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The Federal Government Debt: Its Size and Economic Significance

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Summary

After being in surplus between FY1998 and FY2001, the federal budget has now registered deficits for the last three fiscal years. The budget, given current policies, is now projected to remain in deficit through FY2014. When the budget was in surplus, the policy issues were whether or not it would be worthwhile to pay off the national debt and whether or not the existence of public debt provided some economic benefits. For the time being, those are no longer issues. Instead, the question is what are the risks associated with a rising federal debt.

At the end of FY2004, total gross federal debt is over $7.3 trillion. While gross federal debt is the broadest measure of the debt, it may not be the most important one. The debt measure that is relevant in an economic sense is debt held by the public. This is the measure of debt that has actually been sold in credit markets, and which has influenced interest rates and private investment decisions. At the end of FY2004, the debt held by the public is estimated to be just over $4.3 trillion. The remaining $3.0 trillion was held by various federal agencies.

In the short run, growth in the public debt affects the composition of economic output. Federal government borrowing adds to total credit demand and tends to push up interest rates. Higher interest rates increase the cost of financing new investment in plant and equipment and thus may tend to reduce the stock of productive capital below what it might otherwise have been.

In the long run, the relationship between the growth rate of the federal debt and the overall rate of economic growth is critical to financial stability. As long as the debt grows more rapidly than output, the ratio of debt to gross domestic product (GDP) will rise. Perpetual debt growth in excess of economic growth is an inherently unstable situation. Whether or not the debt-to-GDP ratio is on such a path depends on the budget deficit, the rate of interest, and the rate of growth in GDP.

What matters most, as far as financial stability is concerned, is what investors believe to be the long-run trend in the debt-to-GDP ratio. If large deficits are expected to persist, or if the interest rate on the debt is expected to exceed the growth rate indefinitely, then at some point the federal government may begin to find it more difficult to sell new securities. The federal government, however, has a source of credit not available to individual businesses, the Federal Reserve Bank.

Should the federal government be unable to find private sector buyers, the Federal Reserve might buy the securities that otherwise the government would be unable to sell. Should it decide to do so, then the threat is no longer one of government insolvency, but rather of inflation. This report will be updated as warranted.

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After being in surplus between FY1998 and FY2001, the federal budget has now registered deficits for the last three fiscal years. The budget, given current policies, is now projected to remain in deficit through FY2014.[1] During those four years of surpluses, the federal debt fell, but is now rising again.

When the budget was in surplus, the policy issues were whether or not it would be worthwhile to pay off the national debt and whether or not the existence of public debt provided some economic benefits. Those are no longer issues. The return of the budget deficit, and rising debt, compelled Congress to increase the statutory debt limit. In May 2003, the President signed legislation increasing the statutory debt limit to $7.384 trillion (P.L. 108-24). Because of continued borrowing, the debt is again approaching the statutory limit.[2] At the end of FY2004, the total outstanding federal debt is over $7.3 trillion. The Congressional Budget Office estimates the limit may be reached sometime in October 2004.

That there is more than one measure of federal debt may lead to some confusion. This report explains the different measures of the U.S. government debt, discusses the historical growth in the debt, identifies the current owners of the debt, presents comparisons with the public debt in other countries, and examines the potential economic risks associated with a growing federal debt.

Measuring the Federal Debt

The statutory debt limit is a ceiling set by Congress restricting the total amount of federal debt outstanding. Gross federal debt, with some minor adjustments, is the measure that is subject to the limit.

While gross federal debt is the broadest measure of the debt, it may not be the most important one. Not all of the gross debt actually represents past borrowing in credit markets. Some of the debt is held by the so-called trust funds, primarily the one for Social Security, but also others such as unemployment insurance, the highway trust fund, and one for federal employee pensions. Relatively small amounts of debt are also held by selected federal agencies.

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[1] Congressional Budget Office, *The Budget and Economic Outlook: An Update*, Sept. 2004, 63 pp.

[2] In fact, even with budget in surplus the debt subject to limit can rise. Between FY1997 and FY2001, even though the unified budget registered surpluses in each year, the debt subject to limit increased by $405 billion.

The assets held by the trust funds consist entirely of non-marketable federal debt. That debt exists only as a bookkeeping entry, and does not reflect past borrowing in credit markets. The trust fund balances actually represent the cumulative amount that the government did not have to borrow in credit markets because they were simply credited to the trust fund accounts.[3]

The debt measure that is relevant in an economic sense is debt held by the public. This is the measure of debt that has actually been sold in credit markets, and which has influenced interest rates and private investment decisions. At the end of FY2004, the debt held by the public was estimated to be over $4.3 trillion.

The dollar amount of the debt, however large it may seem to be, is not a good measure of the burden it places on the economy. Just as an individual with a larger income can afford to take on more debt, the importance of the debt can only be measured relative to the overall size of the economy. For a given amount of debt, the larger the potential tax base is, the less of a burden on the economy the interest payments on that debt will be. The most common way of putting the size of the debt in perspective is to express it as a percentage of total gross domestic product (GDP).

Historical Behavior of the Federal Debt.

Prior to World War II, the federal budget was in surplus about as often as it was in deficit. Some of the largest increases in the debt resulted from wartime spending. There were large increases in the debt held by the public related to the Civil War and also to World War I. Since World War II, the federal budget has been in deficit most of the time and the debt has steadily grown. Since 1940, revenues exceeded outlays in only 12 years.

Figure 1 shows gross federal debt held by the public since 1940. The solid line plots the dollar value of the debt held by the public since 1940. These are nominal amounts (i.e., they have not been adjusted for inflation.) The dashed line shows the debt held by the public as a percentage of GDP.

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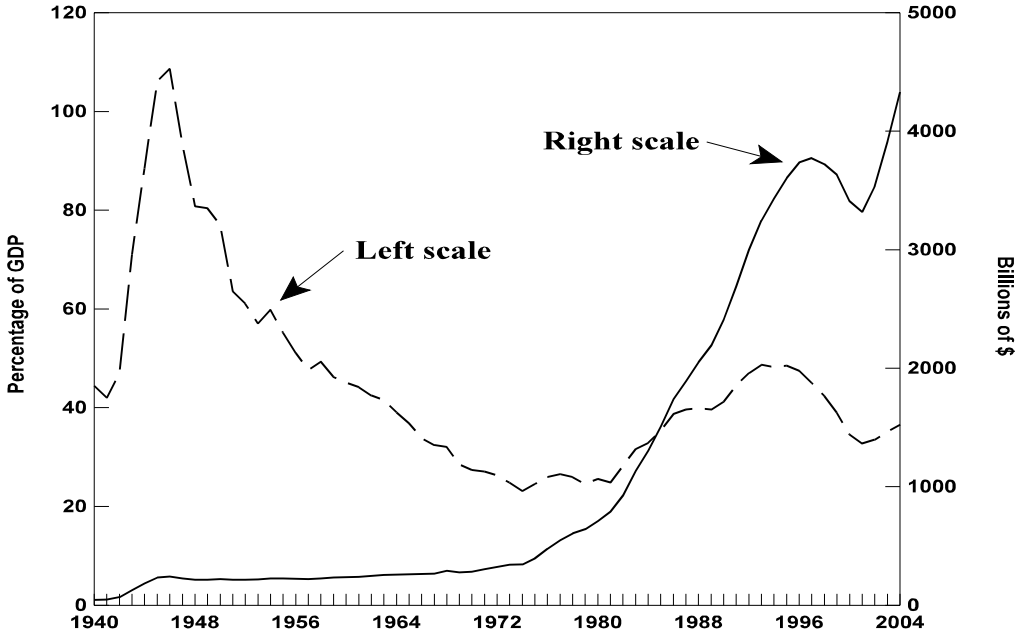
[3] Interest paid on the trust fund accounts is also strictly a bookkeeping entry and does not constitute an actual outlay of the federal government.

Figure 1. Federal Debt Held by the Public



Sources: Department of Commerce; Office of Management and Budget

The dollar value of the debt rose gradually until the late 1970s and early 1980s, at which time its growth accelerated. It peaked in 1997, fell through 2001, but since then has reached new highs. Measuring the debt relative to GDP tells a different story. The surge in debt to finance the costs of World War II is much more pronounced and indicates that recent debt levels are far from unprecedented, in terms of the burden to the economy. Following that surge, and until about 1980, however, debt grew much less rapidly than did the overall economy and so the ratio fell steadily. Between 1980 and 1995, the debt grew more rapidly than did the economy so the ratio rose. Between 1995 and 2001, with the decline in debt levels, the ratio fell. Beginning in 2002, it began to rise again, but it is still below the recent peak reached in 1993.

The Short-Run Effect of Federal Borrowing

In the short run, growth in the public debt (i.e., budget deficits) affects the composition of economic output. Federal government borrowing adds to total credit demand and tends to push up interest rates. Higher interest rates increase the cost of financing new investment in plant and equipment and thus may tend to reduce the stock of productive capital below what it might otherwise have been. Thus, there may be a shift in the composition of output towards consumption and away from investment. Consumption that might otherwise have been deferred (i.e., saving) is reduced and current consumption rises.

The higher interest rates may also have an effect on international capital flows, and thus on the trade balance. Other things being equal, they make dollar-denominated assets more attractive to foreign investors because of the relatively

higher yield. Foreign investors, in order to buy U.S. securities, must first buy dollars with which to pay for them. The increased demand for dollars in exchange markets tends to push up the price of the dollar in terms of other currencies.

The increase in the exchange value of the dollar has two mutually reinforcing effects. First, the price of imported goods falls because it takes fewer dollars to buy the same quantity of goods and services abroad. Lower prices for imported goods means, other things being equal, that U.S. consumers spend more on goods and services produced abroad. Second, the price of U.S. produced goods and services rises for foreigners because the amount of foreign currency required to buy a given quantity of U.S. exports rises. Because U.S. exports are more expensive, they tend to decline.

Both the rise in imports and the drop in exports contribute to a larger trade deficit. Because of the increased domestic borrowing associated with the rising federal debt, firms which sell a significant share of their production abroad, and those which compete directly with foreign firms selling in the United States, experience a drop in the demand for their goods and services. The increased capital inflow, however, may offset to some extent the reduction in investment that might otherwise result from the increase in domestic credit demand.

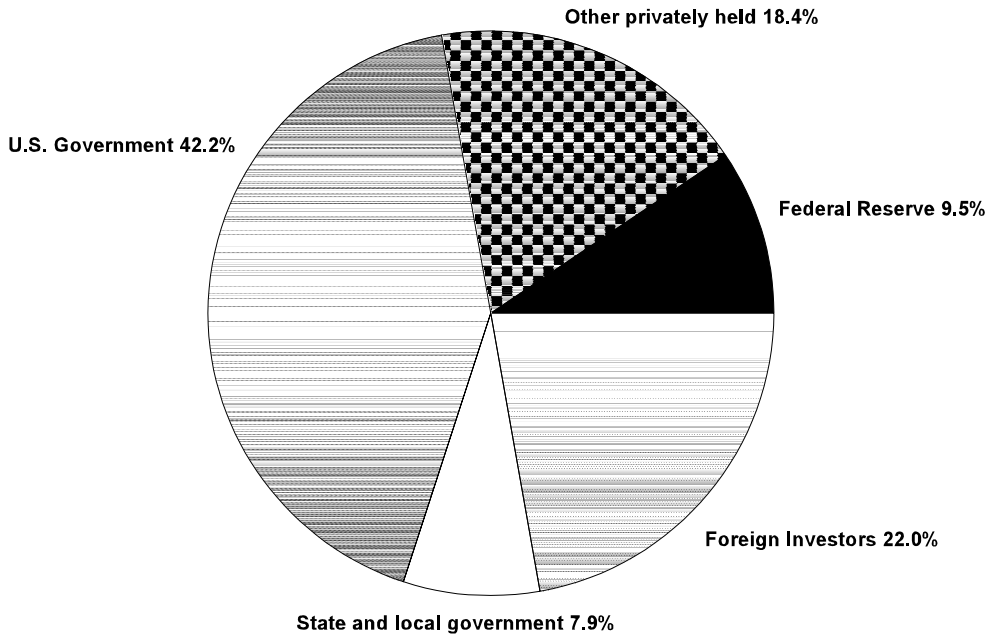
In the longer run, as the amount of foreign holdings of U.S. assets increases, an increasing share of U.S. income will flow abroad in the form of interest, dividend, and rent payments. While this outflow does not necessarily mean a decline in U.S. living standards, it may mean that future living standards will not be as high as they would have been if more of domestic investments had been financed by borrowing at home instead of abroad.

Who Owns the Federal Debt?

Because Treasury securities are seen as relatively safe, they are held by a wide range of investors. Next to cash they are the most liquid asset, meaning they can easily be converted to cash when necessary, on short notice. Since they are backed by the full faith and credit of the U.S. government, they are also perceived as very low risk assets. Because of that, investors hold them as a way of managing the overall risk associated with their portfolio.

Figure 2 shows a breakdown of the holders of the outstanding gross federal debt. The U.S. government is itself the largest holder of the debt, mainly in the trust funds. Included in the "other" category are financial institutions, including banks, insurance companies, and mutual funds, as well as private pension funds. The Federal Reserve holds a significant share of the debt. The Federal Reserve buys and sells Treasury securities in its open market operations in order to influence the growth rate in the money stock. Foreign investors hold 22% of the debt. State and local governments hold Treasury securities as well, mainly in pension funds for their employees.

Figure 2. Ownership of the Federal Debt, December 2003



Source: Department of the Treasury.

The Treasury Department also publishes estimates of the major foreign holders of Treasury securities. Japan, the United Kingdom, and Mainland China are the three largest holders of Treasury securities. **Table 1** presents recent data for a number of countries that hold Treasury securities.

Table 1. Major Foreign Holders of Treasury Securities as of June 2004

Country	Holdings (in billions of dollars)
Total Foreign Held	$1,798.7
Japan	689.3
Mainland China	164.8
United Kingdom	127.6
Caribbean Banking Centers	89.1
Korea	60.5
Taiwan	57.7
Hong Kong	52.4
Switzerland	49.6
Germany	47.7
OPEC	43.6

Source: Department of the Treasury.

The Relationship Between Debt and Output

In the long run, the relationship between the growth rate of the federal debt and the overall rate of economic growth is critical to financial stability. As long as the debt grows more rapidly than output, the ratio of debt to GDP will rise. Perpetual debt growth in excess of economic growth is an inherently unstable situation.

Whether or not the debt-to-GDP ratio is on such a path depends on the budget deficit, of course, but also on the rate of interest and the rate of growth in GDP.[4] To illustrate, consider the case where the budget is balanced except for the interest payment on the debt. In other words, the budget deficit is equal to the interest payment. In this case, the debt would grow each year by an amount equal to the interest cost of financing the debt. Thus, the growth rate of the debt would equal the interest rate. If the interest rate were higher than the growth rate of GDP, then the debt would grow faster than GDP and the ratio of debt to GDP would rise. If, instead, the interest rate stays below the economic growth rate, then the ratio of debt to GDP would fall.

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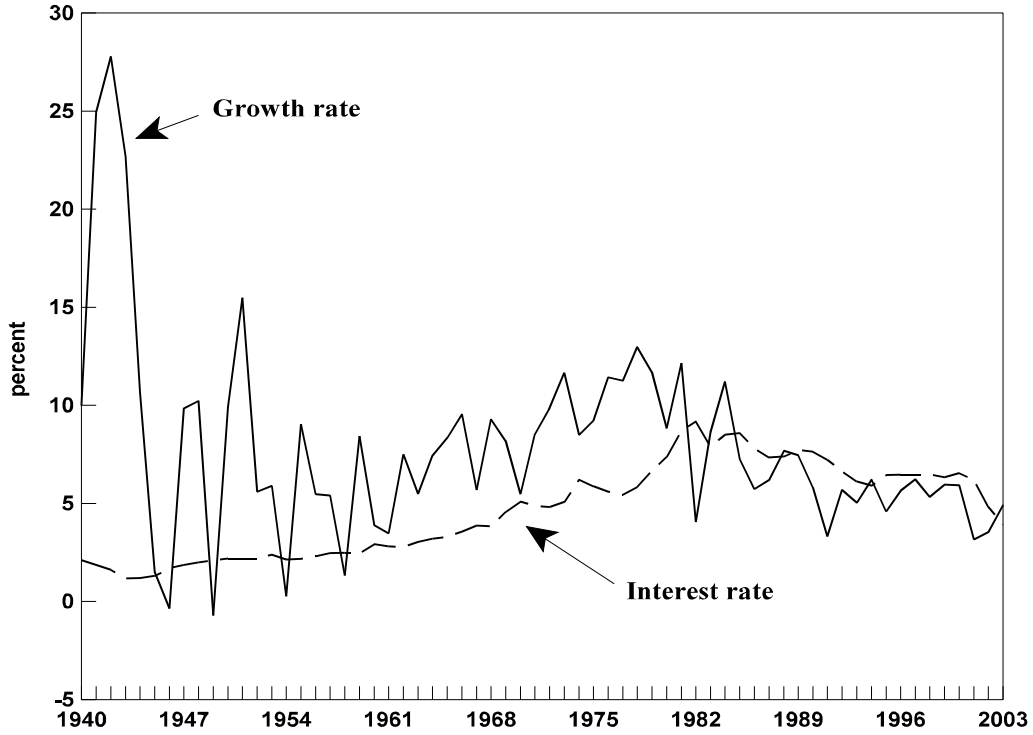
[4] In the current context both the growth rate and the interest rate are nominal.

Figure 3 compares the average interest rate on the federal debt with the growth rate of nominal GDP. This measure of economic growth reflects changes in both real output and inflation. The solid line shows the annual growth rate of nominal GDP, and the dashed line shows the average interest rate on the outstanding federal debt held by the public.

Figure 3. Economic Growth and the Interest Rate on the Federal Debt



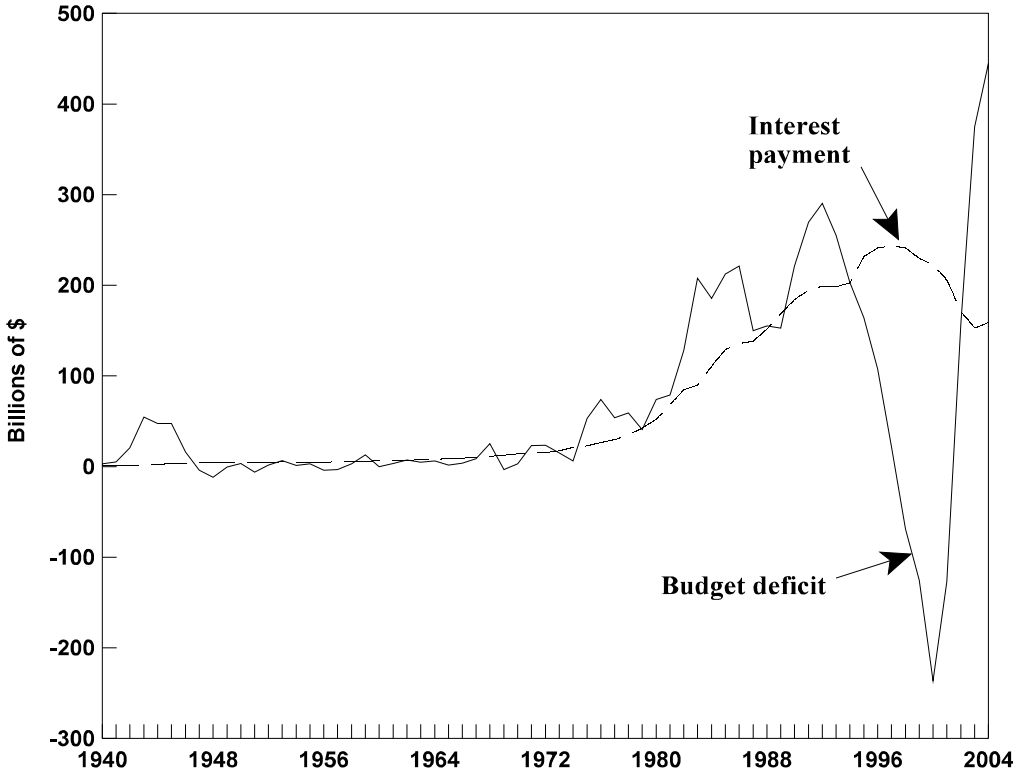
Sources: Department of Commerce, Bureau of Economic Analysis; Office of Management and Budget.

For most of the period between 1940 and 1980, the interest rate remained well below the growth rate of the economy. For much of the past 20 years, however, the interest rate has been above the growth rate, which through the mid-1990s contributed to the rising debt-to-GDP ratio. If the interest rate is less than the growth rate, it is possible for the debt ratio to fall even with a modest budget deficit. However, recently the interest rate has been close to or above the growth rate and that, along with projected budget deficits, means that it is likely that the debt ratio will rise.

Consider the case where the budget deficit is larger than the interest payment on the debt. When the budget deficit is larger than the interest payment, the difference between the two is sometimes referred to as the "primary" deficit. In that case, the growth rate of the debt would be larger than the interest rate, and so, even with an interest rate below the GDP growth rate, the debt-to-GDP ratio could still rise. **Figure 4** shows the historical relationship between the budget deficit and the interest

payment on the debt. The solid line shows the deficit (which in some cases is negative, i.e., a surplus), and the dashed line shows the interest payment.

Figure 4. The Budget Deficit and Net Interest Outlays



Source: Office of Management and Budget.

Although there were clearly exceptions, the overall pattern until recently was for the budget deficit and the interest payment to rise in tandem, which is not surprising since the deficits represents additional debt which requires a larger interest payment. In the late 1990s, when the budget was in surplus (i.e., a negative deficit), the budget deficit was clearly substantially less than the interest payment which contributed to the decline in the debt-GDP ratio. In FY2003 that situation was reversed, and the deficit was larger than the interest payment.

What are the Risks of a Rising Debt?

The federal government has little difficulty in marketing securities when revenues fall short of outlays. In fact, recently, when it seemed to some as though the government was on a path to eliminate the debt, there was concern that it was important for there to be at least some federal debt traded in financial markets. As long as there is a market for federal debt, the risks are small.

What matters most, as far as financial stability is concerned, is what investors believe to be the long-run trend in the debt-GDP ratio. If large primary deficits are expected to persist, or if the interest rate on the debt is expected to exceed the growth

rate indefinitely, then at some point the federal government may begin to find it more difficult to sell new securities. In other words, it may become harder for the federal government to find willing lenders to finance its outlays. At worst, private investors might come to doubt the federal government's ability even to meet its interest payments, and would be less willing, if not unwilling, to hold government bonds.

Inability to borrow money in credit markets can be fatal to private businesses. Firms that are losing money and cannot find willing lenders are on the road to bankruptcy. The federal government, however, has a source of credit not available to individual businesses, the Federal Reserve Bank.

Should the federal government be unable to find private sector buyers, either domestic or foreign, for its securities there are two possible outcomes. First, the federal government could simply find itself unable to meet all of its obligations. In that case outlays would have to fall unless taxes were increased enough to eliminate the shortfall. Second, rather than allow the government to default, the Federal Reserve might buy the securities that otherwise the government would be unable to sell.

Although subject to congressional oversight, the Federal Reserve is independent and under no legal obligation to ensure the sale of government securities. But should it decide to do so, then the threat is no longer one of government insolvency, but rather of inflation.

When the Federal Reserve buys Treasury securities, it increases the stock of reserves to commercial banks. Those increased reserves, in turn, increase the banks' capacity to lend money and create demand deposits, increasing the stock of money in circulation. The historical record demonstrates that continued financing of large government budget deficits by "printing money" runs a substantial risk of rapidly accelerating inflation.

Current and projected federal debt, however, is far short of the levels thought to be associated with this risk. For the moment, federal debt relative to GDP is lower than it was in the mid-1990s and well below the level it reached following World War II.

History provides a number of examples where large public sector debt led to serious economic consequences. In the aftermath of World War I, four countries experienced episodes of rapid inflation directly attributable to the central bank financing of very large budget deficits through money creation: Germany, Poland, Austria, and Hungary. In each of these cases, more than one-half of the total central government expenditures was deficit financed. As a result, the public lost confidence in the governments' ability to bring growth in public sector debt under control by either raising taxes or cutting expenditures.[5]

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[5] Thomas J. Sargent, "The Ends of Four Big Inflations," in *Inflation: Causes and Effects*, edited by Robert Hall. National Bureau of Economic Research, 1982, pp. 41-97.

Immediately following World War II, Hungary experienced the most extreme episode of inflation on record. Between July 1945 and August 1946, the price level in Hungary rose by a factor of 3×10^{25}. As is characteristic of instances of very rapid inflation, tax revenues fell far short of public expenditures during this time. For much of the period, revenues covered less than 10% of total expenditures.[6]

During the mid-1980s, Bolivia experienced an episode of very rapid inflation. In 1984, general government revenues represented less than 20% of total government expenditures, and the budget deficit surpassed 20% of GDP. Annual inflation in 1984 was over 1,000%, and in 1985 the inflation rate topped 11,000%.[7]

These are all examples of extreme cases, but they serve to put the U.S. experience in perspective. Even in instances of much more modest federal government credit demand, there remains the possibility that the Federal Reserve might seek to mitigate any upward pressure on interest rates due to the Treasury's borrowing needs at the risk of pushing up the inflation rate. But as long as the Treasury can find buyers for its securities in private credit markets, the Federal Reserve will likely find it easier to pursue an anti-inflationary policy.

Government Debt in Other Industrialized Countries

Short of the extreme examples cited in the previous section, it is useful to compare the public sector debt in the United States with that of other developed countries. The United States is not the only country whose central government has issued a significant amount of debt.

Among the countries shown in **Table1** are all those participating in the European Monetary Union (EMU). These are the countries who now use the Euro as their currency. The Maastricht Treaty established conditions for participation in the EMU. Among them was the condition that a member country's public sector financial condition must be "sustainable." In particular, the standards for assessing the sustainability of public sector finances were that the public sector deficit not exceed 3% of GDP, and that the public sector debt not exceed 60% of GDP.

As the figures in **Table 1** indicate, the United States is far from having the largest public sector debt. Of the 18 countries shown, only four had a lower debt-to-GDP ratio in 2002 than did the United States. Half of the countries reduced their debt ratio between 1993 and 2002, and half raised it. Four of the countries had public debt larger than their GDP in 2002, three of which are participating in the EMU.

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[6] William A. Bomberger and Gail E. Makinen, "The Hungarian Hyperinflation and Stabilization of 1945-1946," *Journal of Political Economy*, 1983, Vol. 91, No. 5, pp. 801-824.

[7] Juan-Antonio Morales, 'Inflation Stabilization in Bolivia," in *Inflation Stabilization*, edited by Michael Bruno, et. al., MIT Press, 1988, pp. 307-346.

Table 2. Central Government Debt as a Percentage of GDP

Country	1993	2002	percentage point change
Austria[a]	51.4	60.6	9.2
Belgium[a]	121.5	101.1	-20.4
Canada	57.0	38.6	-18.4
Finland[a]	51.8	42.4	-9.4
France[a]	34.1	50.9	16.8
Germany[a]	21.7	36.6	14.9
Greece[a]	109.3	117.5	8.2
Ireland[a]	83.3	27.6	-55.7
Italy[a]	112.9	100.2	-12.7
Japan	55.0	134.7	79.7
Luxembourg[a]	2.2	2.9	0.7
Mexico	25.3	24.5	-0.8
Netherlands[a]	61.2	43.4	-17.8
Portugal[a]	61.2	61.3	0.1
Spain[a]	50.0	45.2	-4.8
Switzerland	19.4	28.6	9.2
United Kingdom	40.2	40.4	0.2
United States	49.4	33.7	-15.7

Source: Organization for Economic Co-operation and Development.

a. Member of the European Monetary Union (Euro country).

Conclusion

After several years of decline, it appears that the federal debt is likely to rise again, at least for the near future. Not only is the debt projected to rise, but it is likely to rise more rapidly than GDP, and so the ratio of debt to GDP will rise as well.

At current and projected levels, the debt poses few if any economic risks. Ultimately the risk of a very large, and rapidly growing, government debt is extremely high rates of inflation, as pressure would mount on the Federal Reserve to monetize the debt. But that would require so much more rapid growth in debt than is currently expected, that it is virtually out of the realm of possibility.

That the debt is growing again, however, means that domestic saving that might otherwise be used to finance investment spending will go to finance current expenditures. That being the case, either domestic investment will be less than it might otherwise have been, or firms will have to borrow from abroad to fund some of their investments. Foreign borrowing will, however, push up the trade deficit.

Compared to other industrialized countries, the federal debt, relative to GDP, is smaller than that of most and well below the threshold established for EMU member countries that purports to establish a standard for sustainable public sector finances.