

Market Focus

Sovereign Risk: Beyond The Numbers

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We present a framework for comparing the sustainability of government liabilities across developed market countries. Our system goes beyond simple debt and deficit ratios, adding a host of other less obvious but equally important factors that ultimately affect whose debt is sustainable.

Such an approach is sorely needed, in our opinion. Past sovereign debt crises had more to do with structural rigidities (fixed exchange rates, etc.), bad politics (an inability to make tough decisions, etc.), and severe shocks (wars, etc.) than with headline debt and deficits. Indeed, war is by far the most common cause of past sovereign defaults in our developed world sample. Our attempt at scoring yields the following conclusions about **relative** debt sustainability:

- The first tier of sovereign debt includes the liabilities of China, Germany, Switzerland, Australia and Canada. More controversially it also includes the US, Italy and Japan. In our view these countries have negligible credit risk. These countries may (and probably do) have some unsustainable liabilities, but for most this implies much longer-term risks of inflation (indirect default) if action is not taken to cap or reduce long-term entitlement commitments.
- The second tier includes the UK and arguably France. Credit risk remains very low for these two, but structural factors suggest slightly greater risks of debt sustainability issues. For the UK these are most likely to show up in higher inflation risks; for France the main concern is public sector rigidities and entitlements.
- The third tier includes Greece, Portugal, Spain and Ireland. For these four the risks of actual default are significantly greater, unless and until rules for a more explicit fiscal and political union within the euro zone are worked out. This process has now begun in a classic process of crisis-led reform.
- Note that the euro zone GDP-weighted average score is similar to the UK score. Moreover, all countries in our sample – no matter what their debt level – would be perfectly creditworthy if primary budget surpluses were the norm.

Naturally, our conclusions rely on many subjective judgements. The framework is available in spreadsheet form on request, allowing readers to put in their own country scores and category weightings.

Sovereign Debt Sustainability: A Developed Market Framework

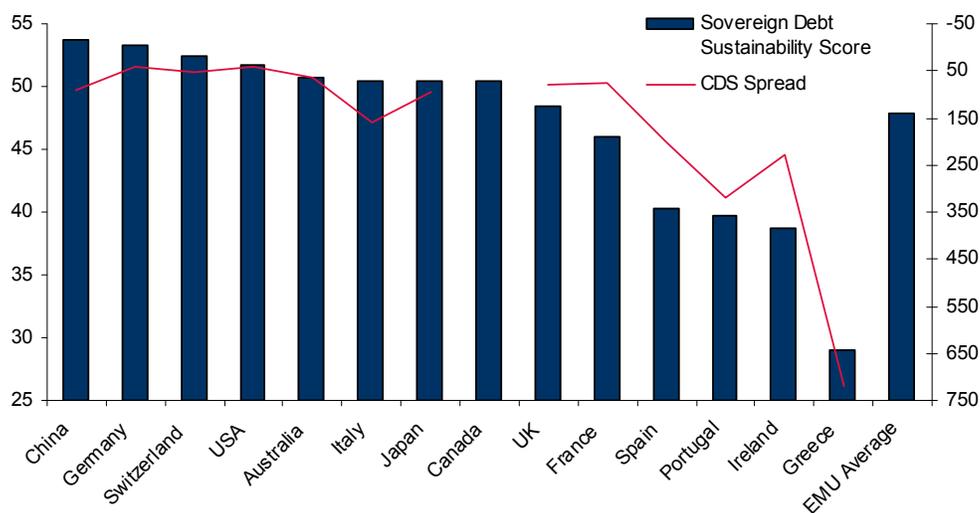
To many market participants Greece is a canary in the coal mine. Spain, Portugal, and Ireland are next. France, the UK, the US, and Japan will eventually face severe difficulties as well, it is argued.

This is an error of induction. History suggests countries with floating currencies, independent central banks, and domestic currency debt have negligible credit risk. Other bad outcomes – particularly inflation – are possible, but will have a different time path and incidence on bondholders than outright default.

Meanwhile, two countries with identical debt-to-GDP ratios, interest payments, GDP growth, and current account balances can have completely different debt dynamics, depending on many other factors ranging from political flexibility to reserve currency status, to entitlement programs or government guarantees of private debt.

Assessing the true risk to bondholders thus implies a need to blend a broad group of (interrelated) factors in a disciplined way. That is what we attempt to do in the framework described below, allowing us to distinguish between countries with superficially similar debt or deficit ratios.

Exhibit 1: Sovereign Debt Sustainability Scores vs. 5-Year CDS Spreads¹



Source: Credit Suisse; the BLOOMBERG PROFESSIONAL™ service

Our results may surprise some readers: broadly there seems to be a group of low-risk sovereigns with similar scores: China, Germany, Switzerland, the US, Australia, Italy Japan and Canada. Very slightly below this “safe” group are the UK and France. Spain, Portugal and Ireland are considerably more risky, and Greece much more so.

Exhibit 1 compares our scores with the structure of CDS spreads and very loosely suggests the ranking of CDS spreads makes sense, except that France, Spain, Portugal and Ireland trade at a premium (default risk apparently underpriced). Greece seems to trade at a discount (default risk apparently overpriced), most likely reflecting greater domestic political risk. The EMU average score is close to that of the UK: we explore the implications in the last section.

¹ cob Friday, 21 May 2010

The Framework

Very often debt sustainability is reduced to a few key ratios (debt and deficit levels) but these need to be supplemented by other factors such as maturity of debt, (liquid) government assets and tax potential. We call these cyclical factors.

But beyond that there are several other key variables of a more structural nature (e.g., reserve currency status, country size, vulnerability to terms of trade or interest rate shocks), while some of the most important issues relate to longer-term (and hard to value) factors such as generosity of entitlement promises, political flexibility and size of deposit insurance or other financial sector guarantees/subsidies.

Our scorecard assigns a score of 1 to 5 for each specific factor, and a weight for each factor, then sums the total weighted score to arrive at a final index number. Using inputs from Credit Suisse analysts on different teams within fixed income research, we scored each country. Both the scores and weights are subjective, not definitive.

The underlying spreadsheet is therefore available on request, so that readers can put in their own scores for each factor, or change the weight/importance assigned to each factor.

Exhibit 1: Sovereign Debt Scorecard

| Structural | | | | | | Score | Weight? |
|--------------------------------|--------------|------------------------|----------------------|--------------------|-------------------------|-------|---------|
| Country Type | Reserve 5 | Large Creditor 4 | Small Creditor 3 | Large Debtor 2 | Small Debtor 1 | | 1 |
| Trilemma (Give up which?) | | | Fixed FX 3 | Open Flows 2 | Independent Policy 1 | | 1 |
| Inflation sensitivity | <2% 5 | 2-4% Steady 4 | 2-4% Volatile 3 | >4% Steady 2 | >4% Volatile 1 | | 1 |
| Terms of Trade Risk | Low 5 | | Moderate 3 | | High 1 | | 0.75 |
| Potential Captive Savers? | Many 5 | | Some 3 | | None 1 | | 1 |
| Subtotal | | | | | | 0 | |
| Cyclical | | | | | | | |
| Gross Debt to GDP | <50% 5 | 50-75% 4 | 75-90% 3 | 90-110% 2 | >110% 1 | | 1.25 |
| Fin Asset Cushion | >100% 5 | 75-100% 4 | 50-75% 3 | 25-50% 2 | <25% 1 | | 1.25 |
| Interest Burden/Potential Grow | <.7 5 | .7-.9 4 | .9-1 3 | 1-1.25 2 | >1.25 1 | | 1.25 |
| Rate Vol | Low 5 | | Moderate 3 | | High 1 | | 1 |
| Hidden ST Liabilities | Low 5 | | Moderate 3 | | High 1 | | 1 |
| Foreign FX Debt | None 5 | | Small 3 | | Significant 1 | | 0 |
| Underlying Primary Balance | >2% 5 | 0-2% 4 | (2)-0% 3 | (5)-(2)% 2 | <(5%) 1 | | 1.25 |
| Average Maturity of Debt | >10 5 | 8-10 4 | 6-8 3 | 4-6 2 | <4 1 | | 0.25 |
| Government Revenue to GDP | <35 5 | 35-40 4 | 40-45 3 | 45-50 2 | >50 1 | | 0.25 |
| Gold Reserves to GDP | >4% 5 | 3-4% 4 | 2-3% 3 | 1-2% 2 | 0-1% 1 | | 0.25 |
| Subtotal | | | | | | 0 | |
| Long Term Dynamics | | | | | | | |
| Contingent Liabilities | Low 5 | Moderate Unlikely 4 | Moderate Likely 3 | High Unlikely 2 | High Likely 1 | | 1 |
| Entitlement Liabilities | Low 5 | | Moderate 3 | | High 1 | | 1.25 |
| Political Flexibility | High 5 | | Moderate 3 | | Low 1 | | 0.75 |
| Subtotal | | | | | | 0 | |
| Short Term + Structural | | | | | | 0 | |
| Overall | | | | | | 0 | |

Source: Credit Suisse

Structural Factors

1. **Country Type.** We give the highest score to the reserve currency, followed by large creditors, small creditors, large debtors, and small debtors.

The US earns the highest score here, followed by large creditors such as Japan. Small European debtors such as Greece earn the lowest.

2. **Trilemma.** The trilemma is a country's choice of foreign exchange regime. A country must relinquish one out of a fixed exchange rate, free capital flows, or independent monetary policy. We think giving up the fixed exchange rate is best for debt sustainability. Giving up free capital flows is second best. Giving up independent monetary policy (e.g., euro zone countries) is worst. This factor plays a huge role in determining the results of a debt sustainability problem (i.e., inflation versus default).

The US, UK, and Japan are examples of countries with flexible exchange rates, independent monetary policy, and free capital flows – the ideal circumstance from the viewpoint of debt sustainability. China is in the middle with its fixed exchange rate, semi-closed capital flows, and mostly independent monetary policy. Euro zone countries, with their fixed exchange rates, are in the worst spot.

3. **Inflation Sensitivity.** Countries where inflation is likely to rise during a debt crisis have low scores in this subjective category. Emerging markets often suffer from this dynamic (e.g., Brazil in the 1980s).

Large countries with very stable inflation, such as Germany and Japan, do best here. Small countries that are commodity dependent – such as Canada and Australia – score poorly, as do countries with a high degree of wage indexation.

4. **Terms-of-Trade Risk.** Large countries with diversified industrial sectors score well here. Small or commodity-export-dependent countries struggle.

This category is similar to the last one but especially penalizes small countries where terms-of-trade shocks can do significant damage at the wrong time. The US scores very well; Switzerland scores poorly.

5. **Potential Captive Savers.** In times of stress countries often force domestic savers to buy government debt, usually, but not only, via the banking system. Countries with a high score in this capacity have a high capacity to force banks to raise holdings of government debt.

The US, where bank assets include just 1% Treasuries (down from high single digits in the early 90s and around 40% in the 1940s), has significant room to force the private sector to buy government bonds in an economic emergency. Countries such as China and Greece, where domestic banks have very high holdings of government debt, have much less room.

Cyclical Factors

1. **Gross Government Debt to GDP Ratio.** This is the simple measure of the government's on-balance sheet debt as reported to international organizations such as the OECD. Usually debt dynamics are analyzed in terms of this ratio, despite its shortcomings. Obviously lower debt levels have higher scores.

Japan's ratio of 200% is the world's worst. Switzerland and Australia have very low gross debt ratios.

2. **Government Financial Asset to GDP Ratio.** The government's holdings of financial assets can offset government debt so that net debt is reduced. The presence of financial assets makes gross debt appear worse than it really is. Then again, can the financial asset realistically be sold in a crisis?

Japan scores best here, with about 100% of GDP in financial asset holdings, meaning its net debt is in far better shape than its gross debt. The UK and Australia are countries with tiny public sector financial asset holdings.

3. **The Ratio of Interest Payments to Potential Growth.** This critical short-term measure co-determines whether a country's debt path is likely to become "explosive". If interest payments are greater than GDP growth, then the gross debt ratio will rise unless there is an offsetting primary surplus. Once financial markets suspect a country's interest payments are higher than structural growth, they are likely to demand a higher premium on new debt, pushing interest rates yet higher and edging the country dangerously toward an "explosive" path. The short-term solutions of fiscal austerity, financial repression, or foreign bailout might not always be possible. The long-term solution, higher potential growth through raised productivity, is a *deus ex machina* that can't be counted on.

Most OECD countries have interest burdens that are well below their structural growth rates. Greece and Italy are exceptions. Italy, however, has an offset (see cyclical factor #6), while Greece does not (yet).

4. **Interest Rate Volatility.** High interest rate volatility can signal a country's inability to raise debt when times are tough. Sharp increases in yields can change perceptions of sustainability quickly. How sensitive a country's interest rates are to crisis – and whether they tend to fall or spike – is a key fact making some more vulnerable than others.

Sharp recent moves in Greek and Portuguese yields recently betray their vulnerability. The situation is the opposite in Germany and, especially, the US, whose currency rose and yields fell sharply in Q4 2008, when the US banking system was imploding!

5. **Hidden Short-Term Liabilities.** A country might suddenly owe money because of implicit state guarantees. Institutions that are critical for strategic or political reasons might suddenly need support. Governments might have misstated their official debt in the first place or even engaged in financial speculation that can trigger a sudden large payout. Although "hidden" implies unknown, some governments seem notoriously untrustworthy when it comes to hidden debts.

Greece's market-unfriendly revelations of higher debt levels show how badly things can go wrong here. For most larger OECD countries such things are unthinkable.

6. **Governments** with significant foreign currency debt often run into severe difficulties during periods of weak domestic growth or high exchange rate volatility. This has been a frequent cause of emerging market debt crises. However, modern developed market country governments tend to have little or no foreign currency debt, and hence we give this factor a zero weight but include it for completeness.
7. **Underlying Primary Balance.** This is a direct measure of the government's cyclically adjusted budget balance excluding interest payments. It is the fiscal control variable.

Italy's very high primary balance offsets its high interest payments and is the fundamental reason why it is not being mentioned alongside other "peripherals" as a key concern. Greece, Japan, the US, and UK have very weak underlying primary balances currently.

8. **Average Maturity of the Debt.** Governments with significant short-term debt might face a day of reckoning more quickly than one that has stretched out its debt over a longer term.

Among developed market countries debt maturities range from roughly 4.5 years for the United States to over 14 for the United Kingdom. However, we would tend not to weight this category highly. And with yield curves so steep, governments have a strong incentive to reduce their debt maturities now.

9. **The Ratio of Government Revenue to GDP.** A smaller government (relative to the size of the economy) has the luxury of having room to raise taxes in a crunch. Big governments have much less room, or else the incentive for the rich to evade taxes or simply not work becomes too high.

France and several other European countries drain extraordinary amounts of income from the economy – more than 50% in several cases. In the US and Japan the government take is in the low 30s, suggesting room to raise taxes in an emergency (upsetting as that will sound to many readers).

10. **Gold Reserves to GDP Ratio.** Gold is a special asset for a government, because its value is likely to rise in a true debt or inflation crisis, in contrast to other reserve assets, which are likely to comprise other government debt.

The US and Germany have the largest gold holdings in absolute terms, but Switzerland and Portugal have high gold reserves relative to GDP. China's gold reserves have been growing fast; Japan and the UK are countries with very little gold.

Long-Term Factors

1. **Contingent Liabilities.** Countries that have issued large known guarantees to depositors and others have debt that could suddenly appear in a bad state of affairs.

Countries with generous guarantees or deposit insurance and large banks with international exposure take a hit here. Spain and the US are examples. Italy's insurance scheme is limited and risks there are lower.

2. **Entitlement Liabilities.** Demographics-driven pension and health care liabilities are critical factors determining long-term sustainability.

Most OECD countries are in bad shape here. The US, with its high medical costs, is in particularly bad shape. As is Spain, with its difficult demographics. China's limited safety net and Australia's already reformed state pension system are in much better shape.

3. **Political Flexibility.** Perceptions of whether a country is capable of sacrifice and difficult changes is also critical.

In our view Australia, Canada, the UK, and the US have a history of being flexible. France and Greece do not. Then again this seems a particularly subjective category.

A European Problem

Our results suggest that the markets are right to focus on sovereign debt sustainability within the European periphery. However, this is mostly because the euro zone system, binds government behavior similarly to a gold standard. Arguably, it is the euro zone's structural immaturity – its lack of formal fiscal transfers, its internally fixed exchange rates, and its unrealistic post-euro inception treatment of certain countries' debt (i.e., treating all countries' debt the same in terms of being eligible ECB collateral) – that is the real reason for the peripheral debt crisis.

And that is precisely what the massive and surprisingly rapid effort from European authorities in the last two weeks is specifically designed to address. Or to be even more accurate, it is designed to buy time – a lot of time – to negotiate new and sustainable terms for a political/fiscal union by preventing a liquidity and funding crisis for both peripheral sovereigns and European banks.

We see no compelling reason why the package cannot succeed in doing just that, despite the prevailing tendency towards scepticism. Nor do we believe that one needs to know all the details of the new set of fiscal rules to understand that all peripheral countries are better credits than they appear from our scorecard, while Germany is potentially slightly worse.

Some important medium-term uncertainty remains, of course. The extent to which Greece or Spain, for example, are better credits than they may appear in our scorecard will, of course, depend partly on political will in both those countries and in Germany itself. And on the precise terms of a fiscal settlement, including the possibility to expel any serially delinquent country from the euro, a possibility that does not exist currently.

Our subjective judgment is that the current incentive structure for all peripheral countries is overwhelmingly in favour of trying to comply with the austerity targets already set out or agreed with the EU and the IMF. That is because there is NO, repeat NO, orderly way to restructure sovereign debt within the currency union.

Because it is not possible to use capital controls, restructuring today would imply the need to run a zero budget deficit and current account deficit on the day of the restructuring, a much more brutal outcome than the existing austerity programs require. It would also imply a huge risk of a catastrophic bank run.

So our view is that it is – as a first approximation – sensible to assume that no restructuring will take place imminently and none until it is much safer to attempt one.

The overall conclusion is that treating Spain, Portugal and Ireland as if they were as good as the average EMU credit score is perfectly sensible and that even for Greece the discount to that may not be very large. Superficially, it appears as if Ireland is trading at a particularly big premium. The most plausible explanation is that Ireland has gained significant credibility of its own due to taking early and aggressive action on budget consolidation.

As a final caveat it should be noted that the theoretically robust way to look at this would be in terms of implied probabilities of default, including country-specific assumptions for recovery rates and risk premiums. Note also that the absolute probability of default may be far more dependent on global and European recovery not aborting than on any single factor in our scorecard.

Appendix: Wars and European Defaults

Exhibit 2 below shows the dates of European defaults and restructurings in recent centuries. A close look suggests wars were a key driver: defaults that occurred in years of war are marked in bold. Active defaults in peacetime have all but vanished since the demise of the gold standard, with the (partial) exception of the Great Depression.

Exhibit 2: European Sovereign Debt Default History (War Years in Bold)

European Sovereign Defaults/Restructurings (includes external and domestic debt)

| Austria | England | France | Germany (Prus) | Greece | Holland | Portugal | Spain |
|-------------|-------------|-------------|----------------|-------------|-------------|-------------|-------------|
| 1796 | 1340 | 1558 | 1683 | 1826 | 1814 | 1560 | 1557 |
| 1938 | 1472 | 1624 | 1807 | 1843 | | 1828 | 1575 |
| 1940 | 1594 | 1648 | 1813 | 1860 | | 1837 | 1596 |
| 1945 | | 1661 | 1932 | 1893 | | 1841 | 1607 |
| | | 1701 | 1939 | 1932 | | 1845 | 1627 |
| | | 1715 | | | | 1852 | 1647 |
| | | 1770 | | | | 1890 | 1809 |
| | | 1788 | | | | | 1820 |
| | | 1812 | | | | | 1831 |
| | | | | | | | 1834 |
| | | | | | | | 1851 |
| | | | | | | | 1867 |
| | | | | | | | 1872 |
| | | | | | | | 1882 |
| | | | | | | | 1936 |
| | | | | | | | 1937 |
| | | | | | | | 1938 |
| | | | | | | | 1939 |

Notes

France had numerous defaults prior to 1500 but we don't have specific dates.

Greek defaults only include history since 1820.

High inflation episodes are not included but have been common (e.g., in France)

There are several instances of debt conversions of UK debt in the 19th century not included above

Source: Credit Suisse; Reinhart and Rogoff, "This Time is Different"

N.B. Carmen Reinhart and Kenneth Rogoff² list the war loan conversion of 1932 in their table of examples of domestic default but we do not agree this is appropriate. A very clear rationale for our view is provided by M.R. Weale from the National Institute of Economic and Social Research³: "The pre-1932 stock, 5 per cent war loan was repayable at three months' notice between 1929 and 1947. In late 1931 market interest rates had fallen, so that it was in the taxpayers' interest for the government to redeem the debt and to issue new stock at a lower interest rate. This became 3½ per cent war loan repayable in 1952 or afterwards. This was in no sense a default or a unilateral rescheduling but was entirely in accordance with the prospectus of the 5 per cent stock, as the chancellor of the time explained to the House of Commons. I imagine that the same was true of the 19th century conversions, also listed by Reinhart and Rogoff as default or restructuring."

² Reinhart and Rogoff, "This Time is Different"

³ M.R. Weale, "'Default' on UK government debt was no such thing", *Financial Times*, 8 March 2010

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