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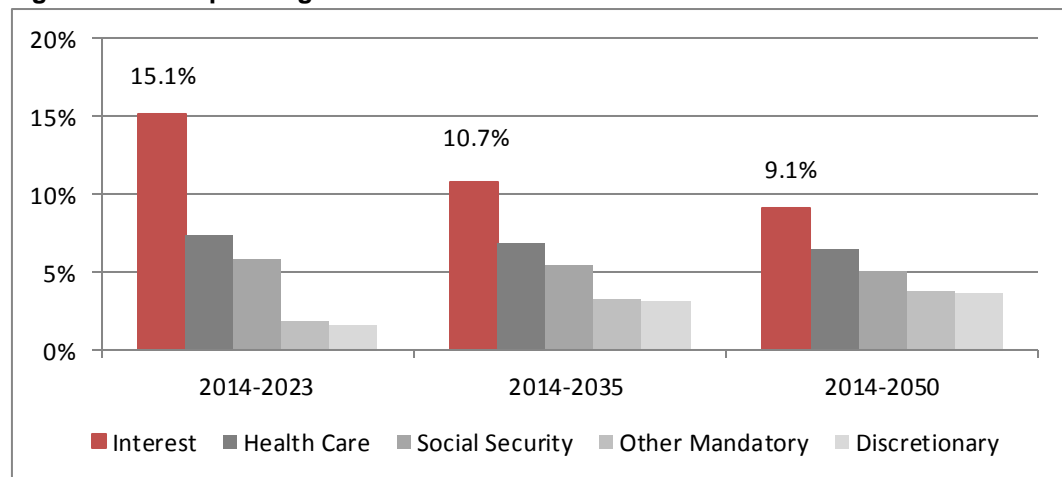
ROBERT STRAUSS

Interest Rate Risk and the U.S. Debt September 16, 2013

The federal debt remains on an unsustainable path. Despite some short-term improvements, the debt is still projected to be at roughly 73 percent of GDP for the decade – almost twice the historical average – and then grow to above 90 percent of GDP by 2035 and over 130 percent by 2050.ⁱ

The fastest growing part of the budget is not Medicare or Social Security, but in fact is the *interest on the debt*. As interest rates begin to rise from their currently low levels, the cost of servicing our debt will grow significantly. This is especially true in light of the nation's elevated and rising debt.

Fig. 1: Annual Spending Growth over Selected Timeframes



Source: CRFB Long-Term Realistic Baseline.

In this paper, we find:

- As interest rates rise toward historical levels, interest payments will grow substantially from 1.3 percent of GDP today to 6.4 percent by 2050.
- If interest rates rise 1 point above projections, it will cost the government \$1.2 trillion this decade and over \$4 trillion the following decade.
- Interest rates could be lower than projected, but in part because rates cannot fall below zero the debt impact would be somewhat more muted.

Every dollar spent on interest payments is a dollar unavailable for higher priority spending, a dollar more in taxes on Americans, or a dollar more of borrowing that the country simply cannot afford. A comprehensive fiscal plan remains the best way to protect against the risks and costs of rising interest rates.



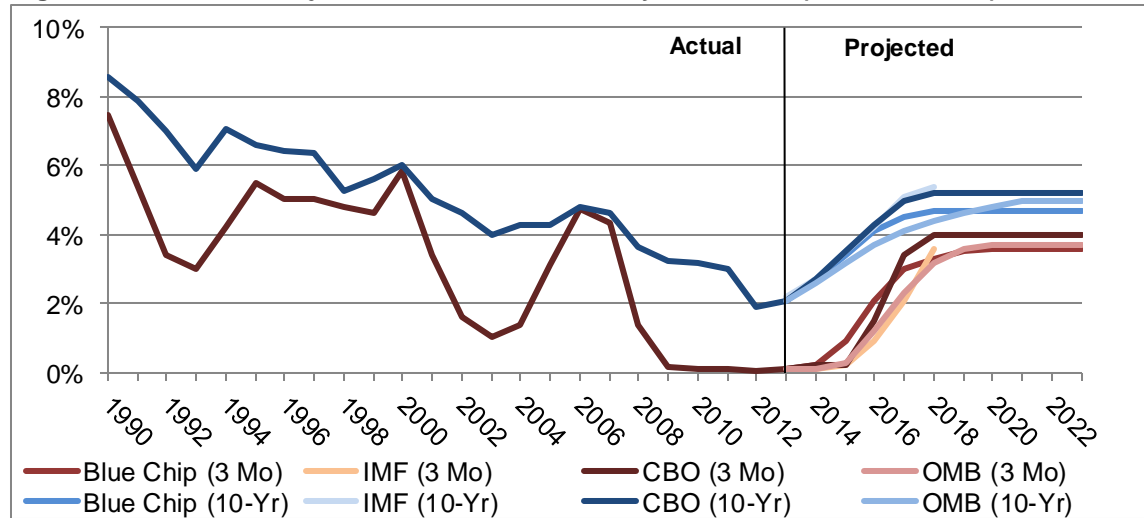
The Cost of Rising Interest Rates

Currently, three-month Treasury bills pay an interest rate of 0.01 percent and ten-year Treasury notes pay a rate of over 2.9 percent – compared to respective averages of 3.3 and 5.2 percent since 1990. Driving these historically low interest rates are low rates of inflation, a weakened domestic economy, an uncertain international fiscal landscape leading to a flight to safe Treasury bonds, and actions by the Federal Reserve to put downward pressure on interest rates.

Though current rates remain low, they have begun to tick upward recently, and are projected by most experts to rise substantially in the coming years as the economy recovers and the Federal Reserve unwinds its extraordinary measures to maintain price stability.

Earlier this year, CBO projected that interest rates on ten-year Treasury notes will rise from 2.1 percent this year to 2.7 percent in 2014 (a rate that has already been surpassed), 4.3 percent by 2016, and 5.2 percent from 2018 onward. Similarly, CBO projects interest rates on three-month bills to rise from just above zero today to 4 percent by 2018 and beyond. These projections are similar to others from OMB, the IMF, and various private sector forecasters.

Fig. 2: Interest Rate Projections on Select Treasury Securities (Calendar Year)



Source: CBO, OMB, and IMF update to the World Economic Outlook.

The most direct effect of interest rates on the federal budget is on interest payments to creditors.ⁱⁱ Indeed, the currently low interest rates have been a major boon for the government's balance sheet – total federal interest payments for 2013 are projected to be about \$225 billion, the same as back in 2006 when debt levels were only 40 percent of what they are today.

In part because of rising interest rate projections, CRFB's Realistic Baseline projects interest spending will almost double to \$505 billion by 2018 and grow to \$844 billion by 2023.ⁱⁱⁱ In other words, interest payments will almost quadruple over the next decade, even though debt levels are projected to grow by less than two-thirds. And as interest payments continue to grow, they will have a compounding effect, generating more debt and yet more interest payments.



The Economic Risks of Higher Interest Rates and Continued Borrowing

Although this paper focuses on the impact of interest rate increases on the federal government, the consequences of such increases extend much more broadly.

A large and growing body of research from the CBO, IMF, OECD, and academia continues to find an inverse relationship between high government debt and strong economic growth – meaning that as debt rises, economic growth suffers.^v The principal mechanism through which this occurs is through higher interest rates.

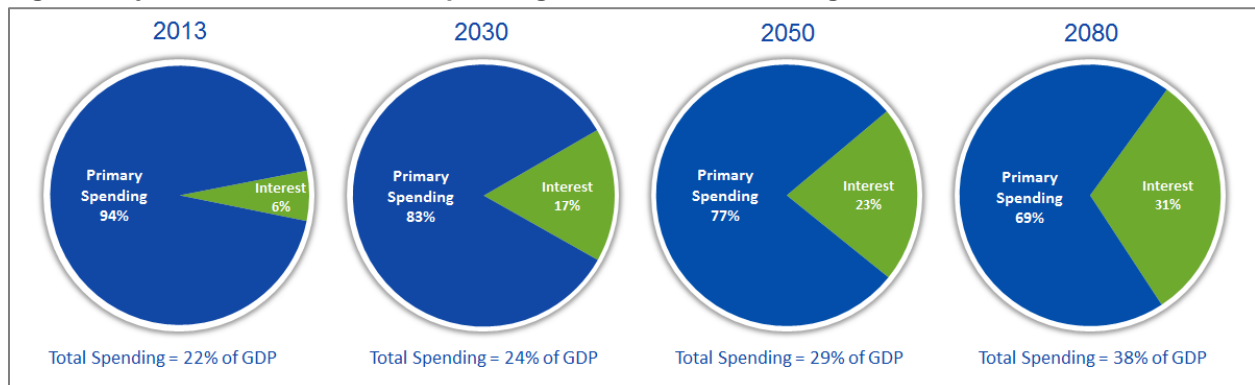
As interest rates rise, it becomes more expensive for businesses and consumers to borrow in order to invest in new ideas and ventures. With private investment “crowded out,” economies tend to grow slower. According to a recent study from CBO, a fiscal plan that had the effect of reducing interest by a mere about 0.1 percentage points would boost the size of the economy by about 0.5 percentage points in 2023 as measured by GDP and 0.9 points by 2023 as measured by GNP.

Not only do high interest rates impact broad economic growth, but ordinary Americans will feel the hit directly as well. As the interest rate on U.S. Treasury bonds increases, so too will the rates offered on car loans, mortgages, student loans, small business loans, and credit card debt. These higher rates will cause some individuals to simply forgo consumption or investments in education, housing, and entrepreneurship. For the majority who are likely to continue these purchases, the costs of living will rise and interest payments because an increasing share of their annual spending.

Importantly, while gradually increasing interest rates can be painful, abrupt spikes in interest rates can be devastating. Such spikes can (and historically have) disrupt economic investment, mute consumer activity, bring the economy to a standstill, and reduce the resources of many borrowers.

Under these projections, interest payments will increase by 1.8 percent of GDP over the next decade, compared to 1.3 percentage points for Medicare, Medicaid, and Social Security combined. In other words, interest spending **will grow by more than our three fastest growing entitlement programs combined** and consume an ever-increasing share of the budget.

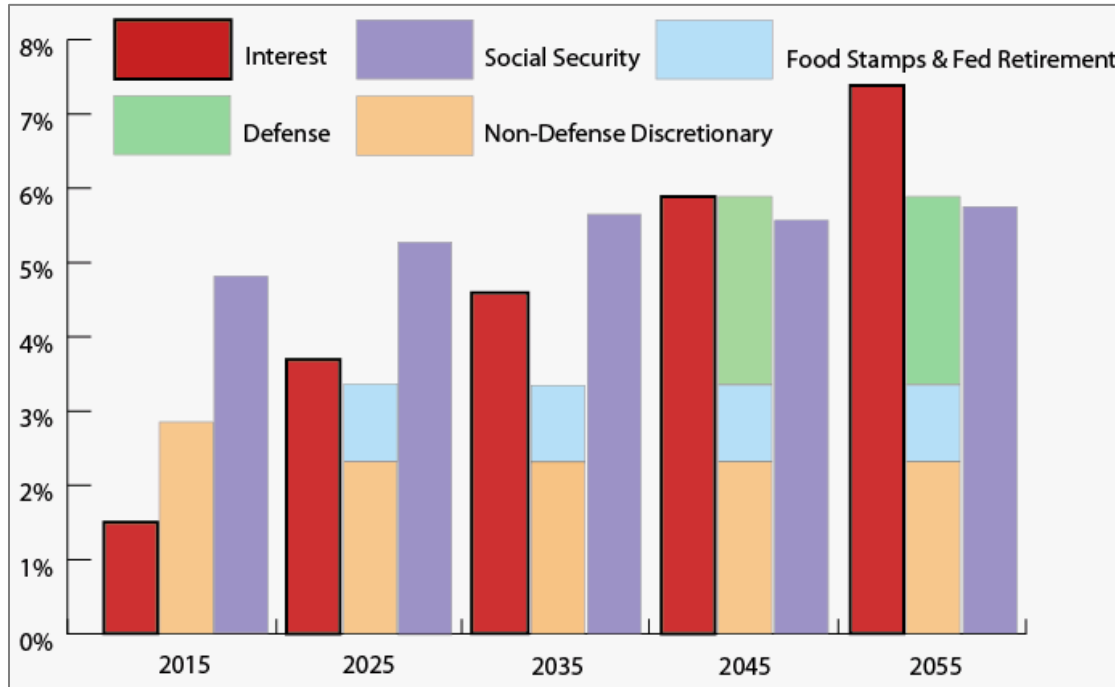
Fig. 3: Projected Federal Interest Spending as a Share of the Budget





Although interest spending is a relatively small share of spending today, its growth threatens to crowd out other priorities. By 2025 interest payments will exceed the cost of all non-defense discretionary programs – including in education, infrastructure, homeland security, and the civilian workforce – as well as food stamps and federal retirement spending. By 2045, it will be as large as all these programs plus the entire defense budget; and also as large as the entire Social Security program (currently the largest government spending program). The more resources dedicated toward interest payments, the less will be available for everything else.

Fig. 4: Interest Spending and Other Federal Funding (Percent of GDP)



Source: CRFB Realistic Baseline projections.

What If Rates Are Higher Than Expected?

All of the projections from the CBO, OMB, IMF, Blue Chip consensus, and other forecasts suggest interest rates will rise gradually in the coming years and stabilize at a new higher level. However, rates could rise higher or more quickly than expected (though they could also rise by less). In fact, ten-year note rates this year have already risen above CBO projections for the end of 2014.

Any number of factors could cause interest rates to rise faster or higher than expected. On the positive side, the economy could recover more quickly than anticipated (CBO projects full recovery by 2018), which would lead to higher interest rates. Under such a scenario, federal interest costs would be higher but so too would revenue collection and the economy's capacity for debt. On the negative side, interest rates could rise in the case of higher than expected inflation (especially if it prompted the Federal Reserve to raise the federal funds rate), if changes in the global economy reduced the demand for U.S. debt, or if continued loss of fiscal credibility left investors less willing to hold their money in U.S. Treasuries.



These potential scenarios differ in a number of ways, but would have the same impact on federal interest payments – they would increase them. With approximately \$650 billion in debt issued or rolled over a typical month, higher interest rates would quickly flow into federal spending on interest payments, especially in light of elevated debt levels.

Using CBO estimates as a basis, CRFB has projected a number of different scenarios to show the effect of interest rate changes on interest payments under our baseline. For example, CRFB estimates that a 1 percentage point increase in interest rates above projections each year across all types of government securities, all else equal, would increase borrowing by nearly **\$1.2 trillion** over the 2014-2023 period. **In other words, interest rates being just one percentage point higher would wipe out all of the savings from the sequestration currently in place.**

If interest rates rose higher, so too would the fiscal consequences. For example, if interest rates rose to the average level of the 1990s – 6.7 percent for a ten-year Treasury note (1.5 percentage points higher than the 5.2 percent CBO’s projects for later this decade), **deficits would increase by over \$1.4 trillion**. And if interest rates reached the 10.6 percent level we averaged over the 1980s, deficits would increase by over **\$6 trillion**. Of course, in the 1980s inflation levels were also much higher, which if true would lead to more revenue collection (though also more entitlement spending). Finally, if interest rates rose to the levels projected in the CBO baseline, but reached them by 2015 instead of 2018, it would cost roughly \$400 billion over ten years.

Under each of these scenarios, debt levels would be higher. In 2023, debt would be more than four points higher – 77 percent of GDP instead of 73 – if interest rates were one percentage points above what is projected. Debt would rise to almost 96 percent of GDP if rates rose to the average of the 1980s with no change to growth, inflation, or other economic variables.

Fig. 5: Interest Rate Scenarios and Effect on the Future Deficits (2014-2023)

	Deficit Impact (CRFB Realistic)	Debt in 2023 (% of GDP)
Interest rates rise to projected levels by 2014, not 2018	\$0.40 trillion	74%
Interest rates are 0.5 percentage points higher than baseline	\$0.62 trillion	75%
Interest rates are 1 percentage points higher than baseline	\$1.19 trillion	77%
Interest rates gradually rise to average of 1990s*	\$1.42 trillion	78%
Interest rates gradually rise to average of 1980s*	\$6.17 trillion	96%
Interest rates are 1 percentage point lower than baseline	-\$1.06 trillion	69%
Interest rates are 0.5 percentage points lower than baseline	-\$0.55 trillion	71%
Memo: Debt Level under CRFB Realistic Baseline	n/a	73%

Source: *Rough* CRFB calculations based on Congressional Budget Office data.

Notes: Interest rate changes are applied across-the-board to all Treasury debt securities. Estimates are rounded.

*Interest rates during the 1990s averaged 6.7 percent on 10-year notes and 4.9 on 3-month bills, compared to 10.6 percent on 10-year notes and 8.8 percent on 3-month bills during the 1980s.

^CBO projects interest rates on the 3-month and 10-year Treasury securities to reach steady state levels by 2018.

On the flip side, interest rates could also be lower than projected, or could reach projected levels more slowly. If interest rates were one percentage point lower, we estimate that deficits over the next decade would fall by over \$1 trillion.



Note that this number is smaller than the inverse of a one point increase. There are two reasons. First, since interest compounds over time, applying lower interest rates to current debt projections makes the cumulative savings grow much slower (and non-linearly) than higher interest rate scenarios. Secondly, shorter-term interest rates are already close to zero and cannot fall into negative territory below what is referred to as the “zero bound.” Currently, interest rates on all Treasury debt securities with maturities less than three years are below 1 percent.

Importantly, these projections assume other variables remain unchanged. If rising interest rates are the result of faster economic growth, the net effect would likely be positive due to increased revenue and other factors. If rising interest rates are the result of faster inflation, factors pushing in both directions could change the net fiscal outcome. And if higher interest rates were the result of a loss in confidence, additional economic damage could worsen the impact.

Over the long-term, any changes in interest rates would be even more pronounced. In the illustrative scenario where interest rates were 1 percentage point higher, **the debt-to-GDP ratio could be over 4 percentage points of GDP higher by 2023, 10 percentage points higher by 2030, and 36 percentage points higher by 2050.** If interest rates were to rise to the levels of the 1990s, the debt-to-GDP ratio would similarly be about 5 percentage points of GDP higher in 2023, but 14 points higher by 2030 and 56 points higher by 2050.

Conclusion: Interest Can Change Overnight, but Debt Takes Years to Address

Interest rates on government debt change constantly, and forecasters and policymakers cannot fully predict or control them. Such changes can occur over many years, or over much tighter time frames – sometimes overnight. This year alone, interest rates on ten-year Treasury notes have been as low as 1.7 percent, but now stand at over 2.9 percent.

While the risks associated with interest rates are significant, the risks and consequences can be reduced through an intelligent deficit reduction plan. A plan that lowers debt levels will reduce both the risk of there being higher interest rates – since the market is less likely to perceive a low-debt country as a risky investment – and the cost associated with higher rates – since a smaller debt stock means that less debt must be serviced.

For example, under a plan like the Simpson-Bowles *Bipartisan Path Forward* – which gradually brings debt levels down to 50 percent of GDP by 2040 – a one percentage point increase in interest rates would increase the debt-to-GDP roughly 25 percent less than the same spike under the CRFB Realistic Baseline.^{iv}

Not only do lower levels of debt reduce a country’s risk of and exposure to changes in interest rates, but lower-debt economies have added fiscal flexibility to absorb unexpected increases in debt. For these reasons and more, it would be prudent for policymakers to enact further deficit reduction today to phase in gradually as the economy recovers and begin to bring debt levels down as a share of the economy.



Endnotes

ⁱ Throughout this analysis, CRFB uses the latest economic projections from the Congressional Budget Office published on September 11, 2013, the basis for CRFB's Realistic Baseline projections. These estimates incorporate the updated methodology from the Bureau of Economic Analysis on how to calculate economic output, which will alter budget projections going forward.

ⁱⁱ Interest rates affect interest payments to and from the federal government in many ways. Most significantly, interest rates on various Treasury notes and bills – in conjunction with the amount of outstanding debt – dictate how much the U.S. spends each year on interest payments. However, interest rates also affect how much the Federal Reserve earns on its holdings of U.S. debt, which are then remitted back to the U.S. Treasury each year and are an element of federal revenues each year; how much the federal government receives for undergraduate and graduate student loans, especially given that student loans are now directly tied to Treasury interest rates; how much the government supports other loan programs and loan guarantees, such as for home mortgages through Fannie Mae and Freddie Mac and support for the airline, steel, and gas industries; and how much the government must distribute to various intragovernmental trust funds, including those for Social Security and Medicare.

ⁱⁱⁱ CRFB Realistic Baseline. Updated May 2013. <http://crfb.org/crfb-realistic-baseline>.

^{iv} Based on long-term projections assuming Steps 3 and 4 of the Bipartisan Path Forward, as shown in Appendix G of the *Bipartisan Path Forward*. <http://crfb.org/document/report-bipartisan-path-forward-securing-americas-future>.

^v Congressional Budget Office, “Macroeconomic Effects of Alternative Budget Paths.” February 2013. <http://www.cbo.gov/publication/43769>. Elmeskov, Jorgen and Douglas Sutheland. “Post-Crisis Debt Overhang: Growth Implications Across Countries.” OECD, Economics Department. February 2012. <http://www.oecd.org/eco/public-finance/49541000.pdf>. Kumar, Manmohan S. and Jaejoon Woo, “Public Debt and Growth.” International Monetary Fund. 2010. <http://www.imf.org/external/pubs/ft/wp/2010/wp10174.pdf>.