The Risk Octagon: A Comprehensive Framework For Assessing Sovereign Risks By Carlo Cottarelli Rome and London¹ January 2011

In my presentation I would like to discuss the conceptual framework that we have introduced with the Fall 2010 Fiscal Monitor of the IMF—and that we will expand in the Spring 2011 Monitor—to discuss fiscal sustainability risks in the world, and, in particular in advanced and emerging economies. This will give me an opportunity to discuss various aspects of the current fiscal outlook. It will not be a full treatment, though, as work is still in progress. For that, you will have to wait for the publication of the Spring Fiscal Monitor.

When we talk about sovereign risks we need to ask first: what is the event that we are concerned could materialize in the absence of fiscal adjustment? In principle, there are at least two unpleasant events that we would like to avoid:

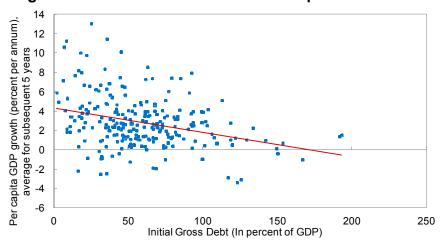
- The first is a roll-over crisis of varying intensity, ranging from an interest rate surge to open default on public debt.
- The second is what I would call "the Japan syndrome," a situation in which there is no imminent risk of instability but the weight of high public deficits and debt are a drag on economic growth.

I think all economists would agree that a roll-over crisis has severe effects on the economy. We have seen various examples, including recently in Europe, of how negative these crises can be for confidence and economic growth.

It is perhaps more controversial how bad the stabilization of public debt at high levels is for the economy. Ken Rogoff and Carmen Reinhart have identified a threshold of 90 percent of gross public debt beyond which growth starts suffering. Their paper does not, however, take into account the possible reverse line of causality (from low growth to high public debt). Moreover, it is not based on econometric analysis.

¹ This presentation was delivered at a seminar held at the Sapienza University in Rome on January 25, 2011. A shorter version was presented in a seminar held at Politeia in London on January 26, 2011.

Figure 1. Government Debt and Per Capita GDP Growth

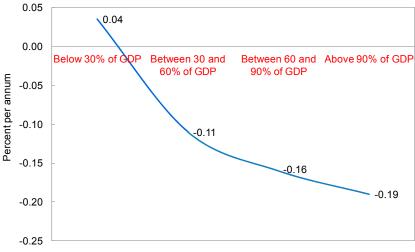


Fitted line: Growth in Y/L=4.31-0.025*initial debt, where the initial debt coefficient is significant at 1 percent

Source: Kumar and Woo (2010).

To reduce, at least, the problem of reverse causality one can plot debt ratios against the growth rate in the following five years. (Figure 1) You still get a negative slope. Moreover, a more recent econometric study by IMF staff that takes into account the possibility of reverse causality finds that the relationship between an increase in public debt and a decline in growth is described by the curve in Figure 2. So I think that one can conclude that, in addition to problems for growth arising from a debt crisis, one should also be worried about problems for growth arising from high, even if stable debt.

Figure 2. Impact on Subsequent Growth of Real per Capita GDP of a 10 Percent Increase in Initial Debt-to-GDP Ratio



Source: Kumar and Woo (2010).

The risk framework that we have introduced in the Fiscal Monitor focuses on both these two unpleasant events. Here, however, I will present a discussion that, while also relevant for the

risk of falling into a Japan-syndrome situation of high debt and low growth, is primarily addressed at assessing roll over risks or fiscal sustainability risks.

Before proceeding, however, I want to address a possible objection. Why do we need to assess fiscal sustainability risks? Isn't the market already doing this for us? Rather than analyzing the various components of risk—which as we will see requires addressing formidable problems—why not simply rely on market indicators, using interest rate spreads and differentials. I do not want to dismiss the use of market indicators. But, first, market indicators also reflect the likelihood that a government receives non market financing from other governments or the IMF, and so they do not reflect the weakness, per se, of the fiscal situation. Second, we are trying to provide policy makers with a framework that would allow policies to be adjusted before markets react negatively. And, third, markets do tend to react late (and when they do they often tend to overshoot). The recent European crisis is a good example of this.

Figure 3. Credit Default Swap Spreads for Selected Advanced Economies (basis points)

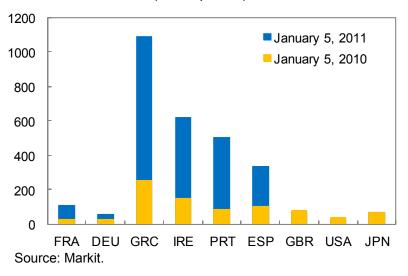


Figure 3 shows the CDS spreads in late 2009 and where they are now. In the case of Ireland spreads started rising only in the summer of 2010. And I do not think these responses can just be due to additional information available.

Our risk framework is a way of classifying the various components affecting the risks of a roll-over crisis and can be applied to individual countries or, as in the case of the Fiscal Monitor, to country groups.

It is based on what I can call a risk octagon (Figure 4). The main idea is that we are trying to look at all factors that affect the probability that the move of certain fiscal indicators into

dangerous territory, or other form of shocks, will trigger a negative market response. This in turn depends on: (i) the expected value of many fiscal variables based on certain baseline assumptions (e.g., on policies and key macroeconomic developments); (ii) the risk that shocks affect these policies and developments; and (iii) what for the moment I will call "other factors."

Shocks
Affecting
the Baseline

Projected
Fiscal
Variables
Using
Baseline
Assumptions

Other
Factors

Figure 4. The Risk Octagon

The first three components of the risk octagon refer to the value of key fiscal variables projected in the short, medium and long term on the basis of certain baseline assumptions.

The first dimension refers to basic fiscal variables relating to fiscal solvency projected for the short and medium term based on certain baseline assumption. Following standard fiscal solvency analysis, these variables could include the primary balance, the debt stock, the differential between interest rate on public debt and the growth rate of GDP, these variables netter out of temporary components, etcetera. I will not discuss here what should be the best set of variables to be used for this purpose, as work is still undergoing on this issue. But the idea is that, as these variables deteriorate, roll-over risks increase. This could be seen as a linear process or a non-linear one, involving some key threshold. And, of course, the link between these indicators and the perception of risk does not need to be the same for all countries. Debt tolerance, for example, has traditionally been seen to be lower for emerging economies, involving lower thresholds, for example (this is relevant in this context to the extent to which the factors affecting debt tolerance are not captured in other elements of the risk octagon).

The crisis led to a major deterioration in these fiscal baseline projections, although mostly in advanced countries. (Figure 5) (These are still the projections of our Fall 2010 Fiscal Monitor.) The new projections will be published on January 27. Before the crisis the deficit to GDP ratio for advanced countries was relatively contained (while public debt was at an historical peak even before the crisis). During 2008–10, a major deterioration took place led by a weakening in the primary balance. The latter, in turn, has a cyclical component but the

cyclically adjusted primary balance also deteriorated by some 5 percentage points of GDP. It is important to note that only about 2 percentage points of this deterioration were due to discretionary fiscal stimulus. The rest is due primarily to what we regard to be a loss of potential output that is going to be persistent. This is a key reason why in our medium-term projections, while things are improving, the primary balance never goes back to where it was before the crisis, even when as in 2015, the output gap is essentially closed. I will come back to this point when I talk about risks around this baseline. As a result of these persistent deficits, the debt-to-GDP ratio of advanced countries is projected to rise by some 35 percentage points of GDP by 2015.

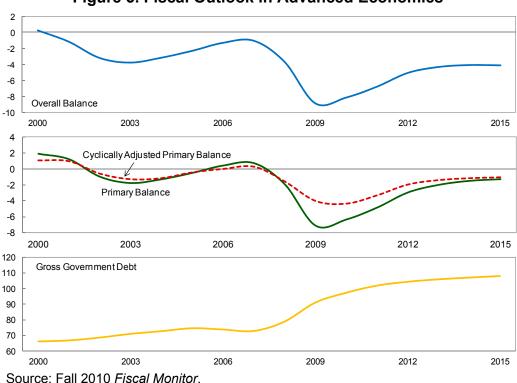
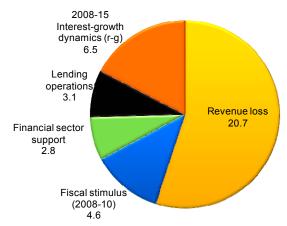


Figure 5. Fiscal Outlook in Advanced Economies

Figure 6 includes a decomposition of the increase in the debt-to-GDP ratio anticipated between end-2007 and end-2015 in advanced countries. Most of the increase is due to the loss of revenues arising from the recession, with only about 10 percent due to the fiscal stimulus undertaken, although with the recent fiscal stimulus initiatives undertaken by the

U.S. and Japan this percentage is bound to increase a bit.

Figure 6. Advanced G-20 Economies: Change in Debt-to-GDP Ratio, 2007–15 (Total increase 37.6 percentage points of GDP; 2009 PPP-GDP weighted)

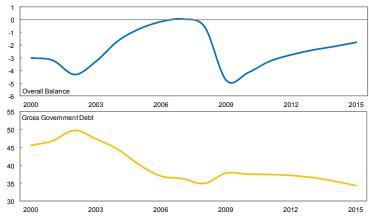


Source: Fall 2010 Fiscal Monitor and staff estimates.

Within advanced economies, however, three groups of countries are now emerging. First, you have those where the deterioration in the fiscal accounts is leading to major market pressures. These countries, primarily in Europe, are now tightening fiscal policies, with upfront adjustments, namely and adjustments that are stronger in the first year than over the medium term. Second, you have most countries which are not yet under pressure but will start tightening fiscal policy in 2011, to varying degrees. Finally, you have the two largest advanced countries—the U.S. and Japan—where fiscal policy will not be tightened significantly in 2011, following recent decisions to postpone the adjustment to 2012; in the U.S., you actually have a fiscal expansion. These two countries still have a lot of credibility, but it is clear that a loss of confidence in their ability to service their debt would have devastating effects on the world economy.

Things look better in emerging economies. (Figure 7) This is primarily because the recession was milder in emerging economies and because these countries in the run up to the crisis had taken the opportunity of lowering their deficit and debt-to-GDP ratios to historical lows. As a result, the deficit declined significantly already in 2010 and will continue to decline in the following years, with the debt-to-GDP ratio resuming a declining trend, at least under baseline assumptions on interest rates and growth. However, things are not the same in all emerging economies. Emerging Europe, in particular is suffering much more from the crisis with persistently higher deficits and debt increases including in 2011. It is also somewhat worrisome that some emerging economies are now increasing spending through booming revenues related to overheating conditions and what may turn out to be later asset bubbles. Catching developments like this would require using, as fiscal indicators, fiscal balances adjusted not only for the output gap, which is relatively easy, but also for asset and commodity prices, something we recognize should be done but is proving difficult in practice. We are still working on this.

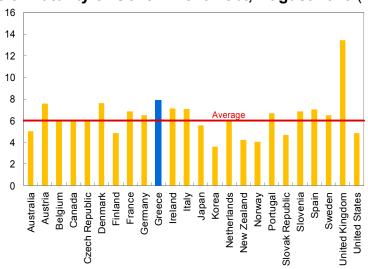
Figure 7. Fiscal Outlook in Emerging Economies



Source: Fall 2010 Fiscal Monitor.

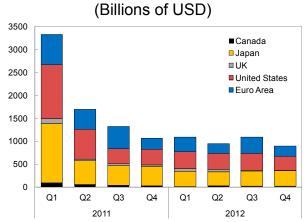
The second dimension of the risk octagon refers to the medium-term outlook for variables affecting asset and liability management. This is relevant because the lower the financing requirements, the lower is the risk that underlying fiscal solvency concerns will lead to a rollover crisis before they can be addressed. Here I would like to make two points. First, the situation of some advanced countries that are under financial market pressure would have been much worse if these countries had entered the crisis with shorter debt maturity. (Figure 8) The debt maturity of Greece, for example, is one of the longest among advanced countries. As a result, the high interest rates on the secondary market on the debt of these countries has had so far a limited impact on the average interest rate on their public debt, which is one of the reasons why in a recent paper we have argued that the risk of default is not as high as markets currently believe. The second point I want to make, however, is that 2011 will be a challenging year for some advanced economies, particularly the first quarter due to a bunching of maturities in several countries. (Figure 9)

Figure 8. Maturity of Government Debt, August 2010 (Years)



Source: Bloomberg; and October 2010 World Economic Outlook.

Figure 9. Advanced Economies Aggregate Sovereign Bond Rollovers¹

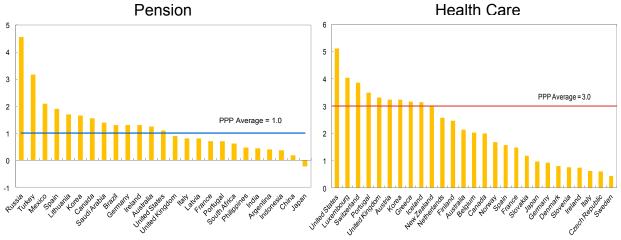


Source: Bloomberg.

¹Includes principal and interest payments on both short-term bills and longer-term bonds.

The third dimension refers to factors that would affect long-term trends in the fiscal variables belonging to the first dimension: among these the most important are pension spending trends and health care spending trends. In principle, this item also includes other factors that affect long-term fiscal trends, such as increased spending needs to fight global warming, or the possible erosion in revenues arising from increased tax competition. Strong long-term potential growth, which affect the long-term growth of fiscal revenues, is also something that should be included, at least conceptually, here (this is indeed one factor often listed by market analysts to explain why the U.S. is less vulnerable to speculative attacks than, say, lower growth European countries).

Figure 10 and 11. Projected Increase in Pension and Health Care Spending (2011-30)



Source: European Commission (2009); OECD (2009 and 2010); Country authorities; CBO Report (2009) and IMF staff estimates.

I will here focus, however, only on challenges arising for both advanced and emerging economies due to aging and, in the health sector, to what we call technological progress. Some basic data: we project pension spending to increase in both advanced and emerging economies in the next twenty years by 1 percentage point of GDP due to population aging. (Figure 10) The increase in advanced countries would have been 3 percentage points without the reforms implemented in the last twenty years. Things are even more challenging in the health care sector, where we have recently revised our projections (Figure 11). For advanced countries we expect an increase of three percentage points of GDP, one percentage point of GDP in emerging economies. Most of these increases, particularly in advanced countries, are due not to aging but to the likely availability of new medical products at higher costs. This has been the main driver of spending increases during the last 40 years, and, unless something changes, is likely to remain so in the future.

Let's now move to assessing the uncertainty around the baseline projections described in the first three dimensions. We focus explicitly on three dimensions of uncertainty—although probably more could be found—relating to three kinds of shocks.

(Percent of GDP)

35
30
25
20
15
10
Ireland United Germany United Greece France Japan States

Figure 12. Selected Advanced Economies: Net Cost of Financial Sector Support (Percent of GDP)

Source: Fall 2010 Fiscal Monitor, and country authorities.

First, we consider shocks arising from contingent liabilities of the government. Traditionally, fiscal analysis has focused on contingent liabilities arising from contractual obligations of governments, such as public-private partnerships. But it is now clear that non-contractual commitments are also critical. And those arising from the financial sector can have devastating effects on the fiscal accounts, as we have seen during the recent crisis. Figure 12 reports our current estimate of the direct support to the financial system provided by the countries most affected by the financial crisis. The figures refer to the net cost, which takes into account the recovery so far of what was initially injected. One feature stands out: the cost of direct support varied enormously across countries. It is perhaps quite surprising that

the cost of direct support has been so low in the United States where the crisis started: the figure reported in the chart is around 3 percent of GDP but the Congressional Budget Office now projects a cost of less than 1 percent taking into account what is likely to be recovered in the future. This compares with $2\frac{1}{2}$ –3 percentage points of GDP for the Savings and Loan crisis. The low cost of direct support in this country is due to the effective way in which the crisis was managed and also to the nature of the crisis in which the underlying cost was relatively contained. One should also add that the cost of direct support was also relatively low because of the willingness to expand fiscal policy in support of the economy (which is the indirect fiscal costs of the crisis).

These projections are already included in our baseline, so the risk here is that we will find out later that there are also some hidden costs somewhere in the financial system. This, I believe is a key reason why financial markets are still very worried about some European countries. This uncertainty needs to be addressed as soon as possible.

(Percent of GDP)

100

80

60

40

200

2000

2003

2006

2009

2012

2015

Source: Fall 2010 Fiscal Monitor.

Figure 13. Ireland: General Government Gross Debt

One last comment on this area: there are various ways to face uncertainty. One is to keep your fiscal variables, for example public debt, at a level that is prudent enough so that, when a shock hits, public debt can easily act as shock absorber. This makes sense but when it comes to shocks from the financial crises, I do not think this strategy can work, especially for countries where the size of the financial sector is several times the size of GDP. The debt-to-GDP ratio in Ireland, (Figure 13) for example, was as low as 20 percent before the crisis. It is now over 100 percent. I think that the only sensible strategy for governments is to reduce the risks that the financial sector become a source of risk for the fiscal accounts, through regulation (as well as through taxation aimed at reducing the risk taking propensity of the financial sector, as we have discussed in a recent report).

The second source of shock relates to macroeconomic assumptions, particularly growth, interest rate and exchange rate assumptions. These shocks can operate by affecting revenues and spending, or by affecting the value of government assets and liabilities. Long lasting shocks are of course more relevant. Growth is especially important as it affects not only the debt-to-GDP dynamics, given a certain primary balance, but also the primary balance, given certain policy settings.

The traditional approach followed in this area is to look at fan charts describing how certain fiscal variables, such as the debt-to-GDP ratio, are affected by shocks. These shocks are typically distributed around an unbiased baseline, with the magnitude of the fan charts reflecting the volatility of shocks around past regression lines. However, in assessing forward-looking risks, it is also important to keep in mind that the baseline itself can be biased. Here I would mention two factors that are particularly important in affecting our current perception of risks.

Figure 14. Real GDP (in levels, 2000=100) Advanced **Emerging** 150 300 145 280 140 260 135 240 130 125 200 Oct. 2007 Oct. 2007 **WEO** WEO 120 180 Oct. 2010 115 160 Oct. 2010 110 140 120 105 100 2004 2006 2008 2010 2012 2014 2000 2002 2006 2008 2010 2012 2014 Source: Fall 2010 World Economic Outlook.

The first is that the baseline projection is based on the assumption that the crisis led to a major loss of potential output which is not going to be recovered even in the medium term. Figure 14 reports the World Economic Outlook (WEO) projections for advanced and emerging economies before the crisis. These are our Fall 2010 WEO projections: output levels never catch up with the original baseline. The corresponding revenue loss for advanced economies equals about three percentage points of GDP, a huge amount. This output projection is based on the experience of the effect of previous financial crisis, but there were exceptions in the past. So, perhaps, we may see a faster output recovery than we are now projecting and, consequently, better fiscal accounts than in our baseline.

The second source of surprise, however, goes in the opposite direction and it relates to the interest rate assumptions underlying the baseline. You know how important the interest rategrowth differential is for the fiscal accounts. In our projections the differential in the coming five years is quite low by historical standards, indeed negative on average. (Figure 15) This is possible in a period of still low growth but it is unclear to me whether this is consistent with the surge in the debt-to-GDP ratio that we are observing in the same period.

(Percent) Advanced **Emerging** 1.6 0.0 1.4 -1.0 1.2 -2.0 1.0 8.0 -3.0 0.6 -4.0 0.4 0.2 -5.0 0.0 -6.0 -0.2 -0.4 -7.0 1996-2000 2001-2007 2011-2015 1996-2000 2001-2007 2011-2015

Figure 15. Interest Rate Growth Differential

Source: Fall 2010 Fiscal Monitor and staff estimates.

The interest rate-growth differential is also a source of uncertainty for emerging economies. The favorable fiscal outlook for these countries is premised on the continuation of a largely negative differential. There is an economic puzzle here. Economic theory tells us that this differential cannot be negative for a long time because otherwise agents could borrow and invest more financing the capital accumulation with increased income later (which should drive up interest rates). And yet, the differential has been negative on average for emerging economies for decades. Figure 16 reports the average differential plotted against per capita GDP for the average of the ten years before the crisis. It is largely negative for most emerging economies, marked in blue. It is also quite volatile, though, with increases hitting emerging economies periodically and often causing crises. I believe that we will not be very sure about fiscal projections in emerging economies until we understand better why the differential is negative on average and why it is so volatile. One could think that the differential is negative because the financial market is globalized so that every country faces the same real interest rate, while growth rates in emerging economies are much higher. However, the fact is that the real average interest rate on public debt is negative in most emerging economies. I suspect this reflects primarily financial repression and inflation in

emerging economies, something that needs to be taken into account as these countries liberalize their financial sector.

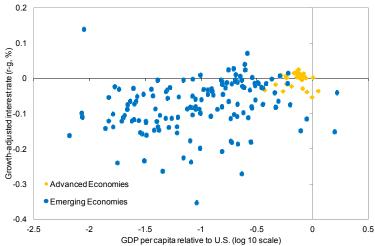


Figure 16. Interest-Growth Differential: All Countries, 1999-2008, Average

Source: IMF staff estimates.

The third kind of shock relates to fiscal policy itself, namely to the possibility that policies deviate from those underlying the baseline. The traditional approach here is to rely on a estimating a reaction function and using the residuals of such an estimate to assess the risks of significant deviations from the projected baseline. However, this is where it is important to take into account also the possibility that changes in fiscal institutions affect the way policies are implemented. A strengthening of budgetary institutions, the introduction of fiscal rules, the setting up of independent fiscal council to monitor fiscal developments can reduce the risk of deviations of policies from initial policy announcement. Note also that: (i) institutions can also affect the likelihood of corrections going beyond the "medium-term" horizon considered under the first risk dimension; and (ii) conceptually, one can also include here factors—such as a tradition of fiscal rectitude or the ability to correct fiscal policies when needed—that are also relevant in affecting market perceptions that adjustment will take place beyond the time horizon included under the first risk dimension. Finally, country-specific political shocks should conceptually be included in this dimension: they are also important in triggering negative market reactions, as they may affect future policy implementation.

I do not have time to get into a discussion of the progress, or lack thereof, made in the last couple of years in strengthening fiscal institutions. An important development is the reform of the Stability and Growth pact in the European Union, which goes in the right direction but could have perhaps have gone a little further, in particular in giving more power to the Commission in taking key decisions regarding the enforcement of the Pact. Many countries are proceeding on their own, such as Germany which introduced a constitutional fiscal rule, or the U.K., which set up an independent fiscal council. But there have also been some

important setbacks as in Hungary, where the fiscal council has de facto lost its role. More generally, much more progress is needed in strengthening fiscal institutions. We are discussing with the G-20 progress made in the area of budgetary institutions, where even the leading countries have still quite a lot to do. For example, the United States does not have a medium-term budgetary framework approved by Congress. The budgetary process is essentially a one-year-at-a-time exercise.

The next risk dimension relates to nonfiscal variables that do not affect directly the fiscal accounts. It is now apparent that the likelihood of a fiscal crisis also depends not only on the public sector balance sheet, but also on the overall conditions of the economy, including the availability of overall saving. I have already mentioned the spillovers from the financial sector to the public sector. The issue is, however, more general: there is, for example, a view, even if perhaps the underlying theory is not fully clear, according to which countries facing twin deficits are more likely to suffer speculative attacks, which could also lead to a run out of government paper. There seems to be also growing consensus, including in Europe, that high levels of private debt, possibly through contingent liabilities for the government, increase the risk of speculative attack against government paper.

DEU 6 Current Account Balance RUŞ IND JPN MEX BRA KOR ŪSA ♦ GBR FRA •ESP -14 -8 -2 0 2 -12 -10 -6 -4 Overall Fiscal Balance

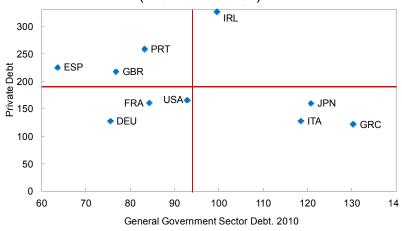
Figure 17. Selected Advanced and Emerging Economies: Fiscal and Current Account Balances, 2010 (Percent of GDP)

Source: Fall 2010 Fiscal Monitor.

Let's look at which countries are more exposed in this respect. Figure 17 plots the fiscal deficit against the current account deficit in 2010: countries that have both a higher-than-average fiscal and external deficit are the lower left-hand side quadrant: this includes some of the countries currently under pressure in Europe. It also includes the United States, although the current account deficit there has declined significantly. Figure 18 plots public debt against private sector debt: here we find only one country (Ireland) that is above average in both respects. If you add public and private sector debt, you have the country ranking depicted in Figure 19. One caveat: private debt is important but one should not take low

private debt as an excuse for not implementing fiscal adjustment. A high level of public debt is more than enough to generate unpleasant effect.

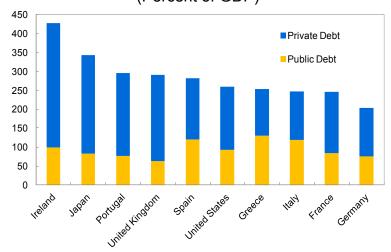
Figure 18. Selected Economies: General Government and Private Sector Debt¹ (Percent of GDP)



Source: November 2010 Fiscal Monitor and Haver Analytics.

¹Private sector debt includes debt of households and the non-financial corporate sector. Data are for Q2-2010 or latest available.

Figure 19. Selected Economies: General Government and Private Sector Debt (Percent of GDP)



Source: November 2010 Fiscal Monitor and Haver Analytics.

The last dimension of risk has essentially what we could call general (i.e., not fiscal specific) market sentiment or risk appetite. Given all other variables that we have discussed, and risks surrounding these variables, a higher propensity of the private sector to take up risk reduces the likelihood of a crisis. This is tricky, though, as, with respect to a worsening in risk appetite, we need to distinguish between two groups of countries. On the one hand you have those that are considered as safe havens. For them, a worsening of risk appetite leads to

increasing investment in their government paper. This includes clearly the United States. On the other side you have countries where a worsening of risk appetite leads to an outflow from the government paper market. These are also the countries that would be affected by "contagion," in case one of them suffers a speculative attack. We need to do more work in this area to understand what puts a country in one or another class, given certain fundamentals. But one point seems clear, namely that the status of safe haven is not something that is cast in stone. Here, perhaps a sort of Lucas Critique would ultimately prevail: countries benefit from this status, as long as they do not abuse it.

This completes our discussion of our fiscal framework for risk assessment.

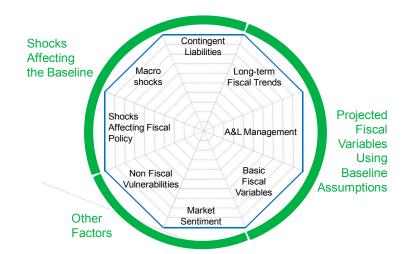


Figure 20. The Risk Octagon

How do we implement all this? As I said, this can be used as a way of organizing your thoughts in thinking about fiscal risks. This is how we used it in the Fall Fiscal Monitor. A more ambitious step that we are undertaking, at least for some risk dimensions, involves assigning to the various dimensions an index ranging from, say, 1 to 10, with 10 implying maximum risk (measured both in terms of likelihood and magnitude of the risk) (See Figure 20). Statistical tools can easily be applied in some cases, for example those arising from the fiscal crisis literature: one can identify thresholds for some fiscal indicators included in the first risk dimension beyond which, based, on statistical relationships, the risk of crisis is expected to increase significantly. Of course, for some of the risk dimensions a lot of judgment may be needed to operationalize this framework. The predictive power of fiscal indexes with respect to government crises is low but the issue is too important and it is our job to try to identify, including through our judgment, changes in the degree of risk.

There are several caveats that need to be considered in applying this framework, especially if we want to move from a multi-dimension approach to a single summary indicator of risk.

First, the risk dimensions are not independent from each other, including with respect to fiscal policy decisions. For example:

- A weakening in the fiscal baseline can reflect the expected materialization of some risks, and therefore be accompanied by an improvement in some risk dimensions, or vice versa. We had a recent example of this when, at the time of the Fall Fiscal Monitor, following the revisions in the World Economic Outlook, we revised up our potential output estimate for the United States, which lead to an improvement in the primary balance path for the advanced countries as a whole by about ½ percentage point of GDP. We noted, in doing so, that we were reducing the room for positive output surprise shocks.
- Various elements of risks could move in the same direction: for example a weakening of
 market sentiment can lead not only to a weakening in the corresponding dimension, but
 also to a reduction in maturity composition, and hence a weakening in the asset and
 liability management dimension.

Second caveat: these dimensions so far enter our analysis in an unweighted way. We do not try to identify which risk dimension are more relevant, something that can vary across countries. This makes it more difficult to try to summarize this in a single risk indicator. Indeed, even each risk dimension is in turn a composite of various indicators, and we are working on this too.

The third caveat relates to the policy implications of this work. Fiscal risks are not the only thing that matters in shaping fiscal policies. Otherwise it would be sufficient to aim at the lowest possible degree of risk. Things are more complicated in reality as fiscal policy has its own ends. To provide public services, for example while avoiding excessive distortionary taxation. Fiscal policy should also play a role in reducing output fluctuations, typically through automatic stabilizers but, in some cases, also through countercyclical policies. Always aiming at reducing fiscal deficit is unlikely to be optimal.

Indeed, this is at the core of the policy debate on how fiscal policy should be handled currently, especially in advanced countries. Discussing these other policy goals would require another presentation. As Olivier Blanchard and I noted in a recent blog, there are ways to improve the trade-offs between the demand supporting role of fiscal policy and the risk-minimizing role, and these can also be discussed with reference to the risk octagon that I just discussed. More expansionary fiscal policies would, for example lead to a deterioration in the fiscal baseline, but this could be compensated by a strengthening of fiscal institutions that would reduce the risk of fiscal slippages when the moment of tightening, or the moment of tightening at a faster pace, comes.