The Constitutional Budget Office (CBO), on the other hand, has made budget projections under the assumption of no further government action to reduce the primary deficit. The CBO also assumes that interest rates, after adjusting for taxes, would remain below the growth rate of GNP. Even if the primary deficit and the interest rate on Treasury debt were to stabilize relative to GNP at the average levels projected by CBO, however, federal debt would continue to grow until it was about 133 percent of GNP. It would take many years for the debt-to-GNP ratio to reach such a level; 40 years from now, debt would "only" be 90 percent of GNP.

The possible consequences are virtually limitless. Generally, the higher the annual primary deficit, and the higher the assumed interest rates, the more the debt-to-GNP ratio would be 90 percent of GNP. The effects could be profound. It would be less than the ratio that would result if a reduction in the primary deficit were assumed, but the budget deficit could also be higher.

Nevertheless, it appears that under some fairly reasonable assumptions about the behavior of the primary deficit, interest rates, and the growth of GNP, the federal debt-to-GNP ratio could climb above levels reached at the end of World War II. The major uncertainty, therefore, is whether we can accommodate war-time debt ratios under peacetime conditions. In contrast to a wartime economy, a growing peacetime economy might only accommodate high levels of federal borrowing at the expense of private investment that is needed to foster continued growth and price stability. So far in the current recovery, record net inflows of private foreign capital have helped to finance growing public as well as private credit demand in the United States, but we cannot count on net inflows of foreign savings indefinitely. Moreover, net foreign capital inflows tend to be associated with an appreciating dollar in exchange markets. This weakens our competitive position in world markets and slows growth and employment in trade-related industries.

First, even small differences in the basic budget assumptions can make large differences in the results. A $20 billion difference in the assumed initial level of the primary deficit, followed by proportional changes in future years, would alter the projected debt-to-GNP ratio by almost 20 percent after 40 years. A $20 billion difference is smaller than differences between current forecasts of 1986 budget.

8. This is based on averages of CBO projections over a six-year horizon for: primary deficit (2 percent of GNP), W-day Treasury bill rate (3.4 percent), and nominal GNP growth (7 percent). It also assumes an average marginal tax rate of 25 percent.

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Interest payments on the federal debt have grown larger than the economy since 1974. If this trend were to continue unchecked by the year 2035 the government would need the nation's entire gross national product (GNP) just to pay interest on the federal debt. This alarming possibility is not likely to happen, because Congress and the Reagan administration are working to reduce the federal deficit! However, the national debt—and the cost of paying interest on it—is still a threatening problem. The federal government often has to borrow all of the money needed to pay the interest it owes, plus more. Without new programs that add to the deficit, the national debt could still grow faster than the economy, and the federal government would require larger and larger amounts of funds relative to GNP.

In this Economic Commentary, we look at what makes the federal debt grow or decline. We examine the history of the debt since World War II and the implications of some plausible alternative assumptions for its future.

Debt Dynamics
The size of the federal debt has four sources: 1) the size of the federal budget deficit or surplus, 2) the average level of interest rates on Treasury securities, 3) the marginal tax rate for interest income, and 4) revenues that the Federal Reserve System earns from holding Treasury securities. We examine each of these factors in turn.


2. The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Cleveland or of the Governors of the Federal Reserve System.

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The Dynamics of Federal Debt

by John B. Carlson and E.J. Stevens

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In this case, the interest rate were to exceed the GNP growth rate, the federal debt-to-GNP ratio would continue to grow, implying that the government would require a larger share of the nation's output simply to service the federal debt. The debt-to-GNP ratio would become even faster, if the primary deficit were not zero, especially if the initial level of the outstanding debt were large.

The relevant interest rate for debt dynamics is not the stated rate on bonds, notes, and bills, but the interest rate adjusted for inflation on interest earnings. These taxes enable the federal government to retain a portion of the money it pays as interest. Many economists estimate the average marginal tax rate for interest earnings to be about 25 percent. A less obvious factor influencing the growth rate of the federal debt is seigniorage. This refers to revenue that the government gets as a result of the Federal Reserve System's power to create money. The process works like this. The Federal Reserve usually adds money to the economy by purchasing 25 percent, compared with the postwar average of only 6 percent. Thus, the federal government had little difficulty in finding individuals willing to purchase securities, thereby increasing the federal debt. Moreover, the Federal Reserve was committed to supporting the market for Treasury securities during the war in order to maintain a level of interest rates as low as 0.375 percent on Treasury bills. Immediately after World War II, the federal government trimmed the large primary deficits by reducing military expenditures, and the growth rate of the federal debt slowed. As chart 2 indicates, although the federal debt grew in absolute terms, the ratio of debt to GDP began a long-term decline through the Kennedy tax cuts and the Vietnam military buildup, until the mid-1970s. Before 1946 and 1974, the federal government actually had no primary deficit on a cumulative basis. Although the government incurred annual total budget deficits, primary deficits mostly reflected the effects of the business cycle—growing during economic slowdowns and diminishing as the economy improved. The cumulative balanced primary budget contributed significantly to the decline in the debt-to-GNP ratio between 1946 and 1974.

History of the Deficit

Since World War II

Until 1980, the United States ran persistently large federal deficits only in wartime. During World War II, for example, deficits averaged 25 percent of GNP resulting in an estimated increase in the federal debt. Heavy wartime government credit demands, however, did not conflict with private credit demands because of the economic conditions prevailing during the war.

The government, by rationing, by imposing price controls, and by directly controlling production, shifted economic resources from the manufacture of consumer goods to the manufacture of military goods. Civilians typically worked long hours, but had few consumer goods on which to spend their extra income. Private credit demands for products like houses, cars, and appliances declined because these items were simply unavailable to most people.

Consequently, between 1941 and 1945, savings rates skyrocketed to about 20 percent, compared with the postwar average of only 6 percent. Thus, the federal government had little difficulty in finding individuals willing to purchase Treasury securities, thereby increasing the federal debt. Moreover, the Federal Reserve was committed to supporting the market for Treasury securities during the war in order to maintain a level of interest rates as low as 0.375 percent on Treasury bills. Immediately after World War II, the federal government trimmed the large primary deficits by reducing military expenditures, and the growth rate of the federal debt slowed. As chart 2 indicates, although the federal debt grew in absolute terms, the ratio of debt to GDP began a long-term decline through the Kennedy tax cuts and the Vietnam military buildup, until the mid-1970s. Before 1946 and 1974, the federal government actually had no primary deficit on a cumulative basis. Although the government incurred annual total budget deficits, primary deficits mostly reflected the effects of the business cycle—growing during economic slowdowns and diminishing as the economy improved. The cumulative balanced primary budget contributed significantly to the decline in the debt-to-GNP ratio between 1946 and 1974.

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