at the moment, in large part because fiscal positions of many industrial countries are under strain. Policy-makers and market participants would be much more comfortable, and the uncertainties to the outlook would be much less if fiscal deficits were smaller and sovereign debt levels lower. But how urgent is the task of fiscal consolidation? Is it more sensible to reduce the deficit rapidly and reduce the rate at which new debt is accumulating, or would it make sense to do so slowly so as not to jeopardize the shaky recovery and reduce the revenue-generating capacity of the economy? And is default an option available to policy-makers, and one which market participants need to fear? The paper presents research that casts light on these problems.

The paper provides policy makers with a way of thinking of fiscal space, of how much room is available to them to provide economic stimulus, and concludes fiscal consolidation is only urgent in a few of them. As a practical matter, the main virtues of the paper is as a framework for analysis, as the factors governing the calculation of fiscal space change and unexpected events, for example, the incurrence of large bank guarantee costs by the Irish state, can both use up fiscal space and reduce the market's estimate of the sustainable debt level. Of course, to have fiscal space is not the same as to use it: the more conservatively government's treat the space, and the more vigorously they respond to higher primary deficits, the more space becomes available to use if the event arises. And the current levels of deficit and debt stemming from the recession and financial crisis do need to be reined in.

The size of adjustment required in a number of advanced economies is large, but not unprecedented, indicating that default in most cases is not inevitable. A substantial part of the expanded deficits was caused by relatively recent policy action, often by establishing expenditure commitments on the mistaken view that boom-time revenues were permanent. To the extent that such commitments are new, governments should be able to reverse them more easily, since they have not had time to get entrenched. It can also be observed that, once a country has embarked on a difficult adjustment strategy, it tends to stick to it. The experience and achievement of the Baltic countries is striking in this regard. But most of the countries that

adopted strict adjustment strategies following a spike in spreads maintained the effort, at least until they had convinced the markets that default was not on the cards.

In any case, the adjustment problem that the most seriously affected advanced countries face is one of an excessively large primary deficit, not an exceptionally heavy interest or debt-service burden. The structure of debt is such that even in adverse circumstances, it will take time for the interest burden to rise to dangerous levels. Thus the countries involved do have an opportunity to convince the markets of their seriousness. Many countries have faced the spreads that are now confronting certain advanced economies in Europe and have come through without a restructuring. Thus the market signals should not be interpreted as pointing to an inevitable rescheduling outcome.

Many advanced countries do face the task of very large fiscal adjustment. Default would not help, but would rather be a distraction from the job at hand.

References

Cottarelli, C., Lorenzo Forni, Jan Gottschalk, and Paolo Mauro, 2010, "Default in Today's Advanced Economies: Unnecessary, Undesirable, and Unlikely" IMF Staff Position Note No. SPN/10/12 (Washington, International Monetary Fund).

Ostry, Jonathan D., Atish R. Gosh, Jun I. Kim, Mahvash S. Qureshi, 2010, "Fiscal Space" IMF Staff Position Note No. SPN/10/11 (Washington, International Monetary Fund).

IMF, 2010, *Fiscal Monitor: Fiscal Exit: From Strategy to Implementation* (Washington, International Monetary Fund), November.

IMF, 2010, *World Economic Outlook: Recovery Risk, and Rebalancing* (Washington, International Monetary Fund), October.

IMF, 2010, *Strategies for Fiscal Consolidation in the Post-Crisis World* (Washington, International Monetary Fund).