

## EXECUTIVE SUMMARY

# Crunch Time: Fiscal Crises and the Role of Monetary Policy

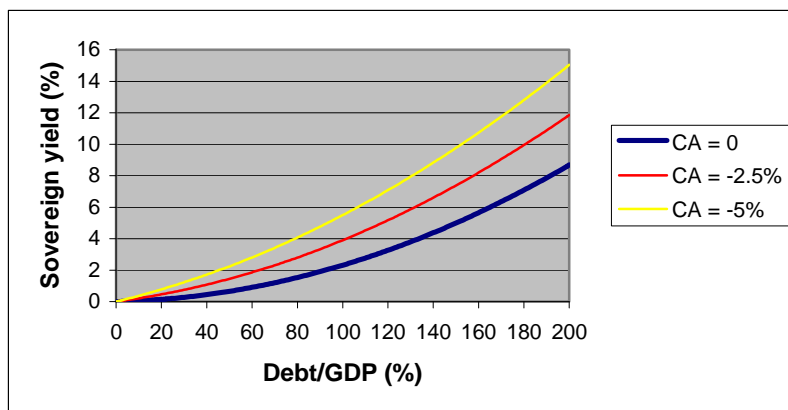
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Prepared for U.S. Monetary Policy Forum  
New York City, February 22, 2013

An analysis of sovereign debt dynamics reveals that countries with high debt loads are vulnerable to an adverse feedback loop in which doubts by lenders lead to higher sovereign interest rates which in turn make the debt problems more severe. To see this, suppose that a country's current primary surplus is less than that level needed to stabilize the level of debt-to-GDP. The government then has four options: 1) cut spending or increase revenues to increase the primary surplus; 2) do nothing so that the debt-to-GDP ratio grows even larger; 3) use unanticipated inflation to bring the debt-to-GDP ratio back down; or 4) default on the debt. If lenders doubt the feasibility of the first alternative, they will demand a higher interest rate, thereby increasing interest payments on the debt. The result will then be higher budget deficits and debt levels, possibly leading to a fiscal crunch-- a tipping point in which government bond rates shoot up and a funding crisis ensues.

We then conduct a statistical analysis of the recent experience of twenty advanced economies from 2000 to 2011 asking what factors in the prior year help predict the average yield on ten-year debt. We find that gross debt is a little more important than net debt, while the current-account deficit also matters. Importantly, as is illustrated in Figure 3.1 below, we also find that there is an interaction between the impact of the level of debt and the current account, as well tipping-point nonlinearities in which the higher are debt levels and current account deficits, the greater is the rise in interest rates. For example, a 1% increase in debt-to-GDP when the current account deficit is 2.5% and debt-to-GDP is 100% (the current value for the U.S.) is associated with a 6 basis point (.06 percentage point) increase in the ten-year bond rate, while when both the current account deficit and debt-to-GDP ratio are at zero, a 1% increase in debt-to-GDP is associated with only a 1 basis point increase in the ten-year rate.

**Figure 3.1 Response of Sovereign yields to Debt Ratios under alternative current account balances**



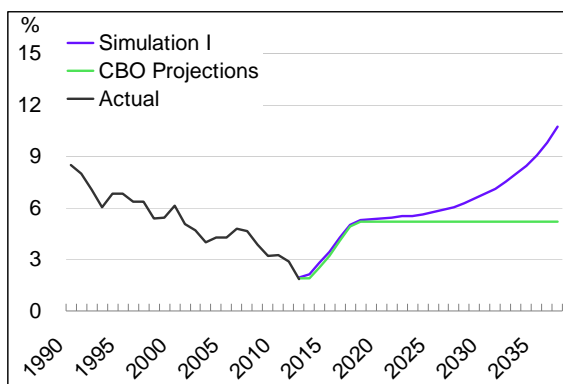
Note: CA is current account balance as % of GDP. Horizontal axis: gross debt as a percent of GDP in year  $t - 1$ . Vertical axis: amount by which a country's interest rate in year  $t$  would be predicted to be higher (measured in annual percentage points) compared to what the interest rate would be if debt in year  $t - 1$  were equal to 0 for indicated levels of the current-account balance.

Source: authors' calculations.

Case studies illustrate the problems encountered historically by countries with debt above 80% of GDP and persistent current-account deficits. These countries proved to be vulnerable to a rapid fiscal deterioration as a result of these tipping-point dynamics. Interest rate surges occur either because there is news that budget deficits and future debt levels are much higher than previously suspected or because a decline in economic growth leads to higher projected debt-to-GDP.

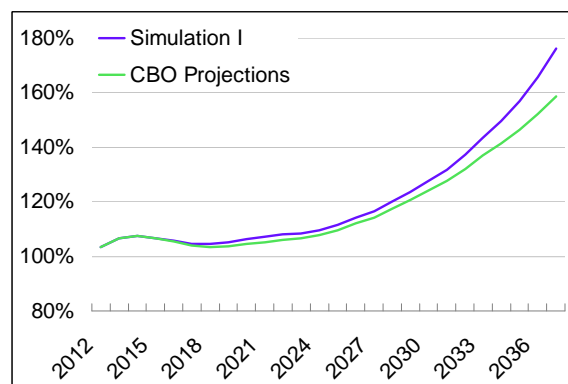
Such feedback is left out of current long-term U.S. budget projections and could make it much more difficult for the U.S. to maintain a sustainable budget course. The most recent projection from the Congressional Budget Office assumes that the yield on ten-year Treasury notes rises to a level of 5.2% as the economy recovers, but remains there, as is shown in Figure 3.11. Under current spending and tax policy, the CBO forecast calls for U.S. gross debt/GDP to rise to 107% by 2014 and decline modestly for the next several years before resuming a gradual upward ascent, reaching a level of 150% in twenty-five years (Figure 3.12).

**Figure 3.11. Actual and projected 10-year bond yields under CBO assumptions and our baseline simulations**



Source: Haver Analytics, CBO and authors' calculations

**Figure 3.12. Gross debt as percent of GDP under CBO projections and our baseline simulation**

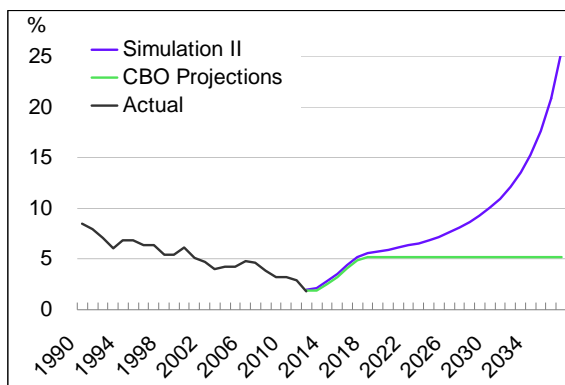


Source: Haver Analytics, CBO and authors' calculations

However, as our statistical analysis shows, higher debt levels would likely lead to higher interest rates, thereby raising budget deficits and debt levels, which in turn would raise interest rates further. Simulation I in Figures 3.11 and 3.12 allows for this feedback effect, resulting in substantially higher interest rates and debt-to-GDP than the CBO projections. However, this simulation uses the same primary deficit baseline and economic projections as the CBO. We rerun the simulation using an alternative economic scenario (specifically, the unemployment rate falls to a long-run level of 6% rather than 5 1/4% as assumed by the CBO) and assume that

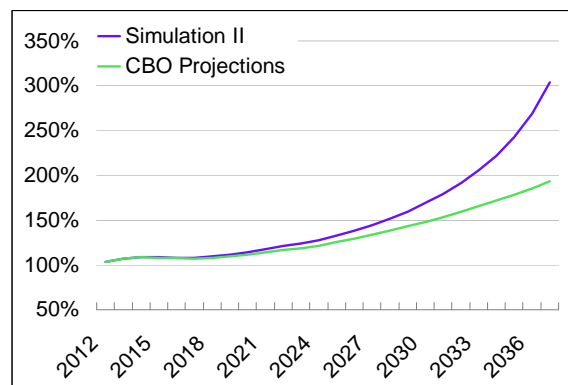
the looming budget sequester is cancelled. As shown by Simulation II, in Figures 3.13 and 3.14, the result is a rather dire situation with debt-to-GDP rising to 300% in twenty-five years and with 10-year bond yields as high as 25%. These simulations should not be taken as our predictions for what will happen to bond yields and debt levels because we surely would expect modifications in government spending and taxes, but it does illustrate the dangers if nothing is done to put U.S. fiscal policy on a sustainable path.

**Figure 3.14. Ten-year yields under CBO and our simulation with budget sequester cancelled and higher unemployment.**



Source: Haver Analytics, CBO and authors' calculations

**Figure 3.13. Gross debt as percent of GDP under CBO and our simulation with budget sequester cancelled and higher unemployment.**



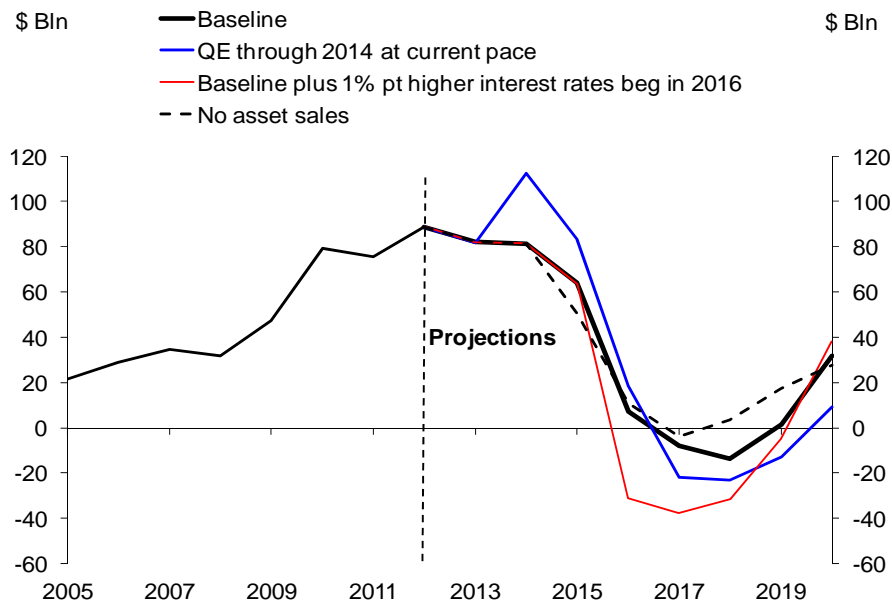
Source: Haver Analytics, CBO and authors' calculations

The preceding analysis raises several issues for the conduct of monetary policy. First, if fiscal policy is shifting in a desirable direction, from an unsustainable path to a sustainable one, easier monetary policy can play an important role in ensuring a successful outcome. Second, given a still polarized political system in the U.S., we also need to consider the implications for monetary policy of a fiscal policy that remains unsustainable.

A fiscal crunch not only hurts economic growth because interest rates could rise to unprecedented levels but also because it could make it difficult for the Federal Reserve to control inflation. Unsustainable fiscal policy can force a central bank to pursue inflationary policies, which is known as *fiscal dominance*. Unsustainable fiscal policy puts a central bank between a rock and a hard place. If the central bank does not monetize the government debt (by purchasing it with monetary liabilities, often referred to as printing money), then interest rates will rise sharply, causing the economy to contract. Indeed, without monetization, fiscal dominance may result in the government defaulting on its debt, which would lead to a severe financial disruption, producing an even more severe economic contraction. Hence the central bank will in effect have little choice and will be forced to purchase the government debt by printing money, eventually leading to a surge in inflation.

Given the Federal Reserve’s greatly expanded balance sheet, there is an additional channel through which a fiscal crunch can impinge on monetary policy and exacerbate inflation expectations --- the heretofore little-noted Fed remittances to the U.S. Treasury. In a fiscal crunch scenario occurring within the next five years, interest rates on the Fed’s holdings of government debt would climb to much higher levels, and could lead to substantial losses, even approaching several times the size of Fed capital. Figure 4.8 illustrates the impact these losses could have on the payments to the U.S. Treasury. The black “baseline” line takes into account the net interest income that Fed earns from its balance sheet as well as realized losses if the Fed sells assets along the lines it has suggested in prior communications. The red “baseline plus 1% pt higher interest rates beginning in 2016” line takes into account the higher losses on asset sales resulting from higher interest rates and suggests that the Fed would be unable to make payments to the Treasury for a number of years, which could subject the institution to a loss of credibility and to political attacks. One way to avoid this is illustrated in the dashed “no asset sales” line, which shows that by putting off asset sales, the Fed would only have a short period of not being able to provide remittances to the U.S. Treasury.

**Figure 4.8 Income before payments to Treasury**



Source: FRB, authors’ calculations

The fiscal crunch might therefore push the Fed to put off asset sales and delay policy rate increases. But such a response would presumably feed rising inflation expectations. In brief, the combination of a massively expanded central bank balance sheet and an unsustainable public debt trajectory is a mix that has the potential to

substantially reduce the flexibility of monetary policy. This mix could induce a bias toward slower exit or easier policy, and be seen as the first step toward fiscal dominance. It could thereby be the cause of longer-term inflation expectations and raise the risk of inflation overall.