

Federal Debt and the Risk of a Fiscal Crisis

Over the past few years, U.S. government debt held by the public has grown rapidly—to the point that, compared with the total output of the economy, it is now higher than it has ever been except during the period around World War II. The recent increase in debt has been the result of three sets of factors: an imbalance between federal revenues and spending that predates the recession and the recent turmoil in financial markets, sharply lower revenues and elevated spending that derive directly from those economic conditions, and the costs of various federal policies implemented in response to the conditions.¹

Further increases in federal debt relative to the nation's output (gross domestic product, or GDP) almost certainly lie ahead if current policies remain in place. The aging of the population and rising costs for health care will push federal spending, measured as a percentage of GDP, well above the levels experienced in recent decades. Unless policymakers restrain the growth of spending, increase revenues significantly as a share of GDP, or adopt some combination of those two approaches, growing budget deficits will cause debt to rise to unsupportable levels.

Although deficits during or shortly after a recession generally hasten economic recovery, persistent deficits and continually mounting debt would have several negative economic consequences for the United States. Some of those consequences would arise gradually: A growing portion of people's savings would go to purchase government debt rather than toward investments in productive capital goods such as factories and computers; that "crowding out" of investment would lead to lower output and incomes than would otherwise occur. In addition, if the payment of interest on the extra debt was financed by

imposing higher marginal tax rates, those rates would discourage work and saving and further reduce output. Rising interest costs might also force reductions in spending on important government programs. Moreover, rising debt would increasingly restrict the ability of policymakers to use fiscal policy to respond to unexpected challenges, such as economic downturns or international crises.

Beyond those gradual consequences, a growing level of federal debt would also increase the probability of a sudden fiscal crisis, during which investors would lose confidence in the government's ability to manage its budget, and the government would thereby lose its ability to borrow at affordable rates. It is possible that interest rates would rise gradually as investors' confidence declined, giving legislators advance warning of the worsening situation and sufficient time to make policy choices that could avert a crisis. But as other countries' experiences show, it is also possible that investors would lose confidence abruptly and interest rates on government debt would rise sharply. The exact point at which such a crisis might occur for the United States is unknown, in part because the ratio of federal debt to GDP is climbing into unfamiliar territory and in part because the risk of a crisis is influenced by a number of other factors, including the government's long-term budget outlook, its near-term borrowing needs, and the health of the economy. When fiscal crises do occur, they often happen during an economic downturn, which amplifies the difficulties of adjusting fiscal policy in response.

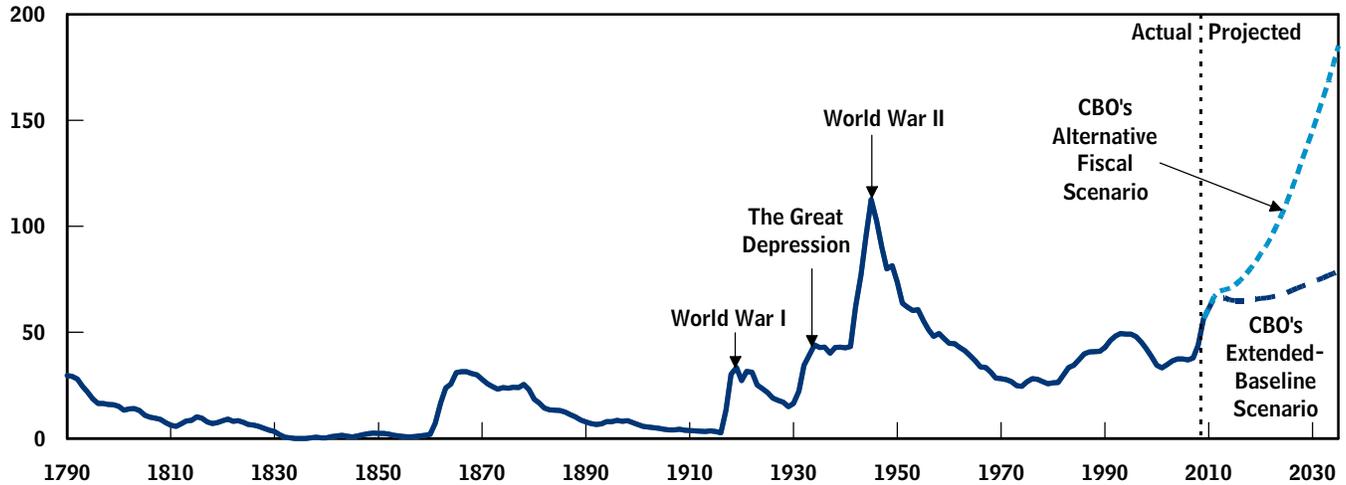
If the United States encountered a fiscal crisis, the abrupt rise in interest rates would reflect investors' fears that the government would renege on the terms of its existing debt or that it would increase the supply of money to finance its activities or pay creditors and thereby boost inflation. To restore investors' confidence, policymakers would probably need to enact spending cuts or tax increases more drastic and painful than those that would have been necessary had the adjustments come sooner.

1. For more details, see Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2010 to 2020* (January 2010); *The Effects of Automatic Stabilizers on the Federal Budget* (May 2010).

Figure 1.

Federal Debt Held by the Public, 1790 to 2035

(Percentage of gross domestic product)



Source: Congressional Budget Office, *The Long-Term Budget Outlook* (June 2010); *Historical Data on Federal Debt Held by the Public* (July 2010).

Note: The extended-baseline scenario adheres closely to current law, following CBO’s 10-year baseline budget projections through 2020 (with adjustments for the recently enacted health care legislation) and then extending the baseline concept for the rest of the long-term projection period. The alternative fiscal scenario incorporates several changes to current law that are widely expected to occur or that would modify some provisions that might be difficult to sustain for a long period.

Past and Projected Federal Debt Held by the Public

Compared with the size of the economy, federal debt held by the public is high by historical standards but is not without precedent (see Figure 1).² Previous sharp run-ups have generally occurred during wars: During the Civil War and World War I, debt climbed by about 30 percent of GDP; in World War II, debt surged by nearly 80 percent of GDP. In contrast, the recent jump in debt—so

far, roughly 25 percent of GDP—can be attributed in part to an ongoing imbalance between federal revenues and spending but, more important, to the financial crisis and deep recession and the policy responses to those developments. According to the Congressional Budget Office’s (CBO’s) projections, federal debt held by the public will stand at 62 percent of GDP at the end of fiscal year 2010, having risen from 36 percent at the end of fiscal year 2007, just before the recession began. In only one other period in U.S. history—during and shortly after World War II—has that figure exceeded 50 percent.

2. The size of a country’s economy provides a measure of its ability to pay interest on government debt, in the same way that a family’s income helps to determine the amount of mortgage interest that it can afford. Federal debt has two main components: debt held by the public, and debt held by government trust funds and other government accounts. This issue brief focuses on the former as the most meaningful measure for assessing the relationship between federal debt and the economy. Debt held by the public represents the amount that the government has borrowed in financial markets to pay for its operations and activities; in pursuing such borrowing, the government competes with other participants in credit markets for financial resources. In contrast, debt held by government trust funds and other government accounts represents internal transactions of the government.

Looking forward, CBO has projected long-term budget outcomes under two different sets of assumptions about future policies for revenues and spending.³ The *extended-baseline scenario* adheres closely to current law, following CBO’s 10-year baseline budget projections through 2020 (with adjustments for the recently enacted health care legislation) and then roughly extending the baseline concept

3. For details about the assumptions underlying the scenarios, see Congressional Budget Office, *The Long-Term Budget Outlook* (June 2010), Table 1-1.

for subsequent decades. Under that scenario, annual budget deficits would decline over the next few years, and both deficits and debt would remain stable relative to GDP for several years after that. But then growth in spending on health care programs and Social Security would cause deficits to increase, and debt would once again grow faster than the economy. By 2035, the debt would equal about 80 percent of GDP.

However, certain changes to current law are widely expected to be made in some form over the next few years, and other provisions of current law might be difficult to sustain for a long period. Therefore, CBO also developed an *alternative fiscal scenario*, in which most of the tax cuts originally enacted in 2001 and 2003 are extended (rather than allowed to expire at the end of this year as scheduled under current law); the alternative minimum tax is indexed for inflation (halting its growing reach under current law); Medicare's payments to physicians rise over time (which would not happen under current law); tax law evolves in the long run so that tax revenues remain at about 19 percent of GDP; and some other aspects of current law are adjusted in coming years.

Under that scenario, deficits would also decline for a few years after 2010 and then grow again, but that growth would occur sooner and at a much faster rate than under the extended-baseline scenario. By 2020, debt would equal nearly 90 percent of GDP. After that, the growing imbalance between revenues and noninterest spending, combined with the spiraling cost of interest payments, would swiftly push federal debt to unsustainable levels. Debt held by the public would exceed its historical peak of about 110 percent of GDP by 2025 and would reach about 180 percent of GDP in 2035. Indeed, if those estimates took into account the harmful effects that rising debt would have on economic growth and interest rates, the projected increase in debt would occur even more rapidly. Under the alternative fiscal scenario, the surge in debt relative to the country's output would pose a clear threat of a fiscal crisis during the next two decades.

Some Consequences of Growing Debt

The economic effects of budget deficits and accumulating government debt can differ in the short run and the long run, depending importantly on the prevailing economic conditions when the deficits are incurred. During and shortly after a recession, the higher spending or lower taxes that generate larger deficits generally hasten

economic recovery. In particular, when many workers are unemployed, and much capacity (such as equipment and buildings) is unused, higher government spending and lower tax revenues usually increase overall demand for goods and services, which leads firms to boost their output and hire more workers.⁴ But those short-term benefits carry with them long-term costs: Unless offsetting actions are taken at some point to pay off the additional government debt accumulated while the economy was weak, people's future incomes will tend to be lower than they otherwise would have been.

More generally, persistent, large deficits that are not related to economic slowdowns—like the deficits that CBO projects for coming decades—have a number of significant negative consequences. Therefore, the sooner that policymakers agree on credible long-term changes to government spending and revenues, and the sooner that those changes are carried out without impeding the economic recovery, the smaller will be the damage to the economy from growing federal debt.

Crowding Out of Investment

One impact of rising debt is that increased government borrowing tends to crowd out private investment in productive capital, because the portion of people's savings used to buy government securities is not available to fund such investment. The result is a smaller capital stock and lower output and incomes in the long run than would otherwise be the case.

The effect of debt on investment can be offset by borrowing from foreign individuals or institutions. But additional inflows of foreign capital also create the obligation for more profits and interest to flow overseas in the future. Thus, although flows of capital into a country can help maintain domestic investment, most of the gains from that additional investment do not accrue to the residents.

Need for Higher Taxes or Less Spending on Government Programs

Another impact of rising debt is that, as government debt grows, so does the amount of interest the government pays to its lenders (all else being equal). If policymakers wished to maintain government benefits and services

4. See Congressional Budget Office, *Policies for Increasing Economic Growth and Employment in 2010 and 2011* (January 2010).

while the amount of interest paid grew, tax revenues would eventually have to rise as well. To the extent that additional tax revenues were generated by increasing marginal tax rates, those rates would discourage work and saving, further reducing output and incomes. Alternatively, policymakers could choose to offset the rising interest costs, at least in part, by reductions in benefits and services.

To be sure, slowing the growth of government debt to hold down future interest payments would require increases in taxes or reductions in government benefits and services anyway. However, earlier action would permit the changes in policy to be smaller and more gradual, and it would give people more time to adjust to the changes—although it would also require more sacrifices by current generations to benefit future ones.

Reduced Ability to Respond to Domestic and International Problems

Having a small amount of debt outstanding gives policymakers the ability to borrow to address significant unexpected events such as recessions, financial crises, and wars. A large amount of debt, however, leaves less flexibility for government actions to address financial and economic crises, which, in many countries, have been very costly to the government (as well as to residents).⁵ A large amount of debt could also harm national security by constraining military spending in times of crisis or limiting the ability to prepare for a crisis.

In the United States, the level of federal debt a few years ago gave the government the flexibility to boost spending and cut taxes to stimulate economic activity, to provide public funding to stabilize the financial sector, and to continue paying for other programs, even as tax revenues dropped sharply because of the decline in output and incomes. If the amount of federal debt (relative to output) stays at its current level or increases further, the government would find it more difficult to undertake similar policies in the future. Moreover, the reduced financial

flexibility and increased dependence on foreign investors that would accompany a rising debt could weaken the United States' international leadership.

An Increased Chance of a Fiscal Crisis

A rising level of government debt would have another significant negative consequence. Combined with an unfavorable long-term budget outlook, it would increase the probability of a fiscal crisis for the United States. In such a crisis, investors become unwilling to finance all of a government's borrowing needs unless they are compensated with very high interest rates; as a result, the interest rates on government debt rise suddenly and sharply relative to rates of return on other assets. Unfortunately, there is no way to predict with any confidence whether and when such a crisis might occur in the United States; in particular, there is no identifiable tipping point of debt relative to GDP indicating that a crisis is likely or imminent. But all else being equal, the higher the debt, the greater the risk of such a crisis.

Fiscal crises around the world have often begun during recessions and, in turn, have often exacerbated them.⁶ Frequently, such a crisis was triggered by news that a government would, for any number of reasons, need to borrow an unexpectedly large amount of money. Then, as investors lost confidence and interest rates spiked, borrowing became more difficult and expensive for the government. That development forced policymakers to immediately and substantially cut spending and increase taxes to reassure investors—or to renege on the terms of its existing debt or increase the supply of money and boost inflation. In some cases, the crisis made borrowing more expensive for private borrowers as well, because uncertainty about the government's policy response to the crisis raised risk premiums throughout the economy. Higher private interest rates, combined with reductions in government spending and increases in taxes, have tended to worsen economic conditions in the short term.

The history of fiscal crises in other countries does not necessarily indicate the conditions under which investors might lose confidence in the U.S. government's ability to manage its budget or the consequences for the nation of such a loss of confidence. On the one hand, the

5. See Carmen M. Reinhart and Kenneth S. Rogoff, *Banking Crises: An Equal Opportunity Menace*, Discussion Paper DP7131 (London: Centre for Economic Policy Research, January 2009). The authors estimate that debt in countries with banking crises increases by an average of 86 percent in the three years after those crises. See also Luc Laeven and Fabian Valencia, *Systemic Banking Crises: A New Database*, Working Paper No. 08-224 (Washington, D.C.: International Monetary Fund, November 2008).

6. See Eduardo Borensztein and Ugo Panizza, *The Costs of Sovereign Default*, Working Paper No. 08-238 (Washington, D.C.: International Monetary Fund, October 2008).

United States may be able to issue more debt (relative to output) than the governments of other countries can, without triggering a crisis, because the United States has often been viewed as a “safe haven” by investors around the world, and the U.S. government’s securities have often been viewed as being among the safest investments in the world. On the other hand, the United States may not be able to issue as much debt as the governments of other countries can because the private saving rate has been lower in the United States than in most developed countries, and a significant share of U.S. debt has been sold to foreign investors. Quantifying those factors and the many other factors that could be relevant to how a fiscal crisis would unfold in the United States is beyond the scope of this brief.

Nonetheless, a review of fiscal crises in Argentina, Ireland, and Greece in the past decade reveals instructive common features and differences. For all three countries, the crises occurred abruptly and during recessions. However, the crises occurred at different levels of government debt relative to GDP, showing that the tipping point for a crisis does not depend solely on the debt-to-GDP ratio; the government’s long-term budget outlook, its near-term borrowing needs, and the health of the economy are also important. All three of those crises illustrate the difficulty of formulating effective policy responses once investors lose confidence in a government.

Argentina

Argentina’s experience offers an example of the very serious consequences that can arise from a fiscal crisis. Although interest rates on Argentina’s debt had been comparable for many years with those on debt of other countries in emerging markets, Argentina’s fortunes changed quickly when it found itself suffering from a significant recession in 2000 and 2001. During the first half of 2001, with government debt equal to about 50 percent of the country’s GDP, investors became increasingly worried about Argentina’s fiscal situation—in part because of the country’s earlier defaults on its debt. As a result, investors demanded premiums for holding government debt that increased interest rates by more than 5 percentage points.⁷ A few months later, as it became clear that Argentina was not able to afford (or willing to make) the interest payments on its debt, interest rates jumped again to levels so high that the government was effectively unable to borrow. Subsequently, Argentina ceased paying its creditors, and ever since it has been unable to raise

funds in international markets. Argentina’s fiscal crisis accentuated its underlying economic problems, and from 2001 to 2002, the country’s GDP dropped by nearly 11 percent.

Ireland

In spite of a good credit history and a relatively small amount of government debt, Ireland experienced a fiscal crisis after being overwhelmed by large spending obligations, including those related to the recent financial crisis. As recently as 2007, Ireland carried a central government debt of only about 20 percent of output; interest rates on Irish bonds at the time suggested that investors considered those bonds to be almost as safe as German bonds, which are generally perceived as stable and reliable investments. Over the next two years, however, Ireland’s debt grew very rapidly as the country dealt with massive failures of financial institutions and a major economic downturn. Investors began to lose confidence that Ireland could manage its rapidly expanding obligations, and by March of last year, investors in 10-year Irish bonds demanded almost 3 percentage points in extra annual interest relative to the rate for German bonds of the same maturity (see Figure 2).

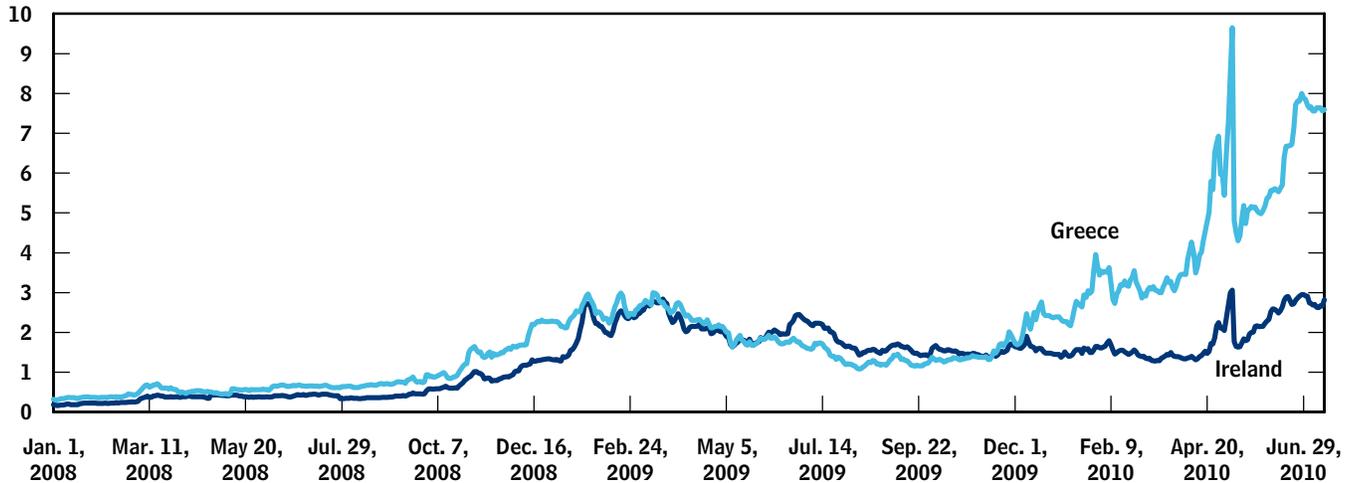
Starting in April 2009, Ireland responded with an aggressive fiscal austerity program in which it raised taxes and reduced spending significantly. The program included cutting wages for public-sector employees by 15 percent, levying additional taxes, and sharply trimming a number of social programs. Investors initially responded with renewed confidence, which was reflected in reduced interest rates on Irish debt and lower rates for insurance on Irish bonds (although those measures of perceived risk remained less favorable than they had been before the crisis).⁸ However, the budget deficit in Ireland remains large

7. All interest rates cited in this issue brief are in nominal terms. The data on Argentina are drawn from Donald Mathieson, Garry Schinasi, and others, *International Capital Markets: Developments, Prospects, and Key Policy Issues* (Washington, D.C.: International Monetary Fund, 2001), p. 63. The data on Ireland and Greece are from Bloomberg.

8. Investors can purchase insurance that pays off in the event that a government defaults on its debt. The cost of such insurance is one indicator of a fiscal crisis; all else being equal, the higher the cost of insurance, the higher the perceived probability of a government default.

Figure 2.**Interest Rates on 10-Year Debt Issued by Greece and Ireland**

(Percentage points above the rate for comparable German bonds)



Source: Bloomberg.

Note: German bonds, denominated in euros, are generally perceived as stable and reliable investments. The difference in interest rates between German bonds and other countries' euro-denominated bonds reflects investors' relative level of confidence in the safety and security of those other countries' debts.

and the Organisation for Economic Co-operation and Development (OECD) projected late last year that Ireland's debt would increase to approximately 70 percent of GDP by the end of 2010.⁹ Some observers believe that the austerity program may not be sufficient to put Ireland's debt on a sustainable path, and investors may share that view, because interest rates on 10-year Irish bonds have risen again to almost 3 percentage points above those on comparable German bonds.¹⁰

Greece

In 2008, before the recent global recession, the central government in Greece owed its creditors an amount equal to approximately 110 percent of the country's GDP, a ratio that rose further as the recession lowered output and increased the deficit by weakening the country's tax base. In early 2009, interest rates on 10-year Greek bonds jumped by 2 percentage points over rates on comparable

German bonds (see Figure 2). Investors' confidence, as measured by both interest rates on Greek government debt and the cost of buying insurance against a default on such debt, deteriorated throughout 2009. By January 2010, Greece was forced to pay an interest rate on 10-year bonds that was 4 percentage points higher than Germany was paying.

Greece's crisis continued to worsen as interest rates climbed higher in the spring. In May 2010, a consortium of European countries and the International Monetary Fund pledged to lend to the Greek government up to 120 billion euros (an amount equal to just over 50 percent of Greece's GDP last year). Greece also adopted a fiscal austerity program that includes significant reductions in benefits and public services as well as increases in taxes. The actions by the Greek government and other governments caused the crisis to abate temporarily. However, it is unclear whether investors will be convinced that spending will be cut or taxes increased sufficiently to put the country on a sustainable fiscal path. Moreover, the amount of maturing debt that the country needs to refinance in the next few years, in addition to the debt that it needs to sell to finance its ongoing deficit, has reinforced investors' concerns that Greece will be unable to make all of the required payments on its debt. As a result, interest

9. Organisation for Economic Co-operation and Development, *OECD Economic Surveys: Ireland 2009*, vol. 2009, no. 17 (Paris: OECD, November 2009).

10. For one observer's point of view, see Barry Eichengreen, "Emerald Isle to Golden State," *Eurointelligence*, February 25, 2009, available at www.eurointelligence.com/artile.581+M5accb03957e.0.html.

rates on 10-year Greek bonds have climbed to 8 percentage points above the rates on 10-year German bonds.

How Might a Fiscal Crisis Affect the United States?

In all three of those fiscal crises in other countries, sharp increases in interest rates on government debt forced the affected governments to make difficult choices. The U.S. government would also face difficult choices if interest rates on its debt spiked. For example, a 4-percentage-point across-the-board increase in interest rates would raise federal interest payments next year by about \$100 billion relative to CBO's baseline projection—a jump of more than 40 percent. As longer-term debt matured and was refinanced at such higher rates, the difference in the annual interest burden would mount; by 2015, if such higher-than-anticipated rates persisted, net interest would be nearly double the roughly \$460 billion that CBO currently projects for that year.¹¹ Moreover, if debt grew over time relative to GDP, the effect of a spike in interest rates would become increasingly pronounced.

A sudden increase in interest rates would also reduce the market value of outstanding government bonds, inflicting losses on investors who hold them. That decline could precipitate a broader financial crisis by causing losses for mutual funds, pension funds, insurance companies, banks, and other holders of federal debt—losses that might be large enough to cause some financial institutions to fail.¹² Foreign investors, who owned nearly half of U.S. debt held by the public in May 2010 (or about \$4.0 trillion, \$1.7 trillion of which was held by Japan and China alone), would also face substantial losses.¹³

If a fiscal crisis occurred in the United States, policy options for responding to it would be limited and unattractive. In particular, the government would need to undertake some combination of three actions:

11. See Congressional Budget Office, *An Analysis of the President's Budgetary Proposals for Fiscal Year 2011* (March 2010).

12. U.S. banks, insurance companies, and mutual funds held approximately \$1 trillion worth of U.S. debt as of the first quarter of 2010. See Department of the Treasury, Financial Management Service, "Ownership of Federal Securities," *Treasury Bulletin* (June 2010), Table OFS-2.

13. Department of the Treasury, Major Foreign Holders of Treasury Securities, May 2010, available at www.ustreas.gov/tic/mfsh.txt.

restructuring its debt (that is, seeking to modify the contractual terms of existing obligations); pursuing inflationary monetary policy (that is, increasing the supply of money); and adopting an austerity program of spending cuts and tax increases.

Restructuring Debt

Governments can attempt to change the terms of their existing debt—for example, by changing the payment schedule—but that approach tends to be very costly for countries that try it.¹⁴ Any discussions or actions by U.S. policymakers that raised the perceived likelihood of that outcome would cause investors to demand higher interest rates immediately, if they were willing to extend additional credit at all.¹⁵ Furthermore, investors would demand a large interest premium on subsequent loans for many years.

Inflationary Monetary Policy

An alternative approach is to increase the supply of money in the economy. But as governments create money to finance their activities or pay creditors during fiscal crises, they raise inflation. Higher inflation has negative consequences for the economy, especially if inflation moves above the moderate rates seen in most developed countries in recent years.¹⁶ Higher inflation might appear to benefit the U.S. government financially because the value of the outstanding debt (which is mostly fixed in dollar terms) would be lowered relative to the size of the economy (which would increase when measured in dollar terms).¹⁷ However, higher inflation would also increase the size of future budget deficits.

Specifically, if inflation was 1 percentage point higher over the next decade than the rate CBO has projected, budget deficits during those years would be roughly

14. See Borensztein and Panizza, *The Costs of Sovereign Default*.

15. See Carmen M. Reinhart, Kenneth S. Rogoff, and Miguel A. Savastano, "Debt Intolerance," *Brookings Papers on Economic Activity*, no. 1 (2003).

16. For a discussion of the issues, see N. Gregory Mankiw, *Macroeconomics*, 5th ed. (New York: Worth Publishers, 2003), pp. 95–107.

17. Higher inflation would not enhance the U.S. government's ability to redeem Treasury inflation-protected securities, which are indexed to inflation; however, such debt constitutes only about 7 percent of publicly held U.S. debt.

\$700 billion larger.¹⁸ Several factors contribute to that estimate. Investors, after having their investments devalued by the rise in prices in the economy, would demand higher interest rates in the future, even if inflation was eventually reduced; thus, as debt matured, it would be refinanced at higher rates. Indeed, even raising the perceived likelihood of higher inflation during a fiscal crisis would trigger immediate further increases in interest rates. Moreover, the amounts of many government benefits rise when prices rise, and much of the income tax system is indexed to inflation. On balance, the increase in tax revenues resulting from higher inflation would be more than offset by higher payments for benefit programs and higher interest payments as the outstanding debt rolled over and ongoing deficits required the issuance of more debt.¹⁹

Increasing Taxes and Reducing Spending

Austerity programs generally include both tax increases and spending reductions. When fiscal crises occur during recessions, as they often do, such policy changes can exacerbate the economic downturns—although some studies suggest that certain types of fiscal austerity programs tend, at least in some circumstances, to stimulate economic growth.²⁰

The later that actions are taken to address persistent budget imbalances, the more severe they will have to be. CBO's long-term projections for the federal budget

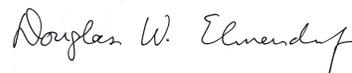
18. See Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2010 to 2020*, Appendix C.

19. Historically, the long-term effects of countries' inflating away part of their debt—very high borrowing costs and reduced economic output—have been similar to the effects of explicit debt restructurings. See Reinhart, Rogoff, and Savastano, "Debt Intolerance."

indicate that an immediate, permanent cut in spending or increase in revenues equal to about 1 percent of GDP (relative to the policies assumed for the extended-baseline scenario) or about 5 percent of GDP (relative to the policies assumed for the alternative fiscal scenario) would prevent a net increase in the U.S. debt-to-GDP ratio over the next 25 years. The latter would be equivalent to roughly 20 percent of all of the government's noninterest spending this year. Actions taken later, particularly if there was a fiscal crisis, would need to be significantly greater to achieve that same objective. Larger and more abrupt changes in fiscal policy, such as substantial cuts in government benefit programs, would be more difficult for people to adjust to than smaller and more gradual changes.

20. See, for example, Alberto Alesina, "Fiscal Adjustments: Lessons from Recent History" (paper presented at a meeting of Ecofin, Madrid, April 15, 2010); Alberto Alesina and Silvia Ardagna, *Large Changes in Fiscal Policy: Taxes Versus Spending*, Working Paper No. 15438 (Cambridge, Mass.: National Bureau of Economic Research, October 2009); Roberto Perotti, "Fiscal Policy in Good Times and Bad," *Quarterly Journal of Economics*, vol. 114, no. 4 (November 1999), pp. 1399–1436; and Alberto Alesina and Silvia Ardagna, "Tales of Fiscal Adjustment," *Economic Policy*, vol. 13, no. 27 (October 1998), pp. 487–545.

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