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ASSESSING THE RISKS AND COSTS OF THE RISING US FEDERAL DEBT

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I. Introduction

Warnings that the rising U.S. federal debt will lead to economic catastrophe are heard with increasing frequency. Former Office of Management and Budget Director Mitch Daniels, for example, recently wrote: "With debts already about to surpass the nation's entire GDP ... only a dwindling number of denialists doubt that a cataclysmic reckoning … lies ahead," (Daniels 2024). In this paper, we examine the various channels through which debt can affect the economy to assess the risk that elevated debt will lead to a crisis.

We begin with a summary of the fiscal challenges facing the United States. We then review the costs of debt from a standard macroeconomic model and outline the scenarios that could lead to a crisis. Our analysis suggests the most likely consequences of the projected debt accumulation are those described by the standard macroeconomic model: Higher debt reduces the size of the capital stock and national wealth, benefiting current generations at the expense of future generations. While these costs are meaningful, even more dire (but still realistic) debt projections suggest that federal borrowing is unlikely to spark a fiscal crisis in the next few decades. Instead, increases in federal debt will manifest as a slow and steady erosion of our capital stock and national wealth that will ultimately impair living standards.

Political and economic circumstances can increase the risk of a fiscal crisis. We define a fiscal crisis as a sudden, large, and persistent downturn in demand for Treasury securities relative to supply that triggers a sharp and persistent spike in interest rates. Such a rise in interest rates on Treasuries would most likely precipitate a crisis in the global financial system. As discussed below, the conditions we explore could lead to a spike in interest rates that would be temporary if policymakers—including both the Federal Reserve and Congress—take effective action in response; as a result, in those circumstances fiscal and financial crises stemming from sharply and persistently higher interest rates could be avoided.

A fiscal crisis could be set off by a number of developments. We see four main sources of risk, not all of which are necessarily linked to the level and trajectory of the debt.

- Demand or supply of Treasuries could abruptly shift for reasons unrelated to inflation or default risk such that interest rates spike, causing financial market disruptions that the Federal Reserve is unable or unwilling to mitigate.
- Investors could come to believe that the U.S. Treasury might default on interest or principal payments because of political brinkmanship, and policymakers would be unable or unwilling to regain credibility.
- The Federal Reserve could be perceived as abandoning its mandate to preserve price stability and instead allowing for hyperinflation.
- The long-term fiscal outlook could deteriorate so significantly and so sharply that investors abruptly worry about some form of default, leading them to abandon Treasuries until policymakers take actions to rein in deficits.

In most of these scenarios, it is likely within policymakers' power to avoid a crisis altogether, even given the projected increase in federal borrowing. In other words, a fiscal crisis is more likely to result from political missteps. These missteps include threats to default or efforts to undermine credibility of the Federal Reserve as well as enactment of policies that sharply increase deficits and thus raise the specter of strategic default.

We recognize there is great uncertainty about the repercussions of debt as a share of GDP rising to levels far exceeding historical precedents, and an analysis benchmarked to historical relationships in the macroeconomy may understate the risks of a fiscal crisis. That said, our analysis suggests that, so long as the U.S. maintains its strong institutions and a fiscal trajectory that isn't vastly worse than the one currently projected, the chance of a severe and enduring fiscal crisis over the next few decades from debt accumulation appears quite low.

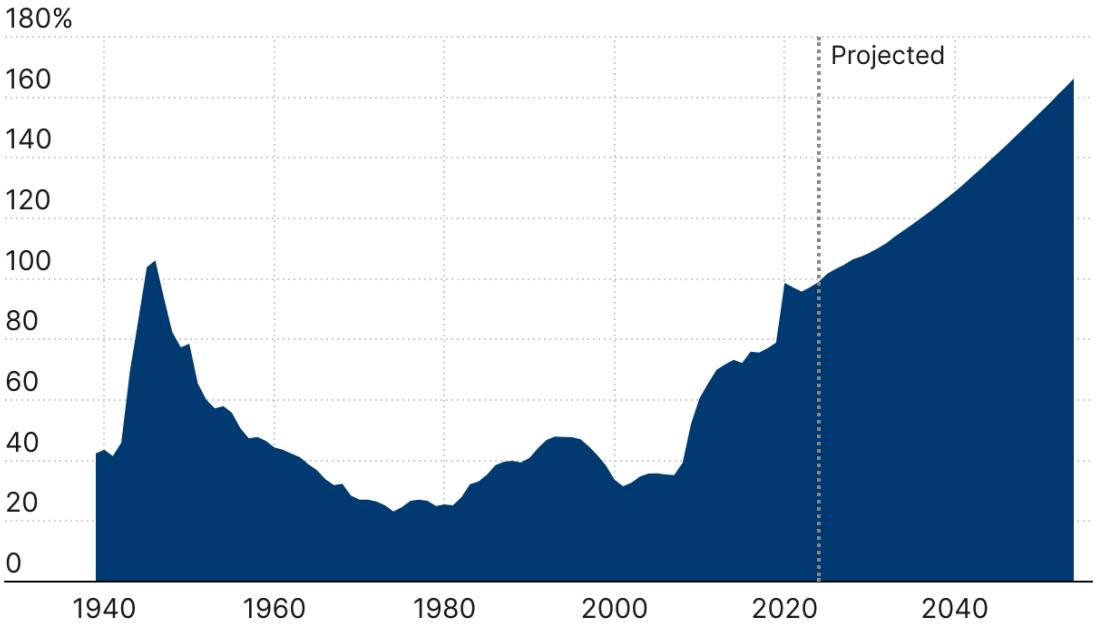
II. What is the projected trajectory for US debt, and what is driving it?

That the U.S. is on an unsustainable fiscal trajectory is well-established and has long been evident in debt projections. Figure 1 shows the Congressional Budget Office's (CBO's) March 2024 long-term projections of public debt under current law.[1] Debt reached 98% of Gross Domestic Product (GDP) in 2024—close to its post-WWII peak of 106% in 1946—and is projected to continue climbing steadily, reaching 166% by 2054. This projected rise in debt is driven primarily by persistent primary deficits that average roughly 2.2% of GDP over the next 30 years, shown in Figure 2.[2] Projections showing a significant increase in debt as a share of GDP of nearly 70 percentage points over the next three decades are not new. Indeed, CBO's projections of the increase in the share over the 2024 to 2054 period were very similar to 15 years ago, although the level of the debt is higher, largely the result of especially sharp increases during the pandemic.

What is responsible for these future primary deficits? One way to assess the root cause is to compare projected primary deficits with the primary deficit in 2006, before the Great Recession and the beginning of the retirement of the baby boom generation. Figure 3 decomposes the change in primary deficits since 2006 into revenues, Social Security and health programs, and other non-interest spending—about two-thirds of which was discretionary spending in 2023.

FIGURE 1

Federal debt held by the public as a share of GDP



Source: Congressional Budget Office

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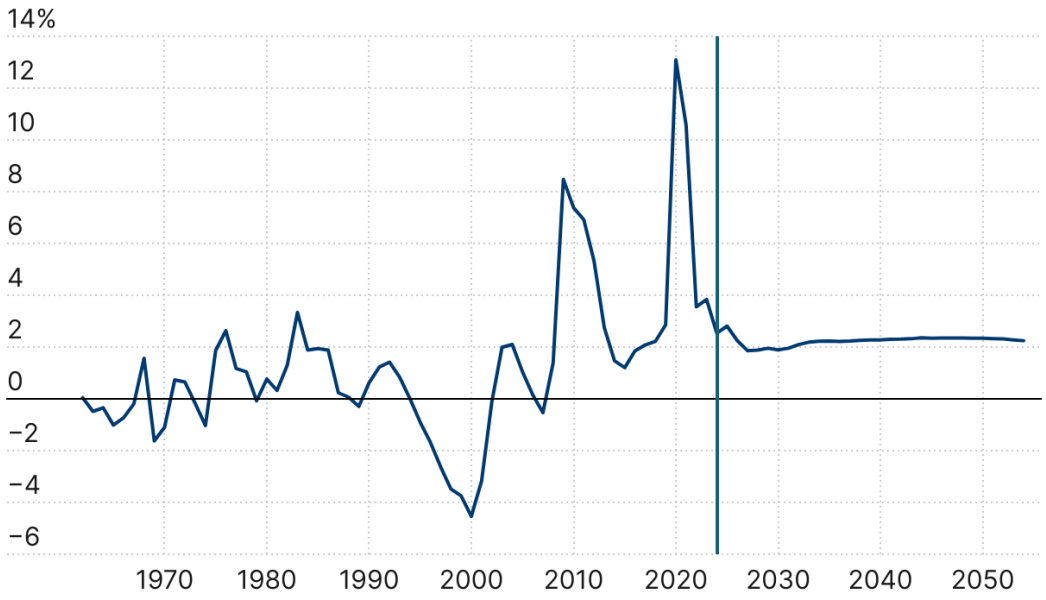
FIGURE 2

Primary deficits as a share of GDP, 1962-2054



Source: Congressional Budget Office

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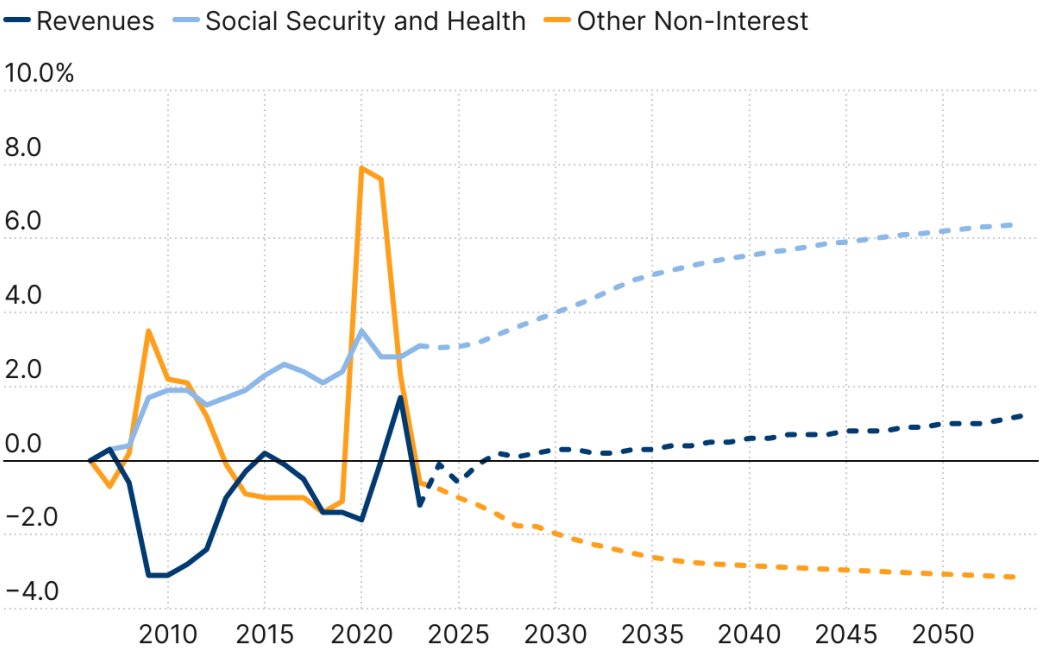
FIGURE 3

The primary deficit as a share of GDP, relative to 2006



Source: Congressional Budget Office, authors' calculations

Note: Dates are in fiscal years

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In 2024, Social Security and health programs accounted for 3% more of GDP than they did in 2006, while revenues and non-interest spending were about the same. Thus, primary deficits as a share of GDP increased from 2006 to 2024 because spending on Social Security and health programs rose but revenues did not. Under current law and conventions for budget projections, projected primary deficits are quite stable, as shown in Figure 2, owing to offsetting factors: Spending on Social Security and health programs grows faster than GDP while discretionary spending and other mandatory spending grow slower, and revenues rise modestly as a share of GDP. The upward pressure on spending on Social Security and health programs is primarily attributed to population aging and rising health care costs. The assumptions underlying the reductions in discretionary and other mandatory spending as a share of GDP are by convention, and future policy may differ.[3] Moreover, the increase in revenues as a share of GDP reflects current law but not current policy, and so it is subject to considerable uncertainty, particularly with respect to the expiration in 2025 of many provisions of the Tax Cuts and Jobs Act (TCJA). We return to this point below when we discuss uncertainties surrounding the CBO projections.

We now turn to our investigation of the costs of debt, beginning with the costs derived from a standard macro model.

III. What are the costs of deficits and debt in a standard macro model?[4]

Deficits are costly to future generations to the extent they reduce national saving. A reduction in saving can reduce private investment, leaving a smaller capital stock (known as "crowd out"), higher interest rates, and lower GDP in the future. A reduction in national saving can also induce an influx of foreign capital; these foreign flows offset the impact of deficits on the domestic capital stock, GDP, and interest rates but increase the foreign ownership of U.S. assets. In either case, deficits mean that national wealth (and the net present value of future national income) is lower than it otherwise would be.

The extent to which deficits affect future living standards thus depends on the extent to which deficits lower national saving. Deficits lower national saving by raising consumption—either by financing government purchases of consumption goods and services, like the services provided by federal employees—or by financing household consumption through higher after-tax and transfer income.

Deficits are unlikely to reduce national saving one-for-one, for a number of reasons. First, when households receive government transfers or tax cuts, they save some of this extra income. For example, the aggregate saving rate out of disposable personal income was about 5% in 2023. For unexpected, temporary tax cuts, estimates of how much different groups spend vary widely in the empirical literature but generally top out at 73 cents for each dollar, meaning that households save at least 27 cents out of each dollar of tax cuts.[5] Second, as national saving falls, interest rates will rise, which may induce some households to increase their

saving. Third, some households might expect future taxes to rise when deficits increase and might increase their saving so as to be able to pay those taxes without decreasing future consumption as much. Finally, some government expenditures are themselves investments rather than consumption—this includes not only investment in infrastructure but also investment in education and even social programs like nutrition assistance and health care that have been shown to yield long-term returns (Hendren and Sprung-Keyser 2020).[6]

It is helpful to consider how portfolios shift when the government runs a deficit. If households increase their saving in response to deficits, then more financial resources are available to buy the additional Treasury debt and private wealth increases.[7] If private saving doesn't increase, either domestic savers shift their portfolio toward Treasuries and away from assets tied to private capital—like corporate bonds and equities—or foreign investors purchase the Treasury debt instead. To the extent that the increase in private saving does not fully offset the decrease in public saving, national saving and wealth are lower than they otherwise would be, but private saving and wealth (which include the U.S. Treasuries households hold) are not.

While the government is continuing to run deficits, consumption may be higher than it otherwise would be despite lower national wealth. In other words, rising federal borrowing means an ever-larger transfer of consumption from future generations to current generations. Consumption only has to fall when taxes are increased or public spending is decreased in order to pay off the accumulated debt.[8] If debt continues to accumulate as a share of GDP, the domestically owned capital stock eventually becomes very small. That extreme scenario is the reason that the fiscal trajectory is unsustainable.

EMPIRICAL ESTIMATES OF THE MACROECONOMIC COST OF DEBT

The effects of debt on future living standards will depend on the specific policies that give rise to the debt, because some policies raise consumption more than others. CBO estimates that, on average, when the deficit goes up by one dollar, private saving rises by 43 cents (national saving falls by 57 cents), net capital inflows rise by 24 cents, and investment declines by 33 cents. However, a policy that increases transfers to liquidity-constrained households likely increases consumption more than a policy that lowers taxes on high-income households.

The net capital inflows as a result of deficits boost GDP but don't directly benefit U.S. residents, so the effect of debt on future living standards is better measured by changes in Gross National Product (GNP), a measure that captures the income earned by U.S. residents, rather than changes in GDP, which measures the income produced in the U.S.[9]

Figure 4 shows CBO's estimate of the evolution of GNP in its extended baseline—under which the debt-to-GDP ratio rises from 99% of GDP in FY 2024 to 166% of GDP by 2054, and under a counterfactual in which the debt-to-GDP ratio remains constant at its 2024 level.[10] According to CBO analysis, by 2054, real GNP would be 4% higher under the constant debt-to-GDP alternative than under the baseline. To put this in context: With a constant debt-to-GDP ratio, GNP per capita in 2054 would be $129,000 in 2024 dollars—52% higher than it is today; with debt rising from 98% in 2024 to 166% of GDP by 2054, real GNP per capita would be $123,000 in 2024 dollars—only 46% higher than it is today. Even if debt as a share of GDP rose almost 70 percentage points over the next three decades, future generations will still be far better off than current ones, although not quite so much as they would be if less debt was accumulated. But of course, accumulating less debt would mean higher taxes and/or lower benefits and thus less consumption of goods and services. Still, policymakers might take those steps to rein in the debt in order to improve the economic performance of the U.S.

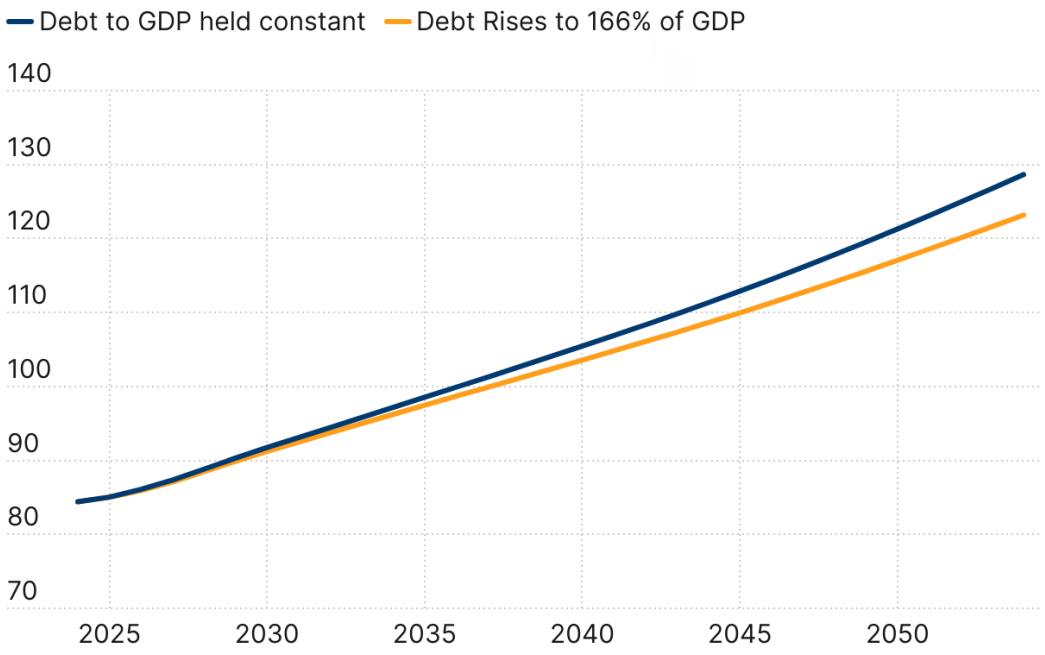
WHAT IS THE MAGNITUDE OF THE POLICY RESPONSE REQUIRED TO STABILIZE THE DEBT?

As discussed above, debt represents an intergenerational transfer: higher consumption today at the cost of lower consumption tomorrow. That transfer can be arrested by stabilizing the debt as a share of GDP and in a way that keeps the ratio constant.[11]

FIGURE 4

Effects of debt on per capita GNP

Per capita GNP in thousands of 2024 dollars



Source: Congressional Budget Office

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Using CBO's projections (CBO 2024c), we calculate that if the debt were allowed to rise to 166% of GDP by 2054, as in the CBO extended baseline, and then action was taken to stabilize the debt, taxes would have to increase or spending would have to be cut by 3% of GDP.[12] If half were done on the tax side and half on the spending side, taxes would be 20.3% of GDP and spending would be 25.8% of GDP, compared to 17.5% and 23.1%, respectively, projected for 2024 under current law. (CBO's extended baseline has both taxes and spending rising as a share of GDP.) While this represents a 16% increase in taxes compared to today, it would still leave overall tax revenues as a share of GDP in the U.S. well below the current OECD average (OECD 2024).[13] We discuss the deadweight loss of policies that raise revenues below.

We calculate that acting now to stabilize the debt instead of waiting until 2054 would lower the size of the adjustment in 2054 from 3.0% to 2.1%. That is, waiting 30 years before taking action to stabilize the debt increases the required adjustment in taxes and spending by roughly 1% of GDP.

Two conclusions follow: First, the required adjustments to fiscal policy to stabilize the debt are sizable, but under a broad set of assumptions, tax revenues would still remain moderate by international comparisons. Second, waiting to stabilize the debt increases the required adjustment, but the increase is modest. Even if all of the adjustment were done on the revenue side and no action was taken until 2054, the resulting tax burden as a share of GDP would still be lower than the current OECD average. Seen in this context, the U.S. has more than sufficient taxing capacity to finance deficits under current law through the next 30 years, and then stabilize the debt.[14] As we discuss below, the constraints are more political than economic.

UNCERTAINTY SURROUNDING CBO PROJECTIONS

Of course, CBO's forecast is subject to great uncertainty, and the effects of rising debt on future living standards could be significantly larger.

Uncertainty about productivity and economic growth. Uncertainty about the baseline trajectory of the economy's path means that there are a wide range of plausible effects of debt on living standards and budgetary outcomes. The assumption about productivity growth is particularly key because of its impact on primary deficits through the tax base and subsequent revenue growth.[15, 16]

CBO estimates that, if total factor productivity (TFP) growth is 0.5 percentage points faster than is assumed in the baseline, the primary deficit in 2054 will be just 0.1% of GDP, compared to 2.2% in the baseline.[17, 18] If this productivity boost materializes, the debt-to-GDP ratio would be just 124% in 2054, and the additional tax revenues and spending cuts required to stabilize it at that level would be just 0.5% of GDP. CBO estimates that per capita GNP will be 70% higher in 2054 than it is today with higher productivity growth and rising debt, compared to 46% in the extended baseline.[19]

On the other hand, if productivity is 0.5 percentage point lower, the primary deficit would rise to 4.6% of GDP in 2054, the debt would be 211% of GDP, and the deficit reduction to stabilize it at that level would be 5.6% of GDP. Future generations would still be better off than current ones, but less so: CBO estimates that real GNP per capita will be 26% higher under a low-productivity growth rising debt scenario, rather than 46% as in the baseline.

CBO doesn't perform 30-year analyses of the effects of changes in labor force growth, but it does examine the effects over a 10-year horizon. Specifically, it finds that the effect of a given increase in the rate of labor force growth on the debt-to-GDP ratio after 10 years would be roughly half the effect of an increase in productivity growth of the same magnitude. But the range of reasonable estimates for labor force growth is likely narrower than for productivity growth under current law, at least over the next 30 years.[20]

Uncertainty about federal borrowing costs (interest rates). Federal borrowing costs are difficult to predict because future interest rates are highly uncertain and the effect of debt on borrowing costs is difficult to precisely estimate. Under CBO's current projections through 2054, borrowing costs do not return to the low levels seen from 2011 to 2020; instead, average federal borrowing costs rise from an average of 3.3% in 2024 to 4.0% by 2054. This rise reflects both the effect of rising debt and a normalization of rates from the very low levels observed from 2010 to 2020. Of course, it is possible that, after the current monetary policy cycle, rates will return to the low levels observed from 2011 to 2020, but it is also possible that rates will be higher.

The effect of higher borrowing rates on future living standards depends on the reason rates are higher than expected.

- If borrowing costs are higher because total factor productivity growth is higher, then the net effect of higher productivity and higher interest rates is as just described (because the high- and low- productivity scenarios assume a close to one-for-one impact on borrowing costs). That is, on net, high rates and high productivity improve the fiscal outlook.
- If interest rates are higher because the marginal product of capital is higher—because there is less capital from crowding out or from a shrinking global supply of savings—then the impact of debt on future living standards will be larger than in the baseline case.[21] However, the negative effects of rising debt on the U.S. economy would still be a slow and steady erosion of output, just less slow than in the baseline projections. As a result, we would not expect to see a large and abrupt increase in interest rates, and thus we would not expect even significant crowding out to bring about a crisis in the next few decades. Policymakers, recognizing that the debt was having much larger effects on the economy than expected, would have time to take deliberate and phased in action to improve the fiscal outlook before the required adjustments became so large.[22]
- If borrowing costs are higher because the risk premium on U.S. Treasuries increases or because demand for Treasuries relative to supply decreases—lowering the convenience yield[23]—then macroeconomic effects arise because some of

the higher payments are accruing to foreigners.[24] CBO estimates that if interest rates are higher than expected by increasing amounts over time—reaching 5.8% in 2054 instead of 4.0% as in the baseline, real per capita GNP would be 41% higher in 2054 than today, rather than 46% as in the baseline. Of course, the required policy changes to service the debt are higher when the risk premium is higher.

If interest rates rise more than expected and the voting public find the interest costs unpalatable, policymakers could take deliberate and phased in action to improve the fiscal outlook. The Canadian experience is instructive: The recession of the early 1990s, coupled with real interest rates of around 10%, propelled a rapid rise in Canada's debt—with debt as a share of GDP rising from 44% to 67% of GDP over the first half of the 1990s. Voters came to view the debt as the "most serious threat to economic stability" (Oreopoulos 1999). The incumbent party lost virtually all of its political power, and moderate reforms to social programs and automatic stabilizers were introduced by the new government. Canada's debt to GDP fell steadily from the mid-1990s until the Global Financial Crisis, and real interest rates fell from around 6% in the mid-1990s to under 1% by 2004. While the spending cuts introduced concerns around Canada's ability to maintain its social safety net, the cuts were sufficient to reverse the sharp rise in its debt and mitigate the associated economic impacts.

UNCERTAINTY OVER FISCAL POLICY

CBO's budget projection may be too optimistic because it assumes no change in legislation. For example, the CBO baseline assumes that none of the expiring provisions of the TCJA are extended. In addition, the baseline assumes that discretionary appropriations rise with inflation and so fall as share of GDP over the next decade.

Modeling more "realistic" legislative outcomes can shift the fiscal outlook substantially. CBO has examined an alternative scenario under which both tax revenues and discretionary spending are a constant share of GDP equal to their historical average. These assumptions have a very large effect on the level of debt—instead of reaching 152% of GDP in 2049, it reaches 244% of GDP.[25] Nonetheless, despite this massive rise in debt, CBO estimates that per capita GNP is only 5% lower than in CBO's baseline—still leaving future generations much better off than current ones.

DEADWEIGHT LOSS CONSIDERATIONS

CBO's estimate of the effects of debt accumulation on GNP reported above don't include any estimates of the effects that the policies chosen to stabilize the debt would have on welfare.[26] Of course, these effects depend on the specific choices by policymakers. Cuts to spending programs with high social value will make future generations worse off than cuts to programs with low social value, and increases in taxes or cuts to benefits that have significant effects on labor force participation or saving will impose more costs on society than tax or benefit changes that don't affect behavior.[27, 28] Still, the fact that delaying action to address the debt will require larger spending cuts and tax increases in the future than acting now suggests that the distortionary effects of future policies will be larger if action is delayed.

A back-of-the-envelope calculation of the welfare costs of delaying action using deadweight loss as a measure of welfare loss is instructive.[29] If action to stabilize the debt is not taken until 2054, and if the policy response is wholly in the form of tax rate increases, then federal taxes would need to rise by about 16%. If policymakers instead act today to stabilize the debt—again, solely through tax increases—revenue in 2054 would need to be about 11% higher than in the baseline.

Feldstein (2009) argues that deadweight loss can be measured by the loss in tax revenue caused by behavioral responses to taxation.[30] The central elasticity of taxable income in the literature is about 0.5 (Gorry, Hubbard, and Mathur 2018). This means that the distortionary effects of the 16% increase in taxes required if action is delayed would reduce welfare by about 8% of tax revenues, or about 1.5% of currently-projected GDP. The distortionary effects of the 11% increase in taxes if action is taken now would reduce welfare by about 5.6% of tax revenues, or about 1.1% of GDP. Thus, the deadweight loss for future generations is just 0.4% of GDP larger if policy is delayed.[31]

IV. How could our debt trajectory create a crisis?

To answer this question, it is necessary to first define a "fiscal crisis." As described in the introduction, a fiscal crisis, in our assessment, refers to a sudden, large, persistent downturn in demand for Treasury securities relative to supply that triggers a sharp and equally persistent spike in interest rates.[32] Such a rise in rates would most likely be accompanied by a dramatic fall in both the value of the U.S. dollar and equity markets. Given the critical importance of Treasuries in global financial markets, the fiscal crisis would likely lead to a financial crisis involving widespread bank losses, a collapse in credit availability, and very likely a global recession.[33]

The broader financial system relies heavily on Treasuries for collateral in critical markets, such as repurchase agreements (repo). A sudden loss of confidence would impair liquidity, potentially leading to widespread bank failures, as banks and financial institutions use Treasuries to meet capital requirements. Moreover, interest rates on U.S. mortgages—which are frequently tied to Treasury yields—would soar, increasing defaults and tightening credit conditions. Global equity markets would experience a sharp downturn, and sovereign wealth funds and foreign central banks holding Treasuries could face solvency concerns, prompting further destabilization. The contagion effect would affect not just financial institutions but also real economies through higher borrowing costs and a contraction in credit. In addition, the resolution of the fiscal crisis might require a sudden turn to fiscal austerity—sharp increases in taxes and cuts in government spending that in themselves could induce a recession in the United States, adding to the costs of turmoil from the financial market breakdown.

The persistence of the downturn in demand, the increase in interest rates, and the effect on financial markets would critically depend on the response of policymakers to the initial events. A quick resolution in the face of a potential crisis could mean that the effects on borrowing rates and financial markets would be muted. For example, the Federal Reserve typically acts as a buyer of last resort in response to sharp downturns in Treasury liquidity. This occurred most recently at the start of the COVID-19 pandemic when Treasury markets seized in response to a rush to cash, and the Federal Reserve rapidly purchased around $1 trillion in assets to stabilize the market. However, if part of the quick resolution is short-term austerity enacted by fiscal policymakers, the negative effects on the real economy could still be painful.

What could spark a fiscal crisis? We see four main sources of risk. The first involves a drop in demand for Treasuries for reasons unrelated to default risk. The other three involve some type of default risk.[34]

1. Market disruptions unrelated to default: Demand or supply of Treasuries could abruptly shift for reasons unrelated to inflation or default risk such that interest rates spike, causing financial market disruptions that the Federal Reserve is unable to mitigate.
2. Political brinkmanship and missed payments: Investors may fear the U.S. Treasury will miss payments due to political gridlock or brinkmanship, leading to a loss of credibility and default concerns.
3. Loss of inflation control: The Federal Reserve could be perceived as abandoning its mandate to preserve price stability and instead allowing for hyperinflation.
4. Strategic default amid a dramatic deterioration in the fiscal outlook: The long-term fiscal outlook could deteriorate so significantly and so sharply that investors abruptly worry about some form of strategic default, leading them to abandon Treasuries until policymakers make conditions more stable.

As we discuss below, we think that these scenarios are unlikely to occur, but it would be foolhardy to suggest that they couldn't happen. In each case, the depth of

the resulting crisis would depend critically on the ensuing response of policymakers. For example, if demand for Treasuries falls abruptly as in scenario 1, does the Federal Reserve step in to ensure financial markets function smoothly, allowing interest rates to rise more gradually instead of abruptly? If policymakers allow the debt ceiling to briefly bind and financial markets react sharply as in scenario 2, do fiscal policymakers respond by quickly raising the debt ceiling? In those cases, the acute crisis could be short lived. More importantly, in most of these scenarios, it is entirely within policymakers' power to avoid the initial crisis altogether, even in the context of the projected increase in federal borrowing.

IV A. The risks of sudden changes in the demand for Treasuries

One common concern is that investors in U.S. Treasuries might suddenly decide to sharply reduce their holdings, which could lead to a flood of Treasuries hitting the market. A similar glut of supply could happen if the U.S. Treasury needed to borrow significantly more than expected in a short period of time. While such developments would put upward pressure on interest rates, further effects could arise from ensuing market panic among investors. If the resulting increase in interest rates was large and abrupt enough, it could trigger further market turmoil.

For instance, a longstanding concern is that China could strategically reduce its holdings of U.S. Treasuries, and, more recently, could reduce its holdings as part of its retaliation to U.S. tariffs. Foreign investors currently own about 30% of U.S. Treasuries, and China—including mainland China and Hong Kong—holds around 3.5%, amounting to roughly $1 trillion. To put the $1 trillion of China's holdings in perspective, note that the Federal Reserve has shed about $2 trillion from its balance sheet in its current round of Quantitative Tightening (QT). When the Fed reduces its balance sheet by selling Treasuries, other buyers must absorb these sales, and thus the effects on interest rates from QT may help to gauge what would occur if China were to sell its holdings. Federal Reserve economists estimate that $2.5 trillion of QT could raise interest rates by about 50 basis points (Crawley et al. 2022). That relatively modest impact suggests that a large-scale sell-off by China might not cause significant concerns for either the costs of borrowing for the federal government or financial stability.

That said, the Fed's QT programs sell Treasuries in a slow, planned manner, while a sell-off by China or a similarly sized unexpected increase in supply of Treasuries would be more abrupt and less orderly. Market panic could ensue if there were signs of a sudden drop in the demand for Treasuries. The Fed would most likely take actions to restore market functioning and to smooth out any increase in interest rates owing to persistent changes in supply and demand.

An apt example of markets panicking is the one cited above, in which during the early days of the COVID-19 pandemic in March 2020, a rush to sell assets—including Treasuries—overwhelmed the market. This created a breakdown in liquidity, the widening of bid-ask spreads, and a subsequent lack of proper functioning in the Treasury market. The Fed stepped in quickly, pledging to buy securities in whatever amounts needed to maintain smooth market functioning.

Could near-term disruptions in Treasury markets because of a shortfall in demand relative to supply be so large that even the Fed couldn't respond effectively? Given a credible and well-functioning Fed, it is unlikely. The Fed has the capacity to purchase an unlimited amount of Treasuries. Still, as the Treasury market continues to grow, episodes of dysfunction might become more frequent, potentially undermining confidence in U.S. Treasuries as the world's safest asset. As Darrell Duffie observed, the March 2020 turmoil revealed that the structure of the Treasury market was "overdue for an upgrade," (Duffie 2020). Institutional reforms may be necessary over the coming decades to minimize the risks of future short-term disruptions in the Treasury market.[35]

The Fed's ability to reassure investors in the midst of market disruptions would be made more challenging if the Fed's credibility were simultaneously in question. To prevent market participants from interpreting Fed

intervention as an abdication of its mandate to maintain low and stable inflation, the Fed would have to explain its actions in such a way as to reassure investors that if a reduction in demand for Treasuries relative to supply raised the neutral rate of interest, the Fed would adjust its policy accordingly.

Changes in Fed independence or re-interpretations of the Fed's mandate could undermine investors' faith that the Fed will respond effectively and responsibly to crises—and thus exacerbate the threats of a sudden change in demand for Treasuries. While the Fed certainly has the capacity and willingness to intervene now, it is possible that institutional changes over time—including greater limits on the Fed's ability to purchase unlimited amounts of Treasuries, more political pressure on the Fed, or compositional changes among the Federal Open Market Committee (FOMC) participants—could make it less able or willing to do so.[36] In addition, those changes could reduce market participants' confidence in the Fed's ability to navigate the near-term disruption and, if necessary, allow interest rates to rise after such a disruption in order to maintain low and stable inflation over the longer term.

IV B. Threats of default from political brinkmanship jeopardize Treasury's borrowing authority

Over the past several years, the U.S. has had some "near misses" with respect to the debt limit. In 2011, 2021, and 2023, Congress raised or suspended the debt limit just days before it was binding (the so-called "X-date," after extraordinary measures run out and Treasury would have to actually delay some payments). Most analysts assume that even if the debt limit were to bind, Treasury would continue to pay interest on its securities in full and delay payments on other types of spending instead. However, it is unclear whether Treasury has the legal authority to prioritize spending that way and, if so, whether a future administration would opt for such prioritization. (See Edelberg and Sheiner 2023 for a discussion.)

This flirtation with delayed payments has led credit rating agencies to downgrade the U.S. debt. Standard & Poor's downgraded the U.S. credit rating from AAA to AA+ after the 2011 debt limit impasse, and Fitch Ratings downgraded from AAA to AA+ in 2023, citing the repeated political brinkmanship over the debt ceiling. Rating agency downgrades can be a symptom of a deteriorating fiscal outlook, but they do not constitute new information because rating agencies are simply summarizing the information that is also available to market participants. Furthermore, these episodes don't appear to have had lasting effects on the U.S. Treasury market or borrowing rates.

What would happen if a debt ceiling actually did bind—if Congress chose not to act in time? If Treasury were to continue making payments on Treasury securities, it is unclear how damaging a binding debt limit would be. Much would depend on how long the impasse lasted, whether there were legal challenges to the prioritization of interest payments, and how investors interpreted the episode in terms of the likelihood of similar episodes in the future.

The behavior of the Fed is also key. Just as in scenario 1 discussed above, the Fed could take action to calm Treasury markets in an event like a binding debt ceiling. In 2011, for example, the FOMC discussed purchasing defaulted Treasury securities, treating them as having the same value as non-defaulted securities to preserve market liquidity. This option, though considered "loathsome" by some FOMC members because of the optics of the Fed seeming to circumvent Congress, was generally accepted by FOMC members as a necessary action in extreme circumstances in order to prevent panic and maintain confidence in Treasury securities (FOMC 2013).

The primary factor in whether such an episode turned into a protracted financial and fiscal crisis is how long policymakers allowed the debt ceiling to bind and the extent to which investors perceived such threats to be a more permanent fixture in Treasury markets. Presumably, policymakers would quickly respond to what would be a very negative reaction by businesses, households, and investors. In that case, the damage inflicted by policymakers allowing the debt ceiling to

bind would be mitigated by those same policymakers quickly reversing course.

Policymakers could credibly threaten to default on the debt in other ways. For example, in 2020, Senator Lindsey Graham supported canceling the U.S. debt held by China (Lynch 2020). If investors perceived even a small but credible chance of default, they could demand a significant default risk premium that would raise Treasury rates. If this triggered a persistent sell-off, the spike in rates could be large enough to create a financial crisis.

This crisis would be the result of political missteps rather than risk of a strategic default, because as we discuss in Section IV D below, the fiscal outlook—even under remarkably bad scenarios—would not be helped by default.

IV C. The potential for higher inflation

Some analysts argue that as debt rises as a share of GDP, the Fed will be pressured to raise inflation in order to lower the real value of the debt and limit the need to raise taxes or cut spending (see, for example, Calomiris 2023). This is sometimes referred to as "fiscal dominance." However, as we demonstrate below, inflation has limited ability to address our fiscal challenges.[37] In addition, deteriorating consumer sentiment over the past few years has made clear that inflation is very unpopular. Politicians might not prefer higher inflation—which affects every consumer—to spending cuts or tax increases, particularly if these can target certain groups. And any attempt to use inflation to erode the value of the debt would likely lead markets to expect ever higher inflation going forward, likely increasing interest rates by more than the increase in inflation and thereby worsening the fiscal outlook. Finally, monetary policy that is consistent with expectations of ever higher inflation would require a politicization of the Federal Reserve, which would unsettle financial market participants.

To see how inflation can affect the fiscal outlook, it is useful to examine the equation that characterizes the evolution of the debt-to-GDP ratio. The change in the ratio of debt to GDP from year t to year t+1 is equal to the debt-to-GDP ratio in year t, d_t, multiplied by the difference between the average interest rate paid on government debt, i, and the rate of nominal GDP growth, g, plus the primary deficit in year t:[38]

$$d_{t+1} - d_t = d_t\,(i - g) + pd_t$$

The first channel through which inflation can affect the debt trajectory is through the $(i - g)$ term. An expected increase in inflation will increase i and g equally and so will have no effect on debt dynamics. If nominal GDP rises an additional 3% because of inflation, say, and interest rates do, too, this will have no effect on the trajectory of the debt-to-GDP ratio. However, an unexpected increase in inflation will increase g immediately but not increase the government's borrowing cost, i, until the debt is rolled over. The efficacy of inflation in lowering the debt to GDP trajectory therefore depends on the maturity of the debt. When the debt is very short, an unexpected increase in inflation will have the same effect as an unexpected one-time increase in the price level. When the debt maturity is long, however, the effect is greater because it can take years for the government's borrowing costs to fully reflect the higher inflation—that is, with a higher inflation rate, g will be higher than i for some time.

Of course, the Fed could try to repeatedly surprise investors by raising inflation multiple times. But once investors suspect that the Fed is trying to use inflation to reduce the value of the debt, inflation expectations would increase and borrowing costs would likely increase much more than actual inflation. Were the Fed to continue to try to inflate away the debt, hyperinflation could ensue, leading to a deterioration in the fiscal outlook and likely a global financial crisis as well. An historical example—as noted by Makinen and Woodward (1989)—occurred in the 1920s in France when the Banque de France allowed inflation to try to keep rates on France's war debt low. To happen here, the Federal Reserve would have to abandon its commitment to stable inflation, likely fully under the control of fiscal policymakers, and would have to pursue a strategy that was bound to fail. We do not foresee such a crisis here unless our political system undergoes major changes.

In any case, even a successful attempt to use inflation to mitigate our fiscal challenges would have a limited effect. The primary issue over the next 30 years is not the accumulation of debt, per se, but the large projected primary deficits. For example, CBO projects that from 2054 to 2055, the debt-to-GDP ratio will rise by 2.9 percentage points, with 2.2 percentage points of this increase stemming from primary deficits and only 0.7 percentage points from rising debt service costs (using the ($i - g$) formulation from above). Even if inflation could somehow eliminate all debt accumulated up to that point (which, as we argue below, it cannot), the majority of our fiscal challenge would persist.

Inflation could also lower primary deficits—the second term in the equation above—because some federal spending is set in nominal terms, and the tax code is not fully invariant to inflation.[39] For example, increases in physician payments in Medicare are set in nominal terms; thus, higher inflation lowers the real value of physician reimbursement. But inflation-induced policy changes are not likely to be those that politicians would choose. For example, hospital payments are indexed to input costs—and so would rise with inflation—while physician payments are not, leading to some unsustainable payment patterns between hospitals and physicians that Congress would most likely override. But it is conceivable that policymakers would not offset small changes in real spending that are the result of inflation, and so there could be some limited help from this channel.

We now turn to empirical estimates of how inflation might affect the fiscal outlook through the interest rate channel.

The effects of higher inflation on borrowing costs. We conduct simulations to evaluate the potential for permanently higher inflation to affect long-term budget outcomes. In particular, we use the detailed breakdown of outstanding Treasury securities as of September 30, 2024, from the Monthly Statement of the Public Debt (U.S. Treasury 2024). We assume that all floating-rate securities and Treasury Inflation Protected securities are immediately affected by higher rates, and other securities are affected as soon as they mature and are rolled over. Our estimate of the share of baseline debt that is unaffected by higher interest rates is shown in Figure 5 below. One can see that even by year 11 most of the outstanding debt has been rolled over and so bears a higher interest rate because of inflation.

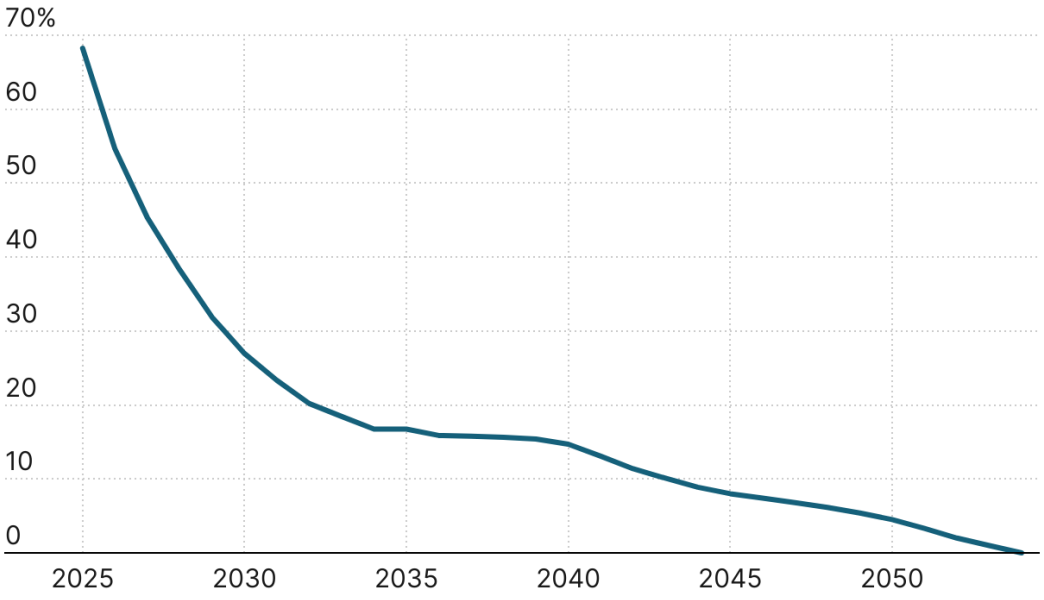
Using these estimates and the baseline debt trajectory, we can calculate the amount of existing debt unaffected by interest rates in each year because it has not yet rolled over. The remaining debt will face interest rates that are higher. We are thus able to use the series shown in Figure 5 to determine the effects on the government's average borrowing rates from higher interest rates because of inflation.

For example, Figure 6 compares the debt-to-GDP trajectory under higher inflation rates assuming that the increase in inflation feeds through one-for-one into interest rates on new securities. The effect of an inflation rate that is 3 percentage points higher than assumed in the CBO baseline is quite small—the projected debt-to-GDP ratio after 30 years is 152% in the high inflation scenario versus 166% in the baseline, meaning that the cost of debt service in that year is just 0.08% of GDP lower. Even inflation that is 10 percentage points higher than under the baseline only brings the debt-to-GDP ratio in 30 years down to 134% of GDP.

Because most of the debt is rolled over within just a few years, one might argue that a persistent increase in inflation is not necessary. Perhaps the Fed could engineer a short period with very high inflation—say 30%—and then return to target. That strikes us as fanciful. First, the Fed's current tools aren't sufficiently powerful to raise the price level by that much. (Witness the many years in the 2010s in which inflation was below target.) Furthermore, any move in that direction would undoubtedly undermine Fed credibility, raise inflation expectations sharply, and increase the inflation premium.

FIGURE 5

Share of debt unaffected by higher rates



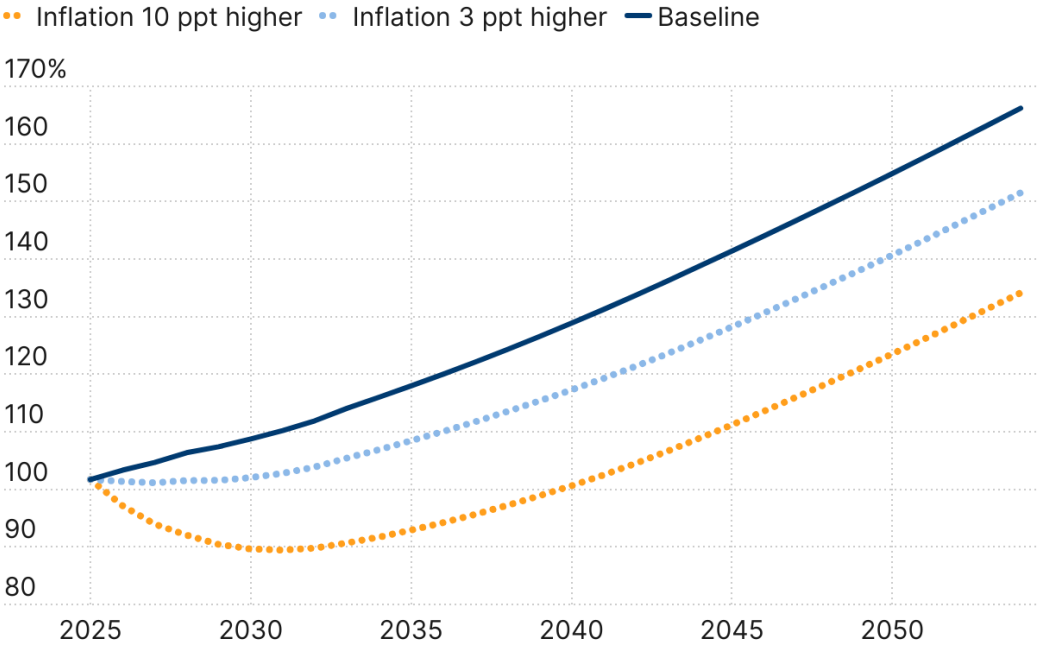
Source: U.S. Department of the Treasury, authors' calculations

BROOKINGS

Note: Dates are in fiscal years

FIGURE 6

Debt-to-GDP trajectory with higher inflation



Source: Congressional Budget Office, U.S. Department of the Treasury, authors' calculations

BROOKINGS

Note: Dates are in fiscal years

IV D. A concern about strategic default in the face of a worsening fiscal outlook

While we previously discussed the consequences for Treasury markets from higher inflation and default risk from political brinkmanship, here we describe how concerns among investors regarding strategic default could trigger a sell-off and a spike in interest rates.

Under current law or any reasonable fiscal outlook, strategic default—the intentional default on U.S. debt—is exceedingly unlikely because it would make the U.S. worse off, not better. The U.S.'s primary fiscal challenge lies not in the stock of debt but in projected future primary deficits. That means the potential benefits of default are quite limited since inevitably the U.S. would lose access to capital markets. For example, as we described above, if the U.S. were to follow current law through 2054 and then take action to stabilize the debt, taxes in 2054 would have to be increased by about 16% or spending reduced by 14%, or some combination thereof.[40] In contrast, if the U.S. instead defaulted in 2054, the federal government would need to immediately balance the federal budget. That would require only moderately smaller and necessarily abrupt policy changes, such as increasing taxes by 12% or cutting spending by 10%.[41]

The costs of default would far outweigh those modest fiscal benefits. First, because about 70% of the debt is held by Americans, most of the savings from foregone interest payments would be at the expense of U.S. households. Second, a default would almost certainly trigger a severe global financial crisis, inflicting significant economic damage on U.S. households. Third, the federal government would no longer have the ability to run deficits during economic downturns or respond effectively to crises such as pandemics or wars. Finally, defaulting on our debt would mean relinquishing the U.S.'s status as a global financial leader, with far-reaching consequences that extend well beyond economics.

But what if the debt appears on track to become so large that we couldn't repay it without enormous harm to the economy and thus strategically defaulting—and losing access to credit markets for at least some time—might be a better option? Interest rates would soar in this scenario, which would only serve to increase the probability of default. We interpret such conditions as the U.S. having no fiscal space, effectively being cut off from credit markets.

Over the next several decades, one remote scenario that could lead to that outcome would be a massive, negative economic shock that is expected to persist—something like a full-blown war, a Great Depression-style downturn, or a very significant country-wide climate event. On one hand, the risk of such a shock is remote enough that policymakers might choose to deprioritize planning for it. On the other hand, taking the costly steps of reducing the stock of debt would be a form of insurance as it would lower the chance that strategic default is a better financial option; that would help to ensure access to credit in the face of a massive negative shock.

In our view, a more likely scenario over the next several decades is that Congress works to enact legislation that balloons the debt—an elimination of taxes on corporate profits and Social Security benefits, the enactment of Medicare for All, or the provision of Universal Basic Income. Investors might conclude that Congress had abandoned all fiscal discipline and thus might also raise their projections for future deficits and increase the probability of eventual default, either directly through nonpayment or through hyperinflation.

Whether such a scenario leads to a protracted financial and fiscal crisis would depend on whether policymakers changed course in response to investors' concerns. As bond market participants start to worry more about the sustainability of the debt and as interest rates rise much more than currently expected, Congress could respond by moving credibly toward tighter fiscal policy.[42] Of course, if those movements are abrupt enough, they could precipitate a recession. The Fed would undoubtedly make monetary policy more accommodative to ease the adjustment, but if the policy changes are large enough, their ability to

stimulate the economy might be constrained by the effective lower bound (although with debt much higher than projected in CBO's baseline, interest rates would also likely be much higher, giving the Fed more room to conduct accommodative monetary policy).

The episode in the U.K. is instructive. In September 2022, then-Prime Minister Liz Truss introduced a mini-budget that included significant unfunded tax cuts, startling financial markets.[43] Bond market vigilantes reacted swiftly, causing U.K. government bond yields to surge and the pound to plummet to record lows against the dollar. The yield on the 10-year gilt increased from 3.5% immediately before the budget release to 4.0% just days after. The sharp rise in borrowing costs and associated turmoil forced the Bank of England to intervene, buying long-dated bonds to stabilize markets and prevent a broader financial crisis. A large part of the turmoil was the result of U.K. pensions funds having to liquidate their Treasuries—a short-term disruption similar to the one discussed in scenario 1. The prime minister quickly reversed her proposals, and interest rates on gilts fell back. In retrospect, it is hard to know what to make of this episode. Rates were already rising because of higher inflation, and indeed, rates began rising again after Truss resigned—reaching 4.7% by July 2023. Still, at least part of the rise in rates was the result of the prospect of higher deficits and the fact that Truss was signaling that she was willing to ignore the institutions set up to maintain fiscal responsibility.[44] Policymakers reacted by changing course.

If circumstances were similar in the U.S., it is worth considering the potential role of the Fed. The Federal Reserve's role as lender of last resort can help restore confidence in Treasuries in the case of a run—when most sellers are offloading Treasuries primarily out of fear that others will do the same. If some investors begin to worry about the trajectory of fiscal policy and interest rates start to spike, the Fed can likely stabilize Treasury markets temporarily. By doing so, it can provide fiscal policymakers with a critical window to reassure markets that a default is not on the table—perhaps by taking meaningful steps to address the nation's long-term fiscal challenges, as was the case in the U.K. during the Truss episode.

What if policymakers don't change course in response to investors' concerns? If investors came to believe that the U.S. was never going to address its long-term fiscal challenges and that strategic default on the debt was really a serious possibility, the result could well be a cataclysmic event. The federal government could lose access to capital markets, making it unable to roll over its debt. The Fed's ability to intervene effectively would likely be severely constrained. As part of the federal government, the Fed would struggle to maintain credibility if investors believed there was a high probability of default. There is, after all, no economic distinction between the Fed purchasing Treasuries and paying interest on reserves and the Treasury engaging in operations to buy back long-term debt while issuing short-term maturities. If conditions deteriorate to the extent that investors are unwilling to lend to the Treasury even at very short maturities, they would likely view holding deposits at U.S. banks—backed by reserves at the Fed—as equally unacceptable. Further, as Olivier Blanchard explains, central banks should work to fully mitigate market panic when it is "for no good reason" but should only work to "limit contagion and induced financial crises" if markets move abruptly for more fundamental reasons (International Economy 2024).

Ultimately, the nation must address its fiscal challenges by either raising taxes or cutting spending. A perceived unwillingness to never take these steps would likely lead to a fiscal crisis, even with a Federal Reserve willing to act as a lender of last resort.

But, as we noted above, because the costs of allowing such an event to unfold are so enormous, it is far more likely that policymakers would act preemptively to restore fiscal discipline and avoid financial collapse.

V. How can we be so sanguine about the debt when other countries have experienced debt crises?

Our analysis suggests that a fiscal crisis here is not especially likely, and the most probable consequences of debt accumulation are those described by the standard macroeconomic model. Yet recent history includes numerous examples of countries experiencing what are widely viewed as fiscal crises—including Argentina's crisis in 2001, the Asian financial crisis in 1997, and the Greek crisis in 2010. What are the key characteristics that make such crises less likely for the U.S.?

Paul Krugman (2014) and other economists have argued that countries borrowing in their own currency and with a central bank that acts as a lender of last resort are much less likely to suffer financial crises.[45] A central bank in a country borrowing in its own currency can create money to finance its debts and so avoid default. Such monetization of the debt need not be inflationary so long as the central bank raises interest rates sufficiently, and as discussed above, borrowers still believe that the debt will eventually be repaid in full. Borrowing in one's own currency also shields a country from depreciation risk, which can make financing a given debt much more difficult. For example, Argentina's 2001 crisis was worsened by its large dollar-denominated debt. As the country ran out of dollars, it couldn't create more, and as investors withdrew their capital, the peso depreciated dramatically. Argentina's debt-to-GDP ratio jumped from 55% to 150% as the value of its debt soared due to the currency collapse. A similar dynamic played out during the Asian financial crisis, when countries that had pegged their currencies to the dollar experienced sharp depreciations and skyrocketing debt.

Without a central bank acting as a lender of last resort, even countries borrowing in their own currency can suffer a loss of market confidence. Take Greece as an example: Greece's crisis occurred partly because it did not have an independent central bank capable of creating money. The European Central Bank (ECB), which manages the euro, imposed strict austerity measures in exchange for a bailout, exacerbating the crisis. However, in 2012, ECB President Mario Draghi gave his famous "whatever it takes" speech, in which he committed the ECB to act as a lender of last resort to stabilize the eurozone (Draghi 2012). This marked a turning point in the crisis: Interest rates on bonds from Spain, which had been soaring despite a quite modest debt-to-GDP ratio, came down sharply after the speech as investor confidence was restored. As Krugman pointed out, the Federal Reserve has always been clear about its role as a lender of last resort, whereas the ECB only made this commitment explicit after Draghi's statement.

A country's credibility in financial markets also relies heavily on the strength of its institutions. In Greece's case, the crisis was partly precipitated by revelations that the government had been misrepresenting its fiscal position. By contrast, the U.S. benefits from the strength of its institutions—including CBO, which produces high quality, non-politicized analysis; statistical agencies that produce data independent of political agendas; and an independent Fed. These agencies help to maintain investor confidence by preventing sudden shocks to the market from information gaps or manipulation. Indeed, CBO has been warning for years about the pressures underlying rising debt, and CBO's projections of the rise in debt from 2024 on have been fairly stable over time.

VI. Conclusion

The ongoing accumulation of debt relative to GDP coupled with persistent projections of further deterioration has made fiscal concerns an ongoing feature of policy debates. Yet, despite decades of worry over the U.S. fiscal position, troubled parties often fail to precisely define exactly what they find concerning. This paper aims to assess the likely and less likely costs of ongoing debt accumulation and to identify the channels through which those costs might materialize.

We conclude that the realized and projected expansions in debt will almost surely erode future living standards. This gradual effect occurs as government deficits lower national saving, which in turn can reduce private investment, shrink the size of the capital stock, raise interest rates, and reduce GDP in the future. Put differently, much of today's government borrowing benefits current taxpayers at the expense of future ones.

A different concern is that the fiscal imbalance will lead to a crisis in Treasury markets, which will spill over into the broader financial sector—with the potential to upend the entire U.S. and global economy. We identify several channels that could trigger such a crisis, largely related to counterproductive actions by Congress and the president, such as threatening default on U.S. Treasury securities or taking steps that very significantly worsen the fiscal trajectory so that investors worry about strategic default being a good option.

Although there is great uncertainty about the repercussions of debt as a share of GDP rising to levels far exceeding historical precedents, our analysis suggests that, so long as the U.S. maintains its strong institutions and a fiscal trajectory that isn't vastly worse than the one currently projected, the chance of a fiscal crisis from debt accumulation over the next few decades appears quite low.

Endnotes

1 This paper is based on CBO's March 2024 projections. CBO released new projections in January 2025 showing public debt reaching 152% of GDP in 2054, down from 166% in the March 2024 projections.

2 The change in the ratio of debt to GDP is equal to the primary deficit plus the debt multiplied by the difference between the interest rate and the rate of GDP growth ($r - g$). Because the difference between these two rates is very small—and is indeed negative in CBO's projection for the next 18 years—interest payments contribute little to rising debt to GDP levels, despite rising interest payments as a share of GDP.

3 The Balanced Budget and Emergency Deficit Control Act of 1985 specifies that CBO assume that discretionary appropriations grow with inflation, unless caps on discretionary spending have been imposed by previous legislation (CBO 2023). However, CBO only uses this assumption for the 10-year budget window. After that, CBO assumes that discretionary spending rises at the rate of nominal gross domestic product (with a five-year transition period) (CBO 2024b).

4 In our view, the costs of debt are best expressed in terms of future living standards. But the costs of debt are often described in terms of budgetary outcomes—how much will taxes have to increase or spending be cut in order to stabilize the debt? Sheiner (2025) does a detailed crosswalk between these two perspectives. She shows that, after accounting for risk, the increase in taxes/reduction in spending required to stabilize the debt are larger than the effects of debt on future living standards. She also shows that the macro and budgetary effects are not additive: Future generations don't have less income and higher taxes. Future private pre-tax income (including interest on Treasuries) actually increases with the level of debt. However, after-tax and transfer income falls and consumption possibilities diminish when the government starts cutting spending and raising taxes to stabilize the debt. In a closed economy, there are also distributional consequences of debt, with wages falling and capital income rising.

5 There are various reasons people might not increase their consumption one-for-one with increases in transfers or reduction in taxes. People might have rules of thumb about what fraction of their income they save; they may expect the increased income to be temporary; and they may foresee the future tax increases/spending cuts necessary to stabilize the debt.

6 One can define the amount of investment as the amount of spending that would yield the private return on capital. If the government spends $1 and gets a 20% return while the private return is 10%, one can say the investment was $2. Similarly, if the government spends a $1 and gets a 5% return while the private return is 10%, one can say that the investment was $0.50.

7 We simplify the exposition here slightly. The people who increase their saving may instead buy another asset—but the holder of that asset must then take the funds and purchase Treasuries. The net effect is the same.

8 Of course, as the debt climbs and the inevitability of tax increases and spending cuts become clear, households may choose to increase their saving to smooth the expected decline in consumption.

9 As shown in Sheiner (2025), debt is less costly to future generations when foreign inflows offset the decline in domestic saving caused by deficits. The intuition is that the boost to domestic investment raises wages more than it reduces the capital income of U.S. savers.

10 When CBO did its analysis, it projected the debt-to-GDP ratio for 2024 to be 99%, but the actual share was 97.8%.

11 The ratio of public debt outstanding to GDP is the most conventional metric for characterizing fiscal sustainability, but economists have suggested alternative measures. For example, Furman and Summers (2020) suggest either measuring the ratio of the stock of outstanding debt to the present value of current and future GDP, or the ratio of real interest payments to GDP. Other measures are tangentially related to the ratio of debt to GDP. Auerbach (1994) advanced the notion of a "fiscal gap," defined as the necessary annual adjustment,

as a constant share of GDP, to stabilize the debt-to-GDP ratio. More recently, analysts often cite the relationship between primary deficits, real interest rates, and the growth rate of the economy (commonly referred to as "r minus g") in determining the trajectory of debt-to-GDP.

12 As shown in Blanchard (2019), stabilizing the debt requires running primary surpluses equal to the debt multiplied by the difference between the interest rate and the rate of GDP growth. The intuition is that *r* is a measure of the growth rate of the debt, while *g* measures the expansion in resources available to pay the debt.

13 The OECD compares tax revenues across countries that includes revenues from all levels of government—including state and local, for example. In 2022, the OECD average was 34.0% while the U.S. share was 27.6%. An increase of 1.5% of GDP in 2022 would have only made up only a small part of the 6.4% of GDP difference.

14 Auerbach and Yagan (2024) investigate the potential costs of waiting to take action to stabilize the debt under their assumption that responsible policy action should reduce the possibility of debt as a share of GDP reaching 250%. They find that if abrupt but permanent fiscal consolidation was limited to 1.5% of GDP (a degree of consolidation they see as plausible in the U.S.), such consolidation would have to occur with some frequency.

15 The tax system is indexed to inflation but not to real income growth. Higher real income moves taxpayers into higher tax brackets, raising the average tax rate, a phenomenon known as "real bracket creep."

16 The effect of productivity growth on the fiscal trajectory is muted by the fact that the interest rate is estimated to rise about one-for-one with productivity growth. As noted above, stabilizing the debt requires running primary surpluses equal to the debt multiplied by the difference between the interest rate and the rate of GDP growth, or (*r* - *g*) times the debt. An increase in productivity growth will raise borrowing costs (with a lag).

17 In CBO's analysis, when GDP increases, revenues and interest rates rise about one-for-one, while Social Security and Medicare rise less and other mandatory spending and discretionary spending are maintained at baseline levels.

18 Historical evidence suggests more upside than downside risk on productivity growth. Under CBO's 2024 projections, real GDP per hour worked (economy-wide productivity) is expected to rise by an average of 1.4% per year. If this projection holds, the average rate of productivity growth over the next 30 years would be the lowest of any 30-year period in the post-war period, although just a touch lower than the average experienced over the past decade. There is clearly upside risk to this forecast simply from the longer-term historical experiences and especially from the advent of generative AI. On the other hand, increased fragmentation and a movement away from globalization could lower productivity growth. Still, an additional 0.5 percentage point increase in the rate of productivity growth would remain within historical norms (the 30-year rate was 1.9% or higher from 1978 to 1988), while a 0.5 percentage point decrease would fall outside historical precedent, even over a 10-year period.

19 Of course, the cost of debt to future generations is higher when productivity growth is higher because the crowded-out capital would have earned a high return. Still, a social planner would want to balance out the higher opportunity cost of current consumption when productivity is high against the desire to smooth consumption across generations.

20 A 0.5 percentage point increase in labor force growth over 30 years would result in the labor force being about 15% larger in 30 years than in CBO's extended baseline. To manage this increase through labor force participation would require the labor force participation rate to reach 70.5% by 2054, compared to CBO's estimate of 60.7%. This is an enormous increase in participation completely outside of historical experience. If, instead, the labor force was 15% smaller, the rate in 30 years would be 52.2%—on an age-adjusted basis, roughly equal to the rate in the late 1950s before the rise in women's labor force participation. In contrast, a change in immigration policy could lead to significantly different population growth outcomes over the next 30 years than what CBO projects under current law. According to Census simulations, to lower the size of the working-age (18-64) population by 15% by 2055 would require there to be zero net immigration over the

next 30 years (U.S. Census Bureau 2023). The Census' high immigration scenario would raise the size of the working age population in 2055 by 9%.

21 For example, other countries also face rising debt because of population aging and health costs (IMF 2019).

22 A major question is the extent to which policymakers in the future will adjust policy if it turns out that debt is more costly than is expected. Auerbach and Yagan (2024) analyze the responsiveness of the federal government to deficits and debt. They show that policymakers used to respond to unanticipated increases in the deficit, but that responsiveness ceased in about 2003. Of course, this was also a period of unusually low interest rates, which meant that debt appeared much less costly.

23 How large is the projected supply of Treasuries relative to the wealth? Treasuries are currently about $26.5 trillion. This represents about 18% of U.S. household wealth and 5% of worldwide wealth. Assuming that worldwide wealth rises with U.S. GDP, the CBO extended baseline debt projections would raise these shares to 30% and 9%, respectively. It is possible that investors would pay less of a convenience yield to hold 9% of their wealth in Treasuries than 5%.

24 In a closed economy, it is only the degree of crowding out that affects future living standards. Unless people receiving higher rates on their Treasuries increase their consumption, crowding out will be the same and so the effect on living standards will be the same. This occurs because the increased interest rates would be paid to American holders of Treasuries, and so the net effect would be zero. Of course, higher interest rates on Treasuries could induce more consumption, but to the extent households required these higher rates because they were worried about being repaid, the higher rates wouldn't represent an increase in wealth and would be less likely to induce an increase in consumption.

25 CBO doesn't extend this scenario through 2054.

26 CBO considers the effects on GDP and on labor force participation of two broad categories of policies that could be used to stabilize the debt in CBO 2022. The effect of a policy on GDP is different from the effect of a policy on well-being: People who reduce their labor force participation in response to higher taxes enjoy more leisure, so the welfare effect is smaller than the effect on GDP. In contrast, when people increase their saving in response to a cut in retirement benefits, GDP increases while welfare declines. Deadweight loss captures the welfare costs of policy changes.

27 Taxes and subsidies that address externalities—like a carbon tax—can change behavior in ways that improve welfare.

28 Hendren and Sprung-Keyser (2020) compare the welfare costs of a wide array of spending and tax policies using the marginal value of public funds. For spending programs, this is defined as the ratio of the willingness to pay for a policy divided by the cost to the government, and for taxes, the private costs divided by the revenue received by the government. This measure is related to but not identical to deadweight loss. Their results show that the costs to households of a given reduction in the deficit vary widely across policies.

29 As in Chetty (2009), deadweight loss is "the net dollar-value loss from raising the tax rate and returning the revenue lump sum to the taxpayer."

30 The intuition is that taxpayers who alter their behavior must be gaining (in terms of increased leisure or higher consumption) the value of their lost private income at the margin. Chetty (2009) argues that estimates of deadweight loss based on the elasticity of taxable income are too large if some of the tax avoidance behavior represents transfers to others—e.g., an increase in charitable donations. Gorry, Hubbard, and Mathur (2018) show that, for high-income taxpayers, much of the behavioral response to taxation comes from income shifting rather than a real change in earnings. On the other hand, none of the estimates of the elasticity account for long-run effects, like changes in educational attainment or career choice.

31 And, of course, taxpayers don't suffer welfare losses in the interim. Cutler et. al. (1990) showed that the present value of the deadweight loss from raising taxes to stabilize the debt in 1990 versus in 2050 was just 0.017% of GDP lower, suggesting that the efficiency gains from tax smoothing were miniscule.

32 One might argue whether a reduction in demand for Treasuries that sharply raises interest rates and under-

mines the liquidity of the Treasury market but is unrelated to default risk should be deemed a "fiscal crisis" rather than just a "financial crisis." We don't think the exact semantics matter much and have chosen to define fiscal crisis very broadly.

33 It is difficult to overstate the central role of Treasuries in global finance. The Financial Times summarized it well, describing the market for Treasuries as "the biggest, deepest and most essential bond market on the planet, a bedrock of the global financial system, and the benchmark off which almost every security in the world is priced," (Wigglesworth and Smith 2020).

34 While the rate on Treasuries is often called the "risk-free" rate, increases in spreads during debt limit standoffs show that some default risk is occasionally priced in. And because most Treasuries offer a fixed nominal rate of interest, they are subject to inflation risk. It is probably not correct to think of Treasuries as having zero default risk, but rather they have the least default risk among existing assets.

35 Duffie argued for a central clearing mandate and warned that, without it, "the size of the Treasury market will outstrip the capacity of dealers to safely intermediate the market on their own balance sheets, raising doubt over the safe haven status of U.S. Treasuries and concerns over the cost to taxpayers of financing growing federal deficits."

36 The Fed likely would not worry about the politics of intervening to offset turmoil caused by Chinese dumping. As we discuss below, such considerations would weight more heavily if the turmoil was caused by Congressional or administrative actions.

37 This is also in Gale (2019).

38 This equation demonstrates what we asserted before: that for the debt-to-GDP ratio to be constant, the government has to run primary surpluses equal to the debt-to-GDP ratio times the differences between the borrowing rate and the GDP growth rate.

39 Another example: the Child Tax Credit is not indexed to inflation, reducing its real value when inflation increases, and nominal capital gains are taxed, which means that the effective tax rate rises when inflation is higher.

40 We use 2054 because it is the last year of the CBO projection, not because we expect action to be taken in that year. In reality, fiscal adjustments will likely occur gradually to minimize the macroeconomic consequences.

41 If the U.S. government decided to default on its debt, it is unclear whether the Fed would/could step in to allow it to keep borrowing because, this would in effect "undo" the default by increasing the Fed's payments of interest on reserves.

42 Bond market traders look at a host of measures to assess the state of the bond market, but for our purposes, the key question is what is happening to rates on Treasuries (Wessel 2024).

43 It is not clear to us why interest rates rose as much as they did. Was it because of the possibility of more crowding out over time, or was it related to the risk of default or higher inflation?

44 Giles (2024) notes that Truss and Kwarteng, then Chancellor of the Exchequer, "sacked the head of the Treasury for being overly orthodox, ignored the Conservative-created fiscal watchdog, the Office for Budget Responsibility, and highlighted that they would rip up the existing fiscal rules without a replacement."

45 This discussion benefited from Krugman's presentation at the IMF's 14th Jacques Polak Annual Research Conference (Krugman 2013).

References

Auerbach, Alan J. 1994. "The U.S. Fiscal Problem: Where We Are, How We Got Here, and Where We're Going." NBER Macroeconomics Annual 9 (January): 141–75. https://doi.org/10.1086/654243.

Auerbach, Alan J., and Danny Yagan. 2024. "Robust Fiscal Stabilization." BPEA Fall 2024. https://www.brookings.edu/articles/robust-fiscal-stabilization/.

Fleming, Michael. 2020. "Treasury Market Liquidity and the Federal Reserve during the COVID-19 Pandemic." Liberty Street Economics (blog). May 29, 2020. https://libertystreeteconomics.newyorkfed.org/2020/05/treasury-market-liquidity-and-the-federal-reserve-during-the-covid-19-pandemic/.

Blanchard, Olivier. 2019. "Public Debt and Low Interest Rates." American Economic Review 109 (4): 1197–1229. https://doi.org/10.1257/aer.109.4.1197.

Calomiris, Charles W. 2023. "Fiscal Dominance and the Return of Zero-Interest Bank Reserve Requirements." Federal Reserve Bank of St. Louis Review Fourth Quarter 2023: 223–33. https://doi.org/10.20955/r.105.223-33.

Chetty, Raj. 2009. "Is the Taxable Income Elasticity Sufficient to Calculate Deadweight Loss? The Implications of Evasion and Avoidance." American Economic Journal: Economic Policy 1 (2): 31–52. https://doi.org/10.1257/pol.1.2.31.

Congressional Budget Office. 2022. "The Economic Effects of Waiting to Stabilize Federal Debt." https://www.cbo.gov/publication/57867.

———. 2023. "CBO Explains the Statutory Foundations of Its Budget Baseline." https://www.cbo.gov/system/files/2023-05/58955-Statutory-Foundations.pdf.

———. 2024a. "The Budget and Economic Outlook: 2024 to 2034." https://www.cbo.gov/publication/59946.

———. 2024b. "The Long-Term Budget Outlook: 2024 to 2054." https://www.cbo.gov/publication/60127#_idTextAnchor045.

———. 2024c. "The Long-Term Budget Outlook Under Alternative Scenarios for the Economy and the Budget." https://www.cbo.gov/publication/60169.

Crawley, Edmund, Etienne Gagnon, James Hebden, and James Trevino. 2022. "Substitutability between Balance Sheet Reductions and Policy Rate Hikes: Some Illustrations and a Discussion." FEDS Notes, June. https://doi.org/10.17016/2380-7172.3147.

Cutler, David M., James M. Poterba, Louise M. Sheiner, Lawrence H. Summers, and George A. Akerlof. 1990. "An Aging Society: Opportunity or Challenge?" Brookings Papers on Economic Activity 1990 (1). https://doi.org/10.2307/2534525.

Daniels, Mitch. 2024. "'The Day the Dollar Died' Is Coming. What's the Plan?" Washington Post, September 19, 2024, sec. Opinion. https://www.washingtonpost.com/opinions/2024/09/19/national-debt-disaster-plan-conference/.

Draghi, Mario. 2012. "Speech at the Global Investment Conference in London on 26 July 2012." July. https://www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html.

Duffie, Darrell. 2020. "Still the World's Safe Haven? Redesigning the U.S. Treasury Market After the COVID-19 Crisis." Hutchins Center Working Paper 62. https://www.brookings.edu/articles/still-the-worlds-safe-haven/.

Edelberg, Wendy, and Teri Gullo. 2015. "CBO's Cost Estimates." Center on Budget and Policy Priorities Washington, D.C., October 29. https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/presentation/50934-costestimates.pdf.

Edelberg, Wendy, and Louise Sheiner. 2023. "How Worried Should We Be If the Debt Ceiling Isn't Lifted?" Brookings. April 24, 2023. https://www.brookings.edu/articles/how-worried-should-we-be-if-the-debt-ceiling-isnt-lifted/.

Federal Open Market Committee. 2013. "Conference Call of the Federal Open Market Committee on October 16,

2013." October 16, 2013. https://www.federalreserve.gov/monetarypolicy/files/FOMC20131016confcall.pdf.
Feldstein, Martin. 1999. "Tax Avoidance and the Deadweight Loss of the Income Tax." The Review of Economics and Statistics 81 (4): 674–80.
Furman, Jason, and Lawrence Summers. 2020. "A Reconsideration of Fiscal Policy in the Era of Low Interest Rates." The Brookings Institution. https://www.brookings.edu/wp-content/uploads/2020/11/furman-summers-fiscal-reconsideration-discussion-draft.pdf.
Gale, William G. 2019. Fiscal Therapy: Curing America's Debt Addiction and Investing in the Future. Oxford, New York: Oxford University Press. https://global.oup.com/academic/product/fiscal-therapy-9780190645410?cc=us&lang=en&.
Giles, Chris. 2024. "Liz Truss's Mini-Budget: Lessons from a Moronic Episode." Financial Times, October 22, 2024. https://www.ft.com/content/ac3a7d47-cf37-4c15-b2b4-7dd7e0866e16.
Gorry, Aspen, R. Glenn Hubbard, and Aparna Mathur. 2018. "The Elasticity of Taxable Income in the Presence of Intertemporal Income Shifting." Working Paper. Working Paper Series. National Bureau of Economic Research. https://doi.org/10.3386/w24531.
Hendren, Nathaniel, and Ben Sprung-Keyser. 2020. "A Unified Welfare Analysis of Government Policies." The Quarterly Journal of Economics 135 (3): 1209–1318. https://doi.org/10.1093/qje/qjaa006.
The International Economy. 2024. "Is a Serious Global Debt Crisis Possible?," 2024.
International Monetary Fund. 2019. "Macroeconomics of Aging and Policy Implications." https://www.imf.org/external/np/g20/pdf/2019/060519a.pdf.
Krugman, Paul. 2013. "Currency Regimes, Capital Flows, and Crises." Presented at the 14th Jacques Polak Annual Research Conference, November 7. https://www.youtube.com/watch?v=4SvegL-hpaM.
———. 2014. "Currency Regimes, Capital Flows, and Crises." IMF Economic Review 62 (4): 470–93. https://doi.org/10.1057/imfer.2014.9.
Lynch, David J. 2020. "Leading Republicans Want to Send China the Bill for Coronavirus Pandemic's Costs." Washington Post, April 24, 2020. https://www.washingtonpost.com/business/2020/04/24/republican-coronavirus-china-xi/.
Makinen, Gail E., and G. Thomas Woodward. 1989. "A Monetary Interpretation of the Poincaré Stabilization of 1926." Southern Economic Journal 56 (1): 191–211. https://doi.org/10.2307/1059066.
Oreopoulos, Philip. 1999. "Canada: On the Road to Fiscal Balance." In Generational Accounting around the World, 199–217. National Bureau of Economic Research Project Report. University of Chicago Press. https://www.nber.org/system/files/chapters/c6691/c6691.pdf.
Organisation for Economic Co-operation and Development. 2024. "Revenue Statistics 2024: Health Taxes in OECD Countries." https://www.oecd.org/en/publications/revenue-statistics-2024_c87a3da5-en.html.
Sheiner, Louise. 2025. "Comparing the Macroeconomic and Budgetary Costs of Debt." The Brookings Institution. https://www.brookings.edu/articles/comparing-the-macroeconomic-and-budgetary-costs-of-debt/
U.S. Census Bureau. 2023. "2023 National Population Projections Tables: Alternative Scenarios." https://www.census.gov/data/tables/2023/demo/popproj/2023-alternative-summary-tables.html.
U.S. Department of the Treasury. 2024. "U.S. Treasury Monthly Statement of the Public Debt (MSPD)." https://fiscaldata.treasury.gov/datasets/monthly-statement-public-debt/summary-of-treasury-securities-outstanding.
Wessel, David. 2024. "How to Tell If the US Treasury Is Having Trouble Borrowing in the Bond Market." Brookings. July 23, 2024. https://www.brookings.edu/articles/how-to-tell-if-the-us-treasury-is-having-trouble-borrowing-in-the-bond-market/.
Wigglesworth, Robin, and Colby Smith. 2020. "US Treasuries: The Lessons from March's Market Meltdown." Financial Times, July 29, 2020, sec. The Big Read. https://www.ft.com/content/ea6f3104-eeec-466a-a082-76ae78d430fd.

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