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# Overview of the Federal Debt

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# Summary

The size of current and projected federal deficits and the accumulation of federal debt are central to current congressional deliberations regarding fiscal reforms. This report provides a broad overview of the federal debt, annual budget deficits, and debt service costs. Federal debt is the accumulated sum of unrepaid borrowing by the federal government over time. The total federal debt consists of *debt held by the public* and *intragovernmental* debt. Debt owed to the public represents borrowing from entities other than the federal government, and includes borrowing from state and local governments, foreign governments and investors, the Federal Reserve System, foreign central banks, as well as private investors in the United States.

Intragovernmental debt consists of debt liabilities owed by one part of the federal government to another, which are mostly held in trust funds. The Social Security Old Age and Survivors' Insurance (OASI) account is the federal trust fund with the largest holdings of Treasury securities. The largest 20 trust funds account for about 98% of intragovernmental debt. The Social Security trust funds were designed to provide financial resources to pay future benefits. The federal government, however, must raise revenues, cut spending, or borrow in order to obtain funds that will allow the U.S. Treasury to redeem the trust fund securities in the future.

Nearly all federal debt is subject to a statutory limit. On April 29, 2011, debt subject to limit was $14,236 billion, about $58 billion below the current statutory debt limit of $14,294 billion. The U.S. Treasury projects federal debt will reach its statutory limit before May 16, 2011, although extraordinary measures could extend Treasury's borrowing capacity until about August 2, 2011.

The U.S. Treasury uses various debt instruments to manage its cash and debt, so that funds are available to fund outlays and costs of carrying federal debt are minimized. Even when the federal budget is in balance, Treasury would still have to issue some debt to balance out seasonal fluctuations in revenues and outlays.

For most of American history, federal debt was closely linked to war finance. In recent decades, the growing costs of federally financed health care and other entitlement spending have played an important role in the government's fiscal situation. Higher spending on defense and other security costs, as well as tax cuts and other tax policy decisions have also influenced the size of federal deficits and the accumulation of debt.

Interest rates on federal debt have fallen to extremely low levels due to the effects of the 2007-2008 financial crises and subsequent recession. As the economy continues to recover interest rates will likely rise. Federal debt levels, according to projections, will continue to increase in coming years. Thus, net interest costs are projected to rise rapidly. According to April 2011 CBO baseline projections, net interest costs will rise from $213 billion in FY2011 to $534 billion in FY2016.

A growing proportion of the federal debt is held by foreign investors and governments as capital markets have become more international. Some countries, especially in East Asia, have had very high savings rates that have financed significant accumulations of federal debt.

Federal debt is a backward-looking reflection of the government's fiscal condition. Some forward-looking measures of the federal debt may more accurately reflect the federal government's fiscal condition and its ability to face future budgetary challenges. This report will be updated as events warrant.

# Contents

Structure of the Federal Debt ..... 1
Debt Held by the Public ..... 3
Intragovernmental Debt ..... 5
How Federal Trust Funds Work ..... 5
Debt Limit ..... 7
Deficits, Debt, and Interest Costs ..... 8
Deficits and the Accumulation of Federal Debt ..... 8
The Federal Debt Over Time ..... 9
Interest Costs ..... 12
Interest Rates on Short-Term and Long-Term Debt ..... 14
Holdings of Federal Debt ..... 15
Maturity Structure of the Federal Debt ..... 15
Ownership of Publicly Held Debt ..... 20
What Is the "Best" Measure of Federal Debt? ..... 23
Conclusion ..... 24

## Figures

Figure 1. Structure of Federal Debt ..... 2
Figure 2. United States Government Budget Surplus or Deficit ..... 11
Figure 3. Federal Net Interest Costs as a Percentage of GDP ..... 13
Figure 4. Interest Rates for Selected Treasury Securities by Maturity ..... 15
Figure 5. Average Maturity of Privately Held U.S. Marketable Debt, 1945-2001 ..... 16
Figure 6. Composition of Privately Held U.S. Marketable Interest-Bearing Public Debt By Maturity Class ..... 18
Figure 7. Average Maturity of Privately Held U.S. Marketable Interest-Bearing Public Debt ..... 19
Figure 8. Holdings of Interest-Bearing U.S. Treasury Securities by Country ..... 21
Figure 9. Holdings of U.S. Treasury Securities By Type of Investor ..... 22

## Tables

Table 1. Federal Debt Held by the Public ..... 4
Table 2. Federal Intragovernmental Debt ..... 4

## Contacts

Author Contact Information ..... 24

The size of current and projected federal deficits and the accumulation of federal debt are central to current congressional deliberations regarding fiscal reforms. This report provides a broad overview of the federal debt, annual budget deficits, debt service costs, and related issues. Citations to other CRS reports that provide more detail on these topics are included.[1]

This report describes the structure of the federal debt, which is divided between debt held by the public (i.e., held by entities other than the federal government) and intragovernmental debt. Most debt held by the public is marketable, while all but a tiny portion of intragovernmental debt is nonmarketable and held in federal trust funds. The workings of federal trust funds and the federal debt limit are then briefly described.

While the federal debt is the accumulation of annual deficits, reconciling a deficit with the year-over-year increase in federal debt requires certain technical adjustments (discussed below). The report then discusses the relationship between deficits and the federal debt, and the history of the debt in recent decades.

A following section discusses elements of federal debt management. The U.S. Treasury aims to maintain a mix of maturities among securities making up the federal debt that minimize borrowing costs and risks associated with changing market conditions. Interest yields on fixed income securities, such as Treasury bills, notes, and bonds, depend on their maturity (i.e., how long until a security is redeemed).

Finally, the report examines ownership of publicly held debt, both in terms of the nationality and the type of investor (insurers, mutual funds, etc.).

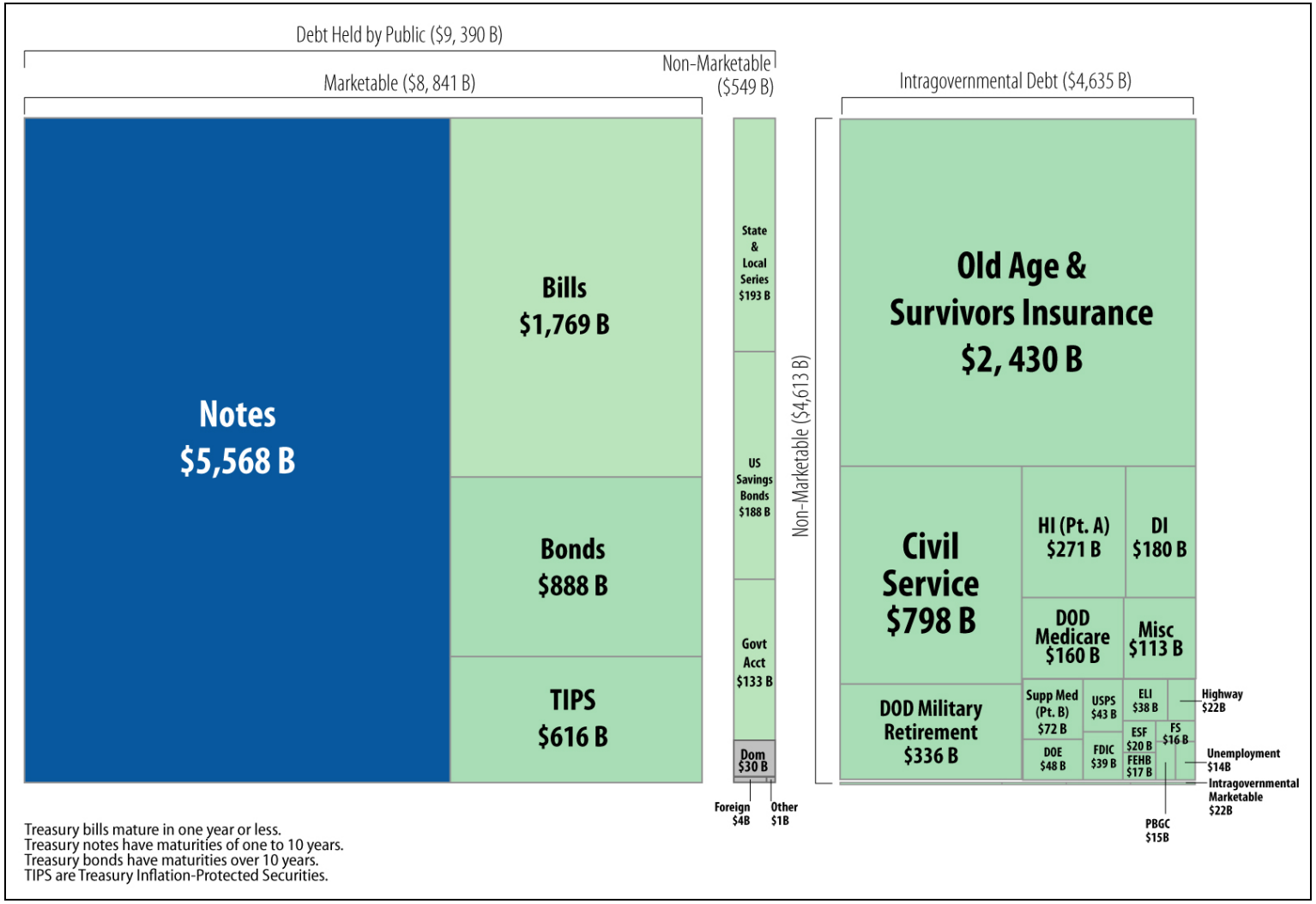
# Structure of the Federal Debt

Federal debt is the accumulated sum of unrepaid borrowing by the federal government over time. The total federal debt consists of *debt held by the public* and *intragovernmental* debt. Debt owed to the public represents borrowing from entities other than the federal government, and includes borrowing from state and local governments, foreign governments and investors, the Federal Reserve System, foreign central banks, as well as private investors in the United States. Intragovernmental debt consists of debt liabilities owed by one part of the federal government to another, which are mostly held in trust funds. Federal debt at the end of calendar 2010, split by intragovernmental and publicly held components, is shown in **Figure 1**.

[1] See also U.S. Congressional Budget Office (CBO), *Federal Debt and Interest Costs*, December 2010, available at http://www.cbo.gov/doc.cfm?index=11999&zzz=41471.

**Figure 1. Structure of Federal Debt**

$Billions, end of calendar year 2010




**Source**: CRS analysis of U.S. Treasury data. **Notes**: Total federal debt outstanding at the end of December 31, 2010, was $14,025 billion. See text and Tables 1 and 2.

## Debt Held by the Public

**Table 1** provides a breakdown of publicly held debt.[2] As of December 31, 2010, total federal debt outstanding was $14,025 billion, debt held by the public was $9,390 billion and intragovernmental debt was $4,613 billion. The bulk of debt held by the public is in the form of marketable securities that can be freely traded in capital markets. U.S. savings bonds are an example of nonmarketable federal debt held by the public. Nearly all intragovernmental debt is nonmarketable.

**Table 2** shows components of intragovernmental debt for the end of calendar years 2009 and 2010. Large federal deficits in recent years have translated into large increases in debt held by the public. This increase is reflected across all types of marketable debt instruments (i.e., bills, notes, bonds, and TIPS), although in calendar year 2010 the largest increase was in notes. The U.S. Treasury chooses a mixture of various debt instruments to manage its cash and debt so that funds are available to fund outlays and costs of carrying federal debt are minimized. Even when the federal budget is in balance, Treasury must still issue some debt to balance out seasonal fluctuations in revenues and outlays.

The marketable portion of the debt held by the public consists of U.S. Treasury securities that are generally sold at scheduled auctions.[3] Treasury securities are available in various maturities. Shorter-maturity Treasury securities normally have lower yields and provide more flexibility in cash management. Long maturity bonds, while normally requiring higher interest rates, can protect borrowers, such as the federal government, against the risk of interest rate increases in the medium- and long-term.

The largest components of the nonmarketable portion of debt held by the public are the State and Local Government Series (SLGS) and U.S. Savings Bonds and other Savings Securities.[4] SLGSs are customized securities available for state and local governments to hold proceeds of bond sales. SLGSs were designed to limit state and local governments' ability to deposit proceeds of tax-exempt bond issues, which generally carry interest rates below non-exempt securities, into bank accounts earning higher interest rates. This could allow state and local governments to earn arbitrage profits at the expense of federal taxpayers.[5] U.S. Savings Bonds were widely promoted to fund World War II, but now account for a small portion of federal debt.

The Government Account within the nonmarketable portion of debt held by the public mostly comprises funds belonging to the Thrift Savings Plan (TSP), a defined contribution plan for federal employees. The Government Account also includes various escrow, claims, and settlement funds.

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[2] At the end of March 1, 2011, total federal debt outstanding was $14,173 billion. Debt held by the public was $9,563 billion and intragovernmental debt as $4,610 billion.

[3] CRS Report R40767, *How Treasury Issues Debt*, by Mindy R. Levit.

[4] For more information see U.S. Treasury, "SLGS FAQ," available at http://www.treasurydirect.gov/govt/resources/faq/faq_slgs.htm.

[5] For more information, see CRS Report R41811, *State and Local Government Series (SLGS) Treasury Debt: A Description*, by Steven Maguire; and U.S. Treasury, "SLGS FAQ," available at http://www.treasurydirect.gov/govt/resources/faq/faq_slgs.htm..

**Table 1. Federal Debt Held by the Public**

$Billions

| | | End of 2009 | End of 2010 |
|---|---|---|---|
| **Marketable** | | | |
| Bills | maturity ≤ 1 year | 1,788 | 1,769 |
| Notes | maturity : 1 to 10 years | 4,179 | 5,568 |
| Bonds | maturity > 10 years | 715 | 888 |
| TIPS | Treasury Inflation Protected Securities | 568 | 616 |
| **Subtotal** | | **7,250** | **8,841** |
| **Nonmarketable** | | | |
| State & Local Series | | 214 | 193 |
| U.S. Savings Bonds | | 191 | 188 |
| Government Account | | 120 | 133 |
| Domestic | | 30 | 30 |
| Foreign | | 4 | 4 |
| Other | | 1 | 1 |
| **Subtotal** | | **561** | **549** |
| **Total Debt Held by Public** | | **7,811** | **9,390** |

**Source:** U.S. Treasury, *Treasury Bulletin*, December 2010, and *Monthly Statement of the Public Debt*, January 2011.

**Table 2. Federal Intragovernmental Debt**

$Billions, end of calendar years 2009 and 2010

| Fund Name | Abbreviation | 2009 | 2010 |
|---|---|---|---|
| Federal Old-Age & Survivors Insurance Trust Fund (Social Security) | OASI | 2318.8 | 2429.5 |
| Federal Disability Insurance Trust Fund (Social Security) | DI | 199.8 | 180.0 |
| Hospital Insurance Trust Fund (Medicare) | HI (Pt. A) | 304.6 | 271.4 |
| Supplementary Medical Insurance Trust Fund (Medicare) | Supp Med (Pt. B) | 75.9 | 71.7 |
| Civil Service Retirement & Disability Fund (OPM) | Civil Service | 750.2 | 777.8 |
| Military Retirement Fund (Defense) | DoD Mil Ret | 295.8 | 335.9 |
| Medicare Eligible Retiree Fund (Defense) | DoD Medicare | 144.6 | 160.0 |
| Nuclear Waste Disposal Fund (Energy) | DOE | 45.4 | 47.8 |
| Postal Service Retiree Health Benefits Fund | USPS | 35.9 | 42.9 |
| Deposit Insurance Fund | FDIC | 59.5 | 39.4 |
| Employees' Life Insurance Fund (OPM) | ELI | 36.7 | 38.2 |
| Highway Trust Fund | Highway | 7.6 | 22.3 |
| Exchange Stabilization Fund (Treasury) | ESF | 19.2 | 20.4 |
| Employees' Health Benefits Fund (OPM) | FEHB | 15.5 | 16.8 |
| Foreign Service Retirement & Disability Fund | FS | 15.6 | 16.1 |

| Fund Name | Abbreviation | 2009 | 2010 |
|---|---|---|---|
| Pension Benefit Guaranty Corporation | PBGC | 13.9 | 14.5 |
| Unemployment Trust Fund | Unemployment | 16.2 | 14.3 |
| Miscellaneous | Misc | 122.0 | 113.3 |
| **Subtotal, Intragovernmental Government Account Series** | | **4477.2** | **4612.4** |
| Hope Bonds | | 0.5 | 0.5 |
| **Subtotal, Intragovernmental Nonmarketable** | | **4477.7** | **4612.9** |
| Treasury Securities | | 10.7 | 11.6 |
| Federal Financing Bank | | 11.9 | 10.2 |
| **Subtotal, Intragovernmental Marketable** | | **22.6** | **21.8** |
| **Total, Intragovernmental** | | **4500.3** | **4634.7** |

**Source:** U.S. Treasury, *Monthly Treasury Statement* and *Monthly Statement of Public Debt*, December 31, 2009 and 2010, available at http://www.fms.treas.gov/mts/backissues.html and http://www.treasurydirect.gov/govt/reports/pd/mspd/mspd.htm respectively.

**Notes:** Abbreviation column shows labels for boxes in **Figure 1**. See source for other notes.

## Intragovernmental Debt[6]

Nearly all intragovernmental debt is held by trust funds and other accounts held at the U.S. Treasury on behalf of various government programs.[7] These funds receive interest payments from the U.S. Treasury, generally in the form of additional Treasury securities. For the largest trust funds, these interest payments occur twice a year, once at the end of June, and again at the end of December. The Social Security Old Age and Survivors' Insurance (OASI) account is the federal trust fund with the largest holdings of Treasury securities. The largest 20 trust funds account for about 98% of intragovernmental debt.[8]

Nearly all intragovernmental debt is nonmarketable. Debt held by the Federal Financing Bank (FFB), which is limited to $15 billion, is nonmarketable and is not generally subject to the debt limit. The Federal Financing Bank was created to increase the efficiency of the federal government's budgetary and financial operations.

### How Federal Trust Funds Work

For illustrative purposes, the interactions between the Social Security trust funds, the general fund, and the debt limit are described here. The Old Age and Survivors' Insurance (OASI) and the Disability Insurance (DI) trust funds are the two Social Security trust funds. Other government trust funds may interact with revenue streams and the general funds in somewhat different ways.

[6] Alison Shelton (CRS/Domestic Social Policy Division) contributed to the discussion of Social Security finance.

[7] For details of federal trust funds and federal fund accounts, see U.S. Office of Management and Budget, *FY2011 Budget of the U.S. Government, Analytic Perspectives*, ch. 27. See also U.S. Congressional Budget Office, *Budget and Economic Outlook*, Appendix C, January 2011, available at http://www.cbo.gov/ftpdocs/120xx/doc12039/01-26_FY2011Outlook.pdf.

[8] CRS Report R41328, *Federal Trust Funds and the Budget*, by Thomas L. Hungerford.

Social Security collects revenues from payroll taxes paid by workers and employers, as well as federal income taxes paid by some beneficiaries on a portion of their benefits. In addition, Social Security earns interest income from trust fund investments, which the U.S. Treasury credits to the trust funds in the form of additional government securities.

By law, the Social Security trust funds must be invested in interest-bearing obligations of the United States or in obligations guaranteed as to both principal and interest by the United States.[9] Investing the payroll tax revenues for even a few days ensures that the trust funds maximize interest income. Under the terms of this exchange, when Treasury credits payroll tax and other revenues to Social Security in the form of certificates of indebtedness (CIs), the revenues themselves become available in the general fund for other government operations. The securities that the Treasury issues to the Social Security trust funds count toward the federal debt limit.[10]

Social Security benefits are paid by the Treasury using cash from the general fund. If Treasury lacks sufficient cash on hand to pay benefits, it must borrow by issuing new public debt. When Treasury pays Social Security benefits, it redeems an equivalent amount of Treasury securities held by the trust funds in order to reimburse the general fund.

The Social Security program is projected to run a cash deficit in FY2011. That is, Social Security's outlays for benefit payments and administration are projected to exceed its tax revenues. In a year when Social Security runs a cash flow deficit, the Treasury redeems additional government securities held by the trust funds.

Social Security financial operations have been slightly modified to accommodate a temporary reduction in Social Security payroll taxes for employees and the self-employed. The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (P.L. 111-312, signed on December 17, 2010), among other provisions, provides a temporary two percentage point reduction in the Social Security payroll tax for employees and the self-employed in 2011, resulting in a tax rate of 4.2% for employees and 10.4% for the self-employed. To protect the Social Security trust funds from a loss of payroll tax revenues, P.L. 111-312 appropriates to the Social Security trust funds amounts equal to the reduction in revenues to the Treasury.[11]

The Social Security trust funds receive interest payments in the form of additional securities from the U.S. Treasury each June 30 and December 31.[12] In other words, Treasury is obligated to issue additional debt, that is subject to limit, twice a year in order to pay interest to the Social Security and certain other trust funds. When federal debt is near its statutory limit, making those interest payments could pose a challenge to Treasury debt and cash management operations.

The Social Security trust funds were designed to provide financial resources to pay future benefits. The federal government, however, must raise revenues, cut spending, or borrow in order

[9] 42 U.S.C. § 401(d).

[10] U.S. Government Accounting Office, *Treasury's Management of Social Security Trust Funds During the Debt Ceiling Crises* (GAO/HRD-86-45), December 5, 1985, available at http://archive.gao.gov/d12t3/128621.pdf.

[11] The law specifies that these appropriated amounts "shall be transferred from the general fund at such times and in such manner as to replicate to the extent possible the transfers which would have occurred to such Trust Fund had such amendments not been enacted."

[12] The Medicare trust funds, specifically the Hospital Insurance (HI; Part A) and Supplemental Medical Insurance (Parts B and D) trust funds, as well as the Civil Service Retirement and Disability Fund (CSRDF) also receive interest payments on the June/December schedule.

to obtain funds that will allow the U.S. Treasury to redeem the trust fund securities in the future. If Treasury obtained funds to redeem trust fund securities by borrowing an equivalent amount from the public, then intragovernmental debt would in effect be converted into debt held by the public, so that the net impact on total federal debt would be zero.[13]

If the federal government were running a budget surplus, and therefore had a positive cash balance in Treasury's general fund, Treasury could redeem the trust fund assets by using surplus cash. Trust fund balances would fall, but there would be no increase in debt held by the public. The net impact would be to reduce total federal debt. If those future redemptions of securities held by the Social Security trust funds were financed by cutting support for federal programs or raising taxes, then program beneficiaries and taxpayers at that time would bear an indirect burden of supporting Social Security benefits.

## Debt Limit[14]

Nearly all federal debt is subject to a statutory limit.[15] The current debt limit was set in February 2010 (P.L. 111-139) at $14,294 billion. The federal debt limit has been raised 16 times since 1993. On April 29, 2011, debt subject to the debt limit was $14,236 billion, about $58 billion below the current statutory debt limit.

The U.S. Treasury projects the federal debt will reach its statutory limit before May 16, 2011. Treasury Secretary Timothy Geithner in a letter to Congress dated May 2, 2011, wrote that he would declare a debt issuance suspension period on May 16, unless Congress acted beforehand, which would allow certain extraordinary measures to Treasury's borrowing capacity until early August 2011.[16] That letter, the third sent by the Treasury Secretary since January 2011, noted that funding federal operations could soon become complicated without a debt limit increase. Certain measures that rely on the Treasury Secretary's existing authority, such as the draw-down of the Supplementary Financing Program, are under way.

New issues of State and Local Government Series (SLGS) Treasury securities, according to the May 2 letter, were scheduled for suspension on May 6, 2011. On that date, Treasury announced that it had suspended issue of SLGSs until further notice. SLGSs help state and local governments satisfy federal requirements designed to prohibit tax arbitrage of proceeds of bond issues enjoying certain exemptions from federal taxation.[17]

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[13] In a situation where there is a budget surplus and therefore a positive cash balance in Treasury's general fund, Treasury could redeem the trust fund assets by using surplus cash, and then the trust fund balance would fall but there would be no increase in debt held by the public. The net impact would be to reduce total federal debt.

[14] For details, see CRS Report RL31967, *The Debt Limit: History and Recent Increases*, by D. Andrew Austin and Mindy R. Levit.

[15] The total debt outstanding data available at the U.S. Treasury's Bureau of the Public Debt "Debt to the Penny" website is not the debt subject to limit (http://www.treasurydirect.gov/NP/BPDLogin?application=np). Debt subject to limit, and its relation to total debt outstanding, is shown in Table III-C of the *Daily Treasury Statement*, available at http://fms.treas.gov/dts/index.html.

[16] Secretary of the U.S. Treasury Timothy Geithner, letter to Speaker John Boehner, dated May 2, 2011, available http://www.treasury.gov/connect/blog/Documents/FINAL%20Debt%20Limit%20Letter%2005-02-2011%20Boehner.pdf. The same text was sent to all Members.

[17] For more information, see CRS Report R41811, *State and Local Government Series (SLGS) Treasury Debt: A Description*, by Steven Maguire; and U.S. Treasury, "SLGS FAQ," available at http://www.treasurydirect.gov/govt/resources/faq/faq_slgs.htm.

The U.S. Treasury had previously estimated the debt limit would be reached between April 15 and May 31, 2011, with extraordinary measures projected to extend Treasury's ability to borrow until about July 8, 2011.[18] The U.S. Treasury may face severe difficulties in funding federal operations in late July or early August without a debt limit increase.[19]

# Deficits, Debt, and Interest Costs

This section discusses the relationships among federal deficits, debt, and interest costs. A deficit or surplus is the annual flow of revenues minus the flow of outlays, which accumulates into a stock of debt. Net interest costs are the flow of payments that compensate investors and non-federal organizations for holding federal debt.

## Deficits and the Accumulation of Federal Debt

Federal debt held by the public is essentially the sum of federal budget deficits over time. The annual federal deficit, however, will not exactly equal the year-over-year increase in federal debt due to certain technical adjustments.[20] Over the long term, however, the cumulative size of deficits determines the magnitude of the federal debt.

Each year, the U.S. Office of Management and Budget (OMB) provides a reconciliation between the federal deficit and the increase in the federal debt. The first major adjustment reflects the treatment of federal credit programs. The Federal Credit Reform Act (FCRA) requires that the net subsidy costs (rather than year-by-year cash flows) be used to assess the budgetary costs of federal loan and loan guarantee programs.[21] Troubled Asset Relief Program (TARP) costs are scored on a FCRA basis, but include risk adjustments.[22] While many budget experts consider FCRA a step towards sound accrual accounting of federal credit programs, the year-by-year cash flows are what affect federal borrowing requirements. Thus, an adjustment is needed to account for the difference between the FCRA-mandated accrual treatment of loan and loan guarantee programs and the year-by-year actual cash flows that affect Treasury debt management operations. The second major adjustment reflects gains from seniorage, which results from the difference between the cost of minting coins and their face value.

The federal government also may face other potential liabilities not reflected in current federal budget concepts. For example, federal credit accounting may understate the costs of financial

[18] Secretary of the U.S. Treasury Timothy Geithner, letter to Majority Leader Harry Reid, dated April 4, 2011, available at http://www.treasury.gov/connect/blog/Documents/FINAL%20Letter%2004-04-2011%20Reid%20Debt%20Limit.pdf; U.S. Treasury, "Treasury Issues Updated Debt Limit Projections," March 1, 2011, available at http://www.treasury.gov/press-center/press-releases/Pages/tg1084.aspx.

[19] See CRS Report R41633, *Reaching the Debt Limit: Background and Potential Effects on Government Operations*, coordinated by Mindy R. Levit.

[20] See Table 6-2 "Federal Government Financing and Debt" in the *Analytic Perspectives* volume (p. 62) of the President's FY2012 budget submission, available at http://www.whitehouse.gov/sites/default/files/omb/budget/fy2012/assets/econ_analyses.pdf.

[21] FCRA was established by Title V of the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508). See CRS Report RL30346, *Federal Credit Reform: Implementation of the Changed Budgetary Treatment of Direct Loans and Loan Guarantees*, by James M. Bickley.

[22] Section 123 of the Emergency Economic Stabilization Act of 2008 (EESA; Division A of P.L. 110-343).

risks to the federal government. In particular, the deprivatization of the mortgage giants Fannie Mae and Freddie Mac may expose the federal government to significant financial risks.[23]

## The Federal Debt Over Time

For most of the history of the United States, federal debt was closely linked to war finance. In more recent decades, the growing costs of federally financed health care and other entitlement spending have played an important role in the government's fiscal situation. Higher spending on defense and other security costs, as well as tax cuts and other tax policy decisions have also influenced the size of federal deficits and the accumulation of debt. **Figure 2** shows federal deficits and surpluses since 1929 as a percentage of GDP.

The federal government ran very large deficits during the 1940s—hitting 30% of GDP in 1943—to finance military activities during World War II. Deficit finance, however, played little role in funding the Korean War or the early stages of the Vietnam War.[24] In the 1970s, deficits as a share of GDP grew as economic growth slowed due to sharp increases in oil and other commodity prices, slower productivity growth, turmoil in the international financial system, expanded regulatory activity, and stiffer competition in international product markets, while federal spending due to health care and other domestic programs grew faster than federal revenues. In the 1980s, cuts in domestic programs were too small to offset large tax cuts and increases in military spending, which led to large increases in federal deficits.[25]

In 1985, Congress passed the Balanced Budget and Emergency Deficit Control Act of 1985 (P.L. 99-177), informally known as Gramm-Rudman-Hollings (GRH), which introduced triggers for automatic budget cuts called *sequesters* if certain deficit targets were not met, along with other budget enforcement mechanisms. The GRH framework was modified several times in the late 1980s. In the fall of 1990, congressional leaders and President George H.W. Bush engaged in a series of budget negotiations at Andrews Air Force Base that set the framework for the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508). That measure included discretionary spending caps, modifications to entitlement programs, and tax increases, along with changes in the budgetary treatment of loan and loan guarantee programs (see discussion of FCRA above) among other provisions.[26]

The collapse in 1989 of most of the Warsaw Pact governments in central and eastern Europe and the 1990-1991 disintegration of Soviet Union was followed by a reduction in federal defense spending, allowing a "peace dividend" that relaxed fiscal pressures. [27] In addition, strong

[23] Deborah J. Lucas and Marvin Phaup, "Reforming Credit Reform," *Public Budgeting & Finance*, vol. 28, no. 4 (winter 2008), pp. 90-110.

[24] For a history of deficit finance and American wars, see Robert D. Hormats, *The Price of Liberty*, (New York: Times Books, 2007). Also see CRS Report RL31176, *Financing Issues and Economic Effects of American Wars*, by Marc Labonte and Mindy R. Levit.

[25] For one view of budgetary politics in the early 1980s, see David Stockman, *The Triumph of Politics*, (New York: Harper & Row, 1986).

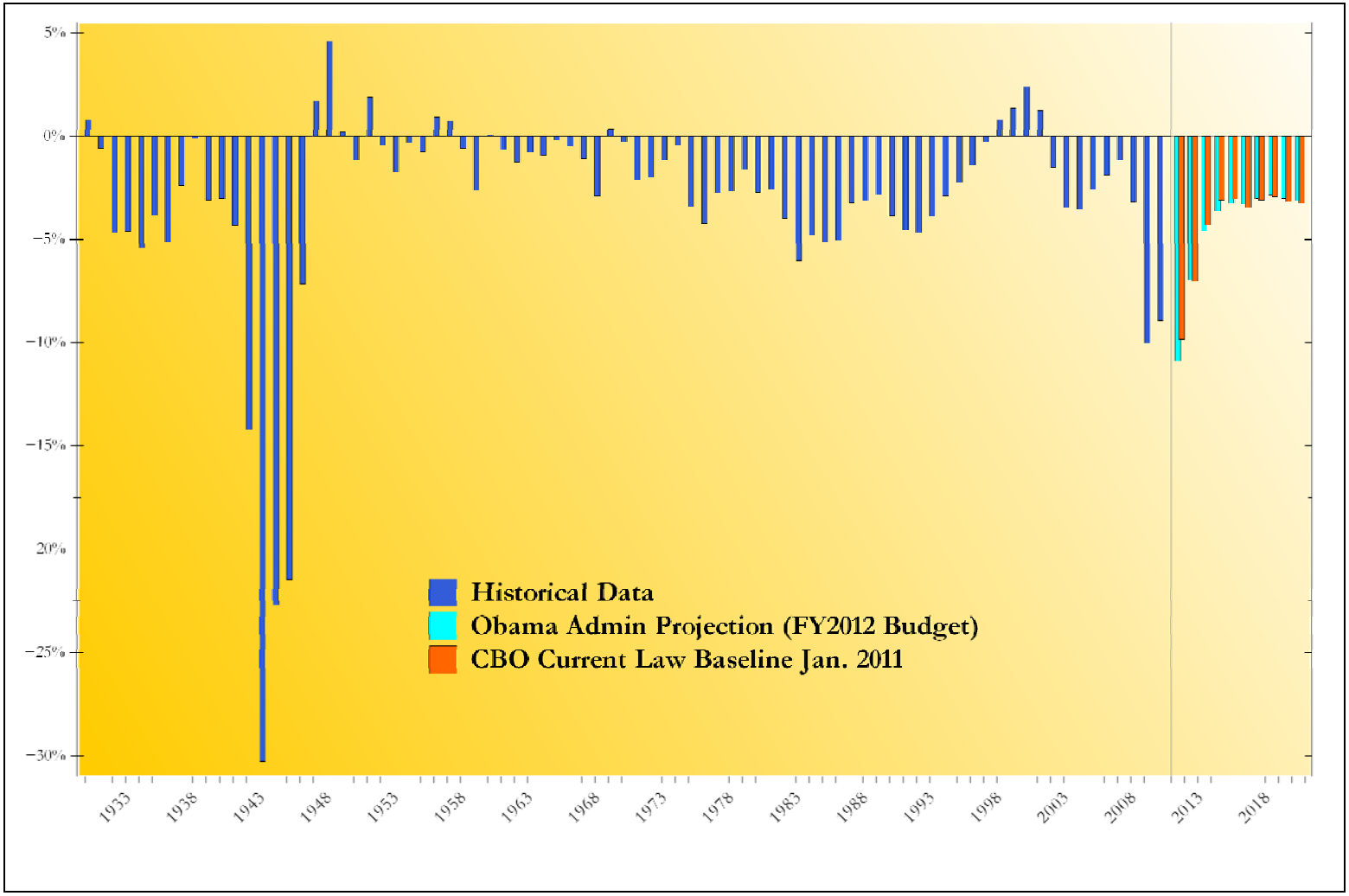
[26] President George H.W. Bush, "Statement on Signing the Omnibus Budget Reconciliation Act of 1990," November 5, 1990, available at http://www.presidency.ucsb.edu/ws/index.php?pid=19000.

[27] The Warsaw Treaty Organization, established in 1955, included Albania, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania, and the Soviet Union.

economic growth, further modifications of certain entitlement programs, and tax increases led to four years of federal budget surpluses from FY1998 through FY2001.

**Figure 2. United States Government Budget Surplus or Deficit**

FY1929-FY2021, as a percentage of GDP




**Source:** CRS analysis of OMB and CBO data and projections. Administrative budget concepts used for pre-1933 data, rather than Unified budget concepts.

**Notes:** Data for FY2011 are estimated and later years are projected. Transition quarter (1976) omitted.

The attacks on the World Trade Center towers in New York and on the Pentagon on September 11, 2001, were followed by sharp increases in homeland security spending. Defense spending also increased dramatically with the start of the Afghanistan war in October 2001 and the Iraq war in March 2003.[28] Major tax cuts in 2001 and 2003 reduced federal receipts below baseline levels.[29] Federal surpluses, which had been predicted to last throughout the decade, quickly turned to deficits in the face of the "dot-com" recession of 2000-2001, large tax cuts, the expiration of certain budget enforcement mechanisms in 2002, homeland security and defense costs, and the creation of new federal benefits (i.e., Medicare Prescription Drug, Improvement, and Modernization Act of 2003; P.L. 108-173).[30] In addition, rising health care costs and rising numbers of retirees continued to push up costs for federal programs such as Medicare.

The financial crisis of 2007-2008 and the subsequent recession led to major decreases in federal receipts and sharp spending increases for many federal programs, some due to "automatic stabilizer" effects. As incomes of many families shrank, more became eligible to receive help from federal and state income security programs. In addition, the American Recovery and Reinvestment Act of 2009 (P.L. 111-5), which was designed to stimulate the economy by increasing the deficit, provided support for state and local governments, increased spending on certain federal programs, and reduced tax revenues.

Deficits over the next few years are expected to drop sharply as the economy recovers. Many economists remain concerned that economic growth may be slow for several years, and that the retirement of baby boom cohorts combined with persistent increases in per-beneficiary medical costs will continue to present daunting fiscal challenges to policymakers.

## Interest Costs

Interest rates on federal debt have fallen to extremely low levels by historical standards, in large part due to the effects of the 2007-2008 financial crises and subsequent recession.[31] Thus, even though total federal debt as well as federal debt held by the public has increased sharply, interest costs as a proportion of the budget have remained relatively low for the past few years.[32] **Figure 3** shows federal net interest costs as a proportion of gross domestic product (GDP).

Payments from one part of the federal government to another net to zero for government-wide totals. Thus, most analyses of the budgetary effects of federal interest costs ignore intragovernmental interest payments, and focus on net interest payments.

[28] CRS Report RL33110, *The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11*, by Amy Belasco.

[29] CRS Report R41393, *The Bush Tax Cuts and the Economy*, by Thomas L. Hungerford.

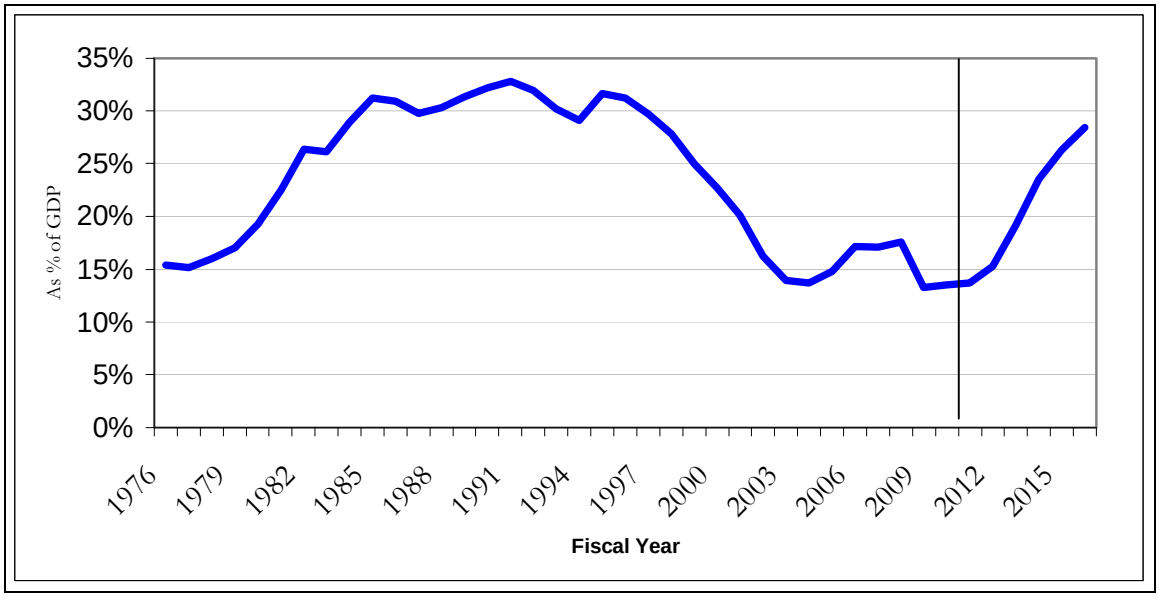
[30] For details, see CRS Report R41134, *The Impact of Major Legislation on Budget Deficits: 2001 to 2009*, by Marc Labonte.

[31] Congressional Budget Office, *Federal Debt and Interest Costs*, Dec. 2010, available at http://www.cbo.gov/doc.cfm?index=11999&zzz=41471.

[32] See CRS Report RS22354, *Interest Payments on the Federal Debt: A Primer*, by Thomas L. Hungerford.

**Figure 3. Federal Net Interest Costs as a Percentage of GDP**

FY1976-FY2016




**Source:** OMB, Budget for FY2012, *Historical Tables*.

**Notes:** Transition quarter omitted. FY2011 costs are estimated, FY2012-FY2016 reflect President's proposals.

Net federal interest costs are projected to rise rapidly. As business activities return to normal levels, demand for loans increases, pushing up interest rates—a typical consequence of economic recovery. For this reason, most forecasters expect interest rates to rise over the next few years. Federal debt levels, according to CBO, OMB, and private forecasts, will continue to increase in coming years. Federal debt service costs, which can be expressed as the total federal debt held by the public multiplied by the average interest rate on that debt, are therefore expected to rise sharply over the next decade. According to April 2011 CBO baseline projections, net interest costs will rise from $213 billion in FY2011 to $534 billion in FY2016, and are projected to reach $807 billion in FY2021. Because interest rates are currently at low levels, the percentage increase in future interest rates will probably exceed the percentage increase in debt levels.[33] Growing interest payments would put pressure on public resources, requiring either spending reductions, revenue increases, or higher borrowing levels, or some combination of those. Financing interest payments by borrowing, rather than through spending reductions or revenue increases, accelerates the accumulation of debt, which would lead to higher interest costs and could result in heightened rollover risks—that is, the risk that bond market become reluctant to buy new debt instruments issued to finance the redemption of old or maturing debt instruments.

Rising interest rates affect the federal government's finances in several ways. Higher interest rates translate into higher debt service costs to compensate private investors for holding government debt, as well as higher interest payments to federal trust funds. U.S. Treasury interest payments to federal trust funds generally net out, as interest owed by the U.S. Treasury (counted as a liability) is counterbalanced by the income due (counted as an asset) to the trust funds. Higher interest

[33] U.S. Congressional Budget Office, *An Analysis of the President's Budgetary Proposals for Fiscal Year 2012*, April 15, 2011, Table 1-5, available at http://www.cbo.gov/doc.cfm?index=12130.

income earned by the federal trust funds, however, would tend to strengthen the financial situation of federal programs linked to trust funds such as Medicare and Social Security. On the other hand, when higher interest rates or other income increases trust fund balances, the sums that the U.S. Treasury will ultimately be obliged to redeem also increase. Finally, higher interest rates, other things equal, may affect surpluses generated by the Federal Reserve System, which are then transferred to the U.S. Treasury. The magnitude of the Federal Reserve's balance sheet, which expanded substantially in the wake of the 2007-2008 financial crisis, and the non-traditional nature of some items on that balance sheet, could complicate efforts to estimate how interest rate changes would affect the Federal Reserve's finances.

CBO has recently run some sensitivity analyses of federal interest costs. In January 2011, CBO estimated that a 1-point increase in interest rates above baseline projection levels would increase federal net interest costs by $15 billion in FY2011 and $438 billion over the FY2012-FY2016 budget window, assuming other economic variables were held equal.[34] CBO also projected that a 0.1-point increase in interest rates above baseline levels would lead to a relatively small change in interest costs for FY2011 and a $5 billion increase in debt service costs over the FY2012-FY2016 period. In February 2011, CBO calculated how projected federal interest costs would respond in three scenarios. In each scenario, interest rates would rise above CBO baseline levels, and thus would lead to higher projected interest costs.[35]

## Interest Rates on Short-Term and Long-Term Debt

Yields on fixed income securities, such as Treasury securities, are tied to market interest rates. Interest rates on short-term variable-rate securities are typically lower than interest rates on long-term fixed-rate securities, because investors usually require compensation to bear interest-rate risks embedded in long-maturity assets.[36] From a borrower's point of view, raising funds using longer-term securities is more expensive, but in effect provides some insurance against future interest rate increases. **Figure 3** shows interest rates for 3-month, 1-year, and 10-year Treasury securities.

The relationship between interest rates and maturities is often called the yield curve. The yield curve normally slopes upward, reflecting the need to compensate holders of longer term securities with higher interest rates. In some unusual circumstances, the yield curve may flatten or even invert.

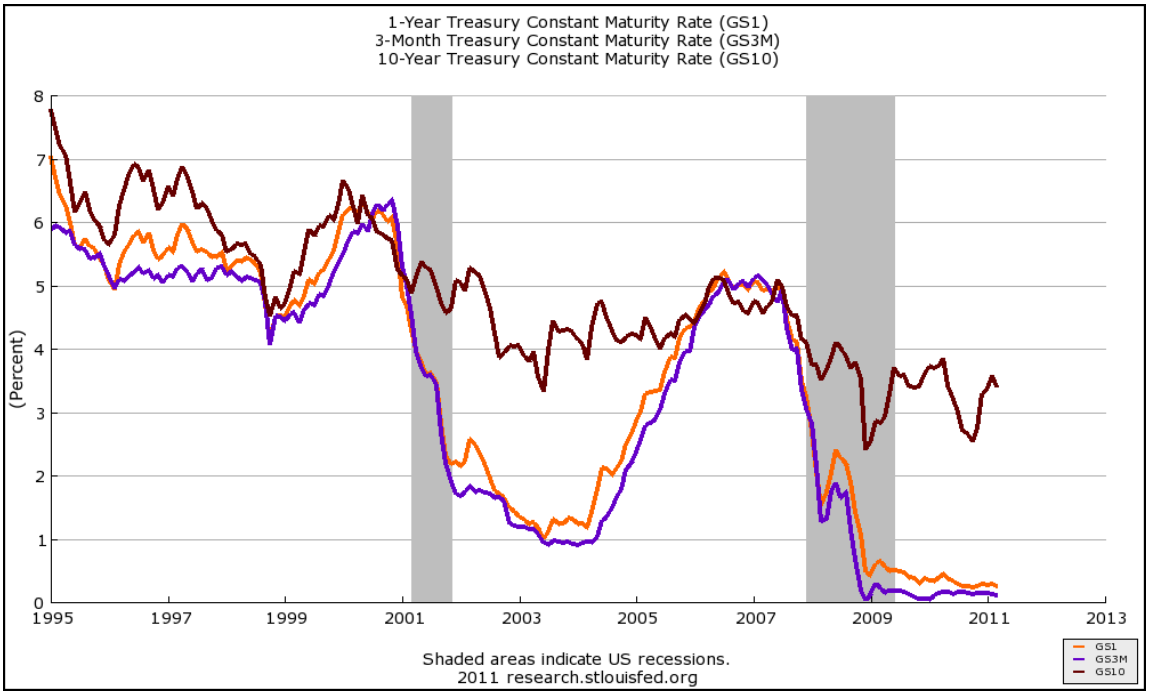
[34] CBO, *Budget and Economic Outlook*, January 2011, Appendix B, available at http://www.cbo.gov/ftpdocs/120xx/doc12039/01-26_FY2011Outlook.pdf.

[35] Douglas W. Elmendorf, CBO Director, letter to House Budget Committee Chairman Paul Ryan, dated February 24, 2011, available at http://www.cbo.gov/ftpdocs/120xx/doc12081/Ryan_Letter_Interest_Rates_2-24-2011.pdf.

[36] An investor who buys a long-term security cannot react to changing circumstances until the security matures or is sold. In financial terms, when an investor buys a long-term asset, she forgoes "option value," which is the value of being able to react to new information or conditions. In a competitive market, the asset's yield relative to a short-term alternative will reflect the expected value of that forgone option value.

**Figure 4. Interest Rates for Selected Treasury Securities by Maturity**

January 1995-March 2011




**Source:** St. Louis Federal Reserve Bank.

**Notes:** Top line is 10-year rate, bottom is 3-month rate.

# Holdings of Federal Debt

This section describes the maturity structure of the federal debt, that is, the mix of short-, medium-, and long-term Treasury securities. This section also looks at what types of investors hold federal debt.[37]

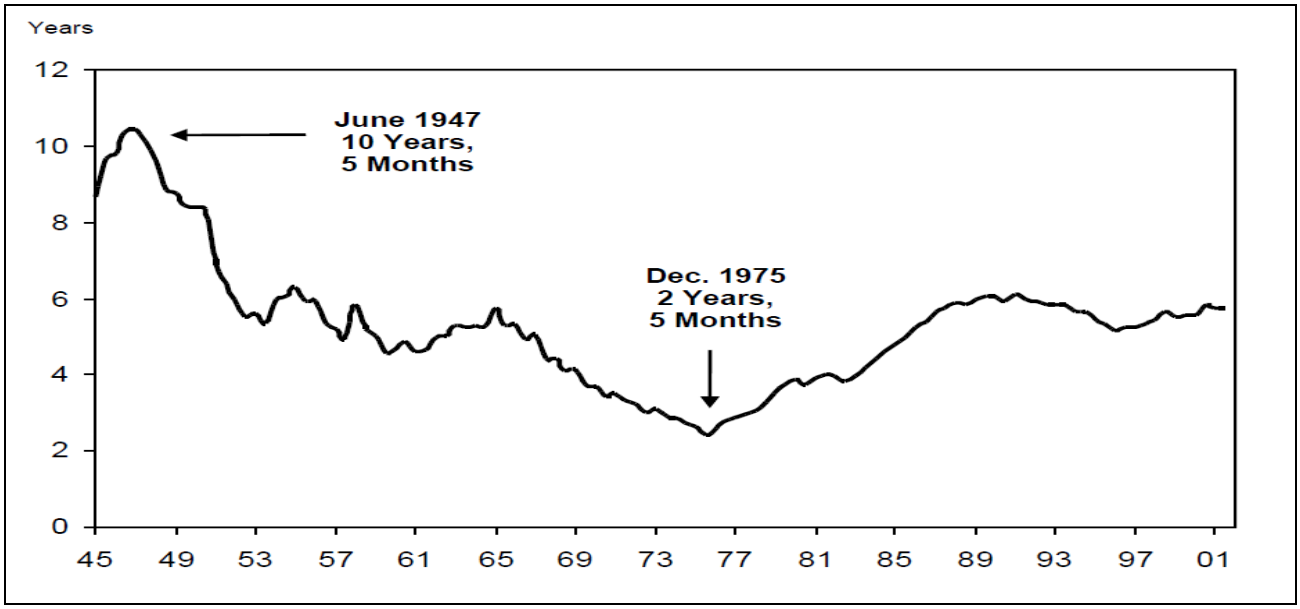
## Maturity Structure of the Federal Debt

**Figure 4** shows trends in the average maturity of federal securities over the second half of the 20th century. Long-term securities financed a large proportion of the costs of military operations during World War II. As the federal debt was paid down during the 1950s and 1960s, however, average maturity of Treasury debt fell. In the 1970s, rising inflation rates made longer-term securities less attractive, and average maturity of Treasury securities fell to two years and five months in December 1975. Average maturities then rose to about six years by the late 1980s. In 2001, average maturities began to fall, in part due to the discontinuance of the 30-year bond, colloquially known as the "long bond." The U.S. Treasury, however, brought the long bond back in 2006, in part due to demand by institutional investors with long-term liabilities, such as

[37] See also CRS Report RL34682, *Federal Debt Management: Concepts, Options, and Policies (1945-2008)*, by James M. Bickley.

insurers, and in part due to reduced yields on long-term securities, which made them a more attractive means of financing debt.[38]

**Figure 5. Average Maturity of Privately Held U.S. Marketable Debt, 1945-2001**




**Source:** *Treasury Bulletin*, December 2001, Charts FD-A.

**Figure 5** shows trends in the maturity composition of privately held marketable Treasury debt and **Figure 6** shows trends in its average maturity since 1999. After 2001, when average maturity of Treasury securities reached six years, the average maturity of Treasury debt held by the public fell gradually until 2008, signaling an increased reliance on shorter-term securities to finance federal deficits.

The financial crisis and subsequent recession increased federal borrowing requirements sharply, as the proportion of short-term Treasury securities rose more quickly than longer-term securities. Issuing short-term securities, rather than longer-term securities, may have provided an operationally less complex way to meet borrowing requirements in tumultuous financial conditions. In addition, those tempestuous financial conditions of late 2008 may have reduced demand for longer-term securities, which could have helped push down the average maturity of Treasury securities. In late 2008, average maturity for Treasury debt shortened to less than four years. The maturity composition and average maturity of Treasury debt, however, have rebounded to more normal levels by 2010, as Treasury rebalanced its security offerings.

Some market observers expressed concerns about the shortening of average Treasury debt maturities and applauded the lengthening of average Treasury maturity in 2010.[39] Shorter average Treasury maturities could raise three concerns. Many institutional investors, such as pension and

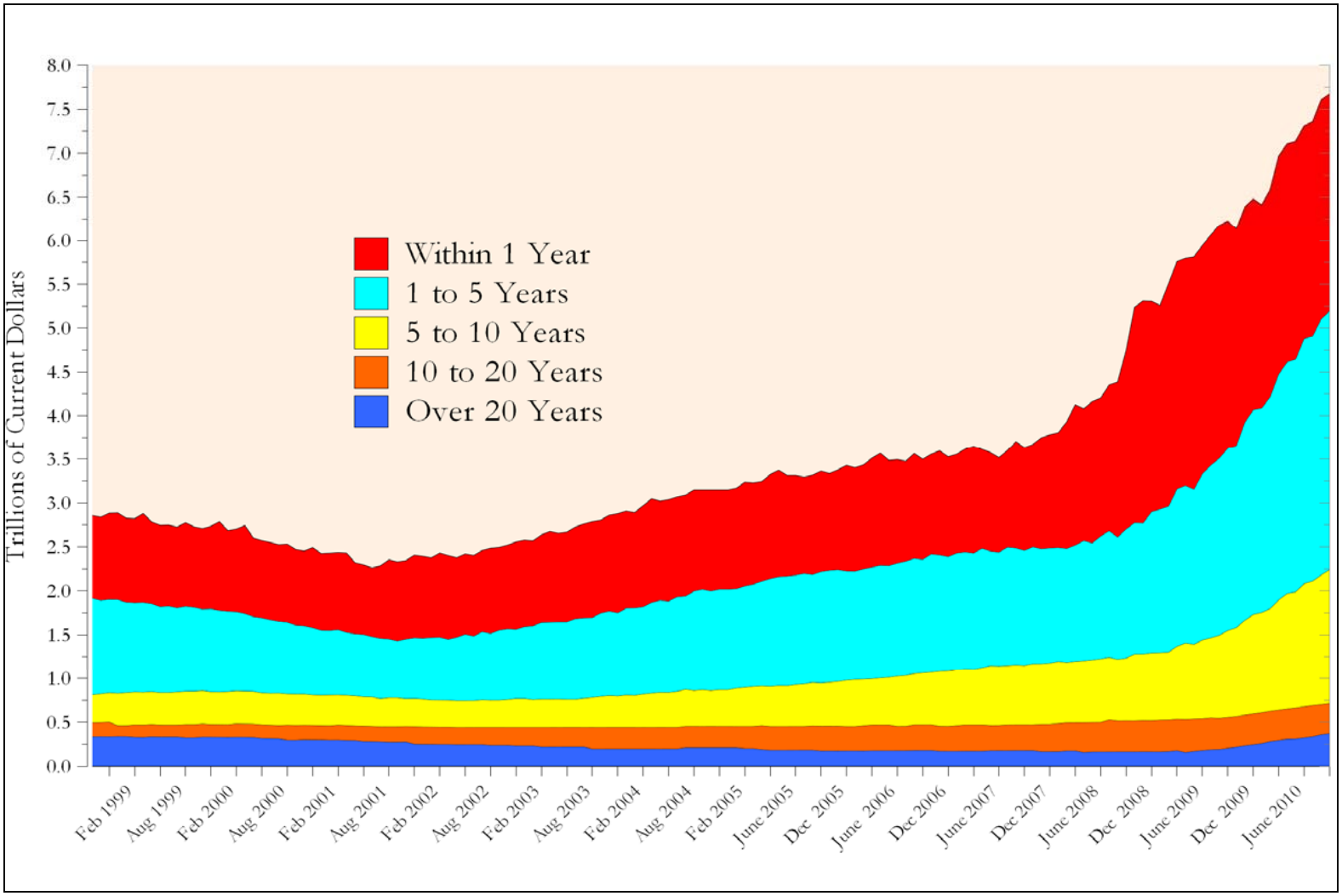
[38] U.S. Treasury, TreasuryDirect, "Treasury Reintroduces 30-Year Bond," January 2006, available at http://www.treasurydirect.gov/indiv/research/articles/res_invest_articles_30yearbondarticle_0106.htm.

[39] Report to the Secretary of the Treasury from the Treasury Borrowing Advisory Committee of the Securities Industry and Financial Markets Association (SIFMA), February 1, 2011, available at http://www.treasury.gov/press-center/press-releases/Pages/tg1047.aspx.

insurance companies, demand long-term debt instruments that help them manage long-term liabilities. A reduction in the share of long-term Treasury debt instruments relative to short-term instruments might complicate portfolio management of such investors. Second, borrowers who depend more on longer term debt instruments are less vulnerable to the risk of rising interest rates. Third, using a greater proportion of long-term debt instruments reduces rollover risks.

**Figure 6. Composition of Privately Held U.S. Marketable Interest-Bearing Public Debt By Maturity Class**

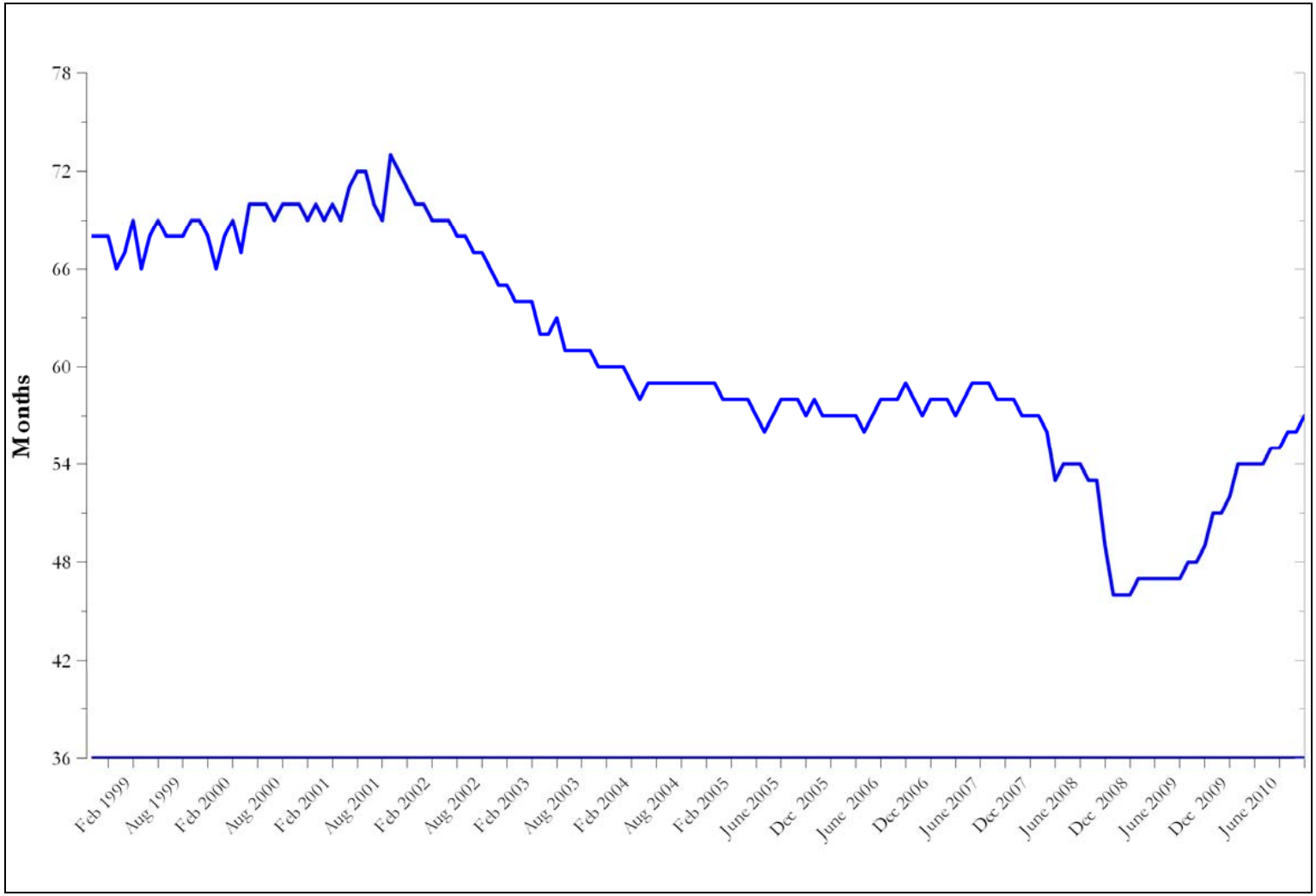
Monthly averages, September 1998-September 2010




**Source:** CRS analysis of U.S. Treasury data (Treasury Bulletin, Table FD-5, various issues). Figure by Andrew Austin, CRS.

**Figure 7. Average Maturity of Privately Held U.S. Marketable Interest-Bearing Public Debt**

Monthly averages, September 1998-September 2010




**Source:** CRS analysis of U.S. Treasury data (Treasury Bulletin, Table FD-5, various issues). Figure by Andrew Austin, CRS.

## Ownership of Publicly Held Debt

A growing proportion of the federal debt is held by foreign investors and governments.[40] **Figure 7** shows how holdings of interest-bearing Treasury debt are distributed among investors and organizations around the world according to January 2011 U.S. Treasury estimates.[41] At the end of February 2011, the U.S. Treasury issued revised figures, which showed larger holdings of Treasury securities by the People's Republic of China and smaller holdings in some other countries, such as the United Kingdom.[42] **Figure 8** shows changes in ownership of the publicly held federal debt by country since 1990.

Foreign holdings of federal debt have increased for several reasons. First, global capital markets have become more international since the 1970s when regulatory controls on the capital flows were common. In addition, many international investors have diversified their portfolios by including assets from many different countries. Second, some countries, especially in East Asia, have had very high savings rates that have financed significant accumulations of federal debt. By contrast, savings rates for the United States have been relatively low in recent decades, although savings rates have increased in the wake of the 2007-2008 financial crisis. Third, trade and budget deficits that emerged in the 1980s implied that the flow of goods to the United States was in part financed by the flow of assets, public and private, to countries with trade surpluses.

Some concerns have been expressed that large federal debt holdings by the People's Republic of China (PRC) could be used to exert political or financial leverage to influence international capital markets or U.S. foreign policy. The Chinese government has sought to allay such concerns by stating that it would not dump holdings of Treasury securities.[43] Some China analysts, however, have expressed concern about rising inventories of U.S. Treasury debt.[44] Shifts in the PRC's exchange rate policies could affect its demand for U.S. Treasury securities.[45]

[40] CRS Report RS22331, *Foreign Holdings of Federal Debt*, by Justin Murray and Marc Labonte. See also the U.S. Treasury International Capital System website at http://www.treasury.gov/resource-center/data-chart-enter/tic/Pages/index.aspx.

[41] For details on estimation methods, see Carol C. Bertaut, William Griever, and Ralph W. Tryon, "Understanding U.S. Cross-Border Securities Data," in *Federal Reserve Bulletin*, May 4, 2006, pp. A59-75, available at http://www.treasury.gov/resource-center/data-chart-center/tic/Documents/frbul2006.pdf.

[42] U.S. Treasury, "Preliminary Report on Foreign Holdings of U.S. Securities at End-June 2010," February 28, 2011, available at http://www.treasury.gov/press-center/press-releases/Pages/tg1079.aspx.

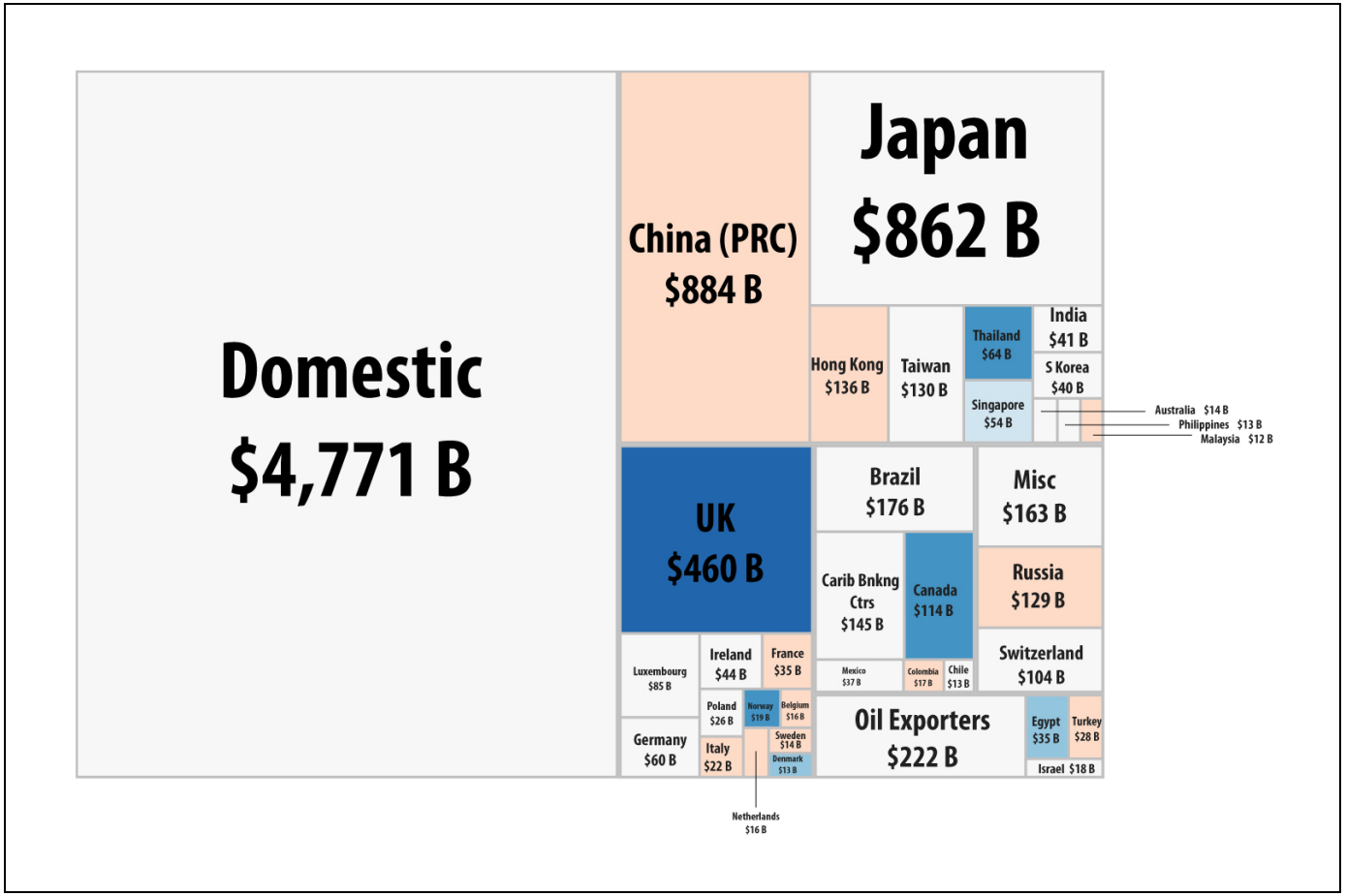
[43] Geoff Dyer and Peter Garnham, "Beijing Rules Out 'Nuclear Option' of Dumping Holdings of U.S. Bonds,:" *Financial Times*, July 6, 2010, p. 1.

[44] Howard Schneider, "China's $3 Trillion Dilemma: What to Do With All That Cash?" *Washington Post*, April 20, 2011, p. A7, available at http://www.washingtonpost.com/business/economy/chinas-3-trillion-dilemma-what-to-do-with-all-that-cash/2011/04/15/AFngE75D_story.html.

[45] CRS Report RL34314, *China's Holdings of U.S. Securities: Implications for the U.S. Economy*, by Wayne M. Morrison and Marc Labonte.

**Figure 8. Holdings of Interest-Bearing U.S. Treasury Securities by Country**

$Billions, as of September 2010

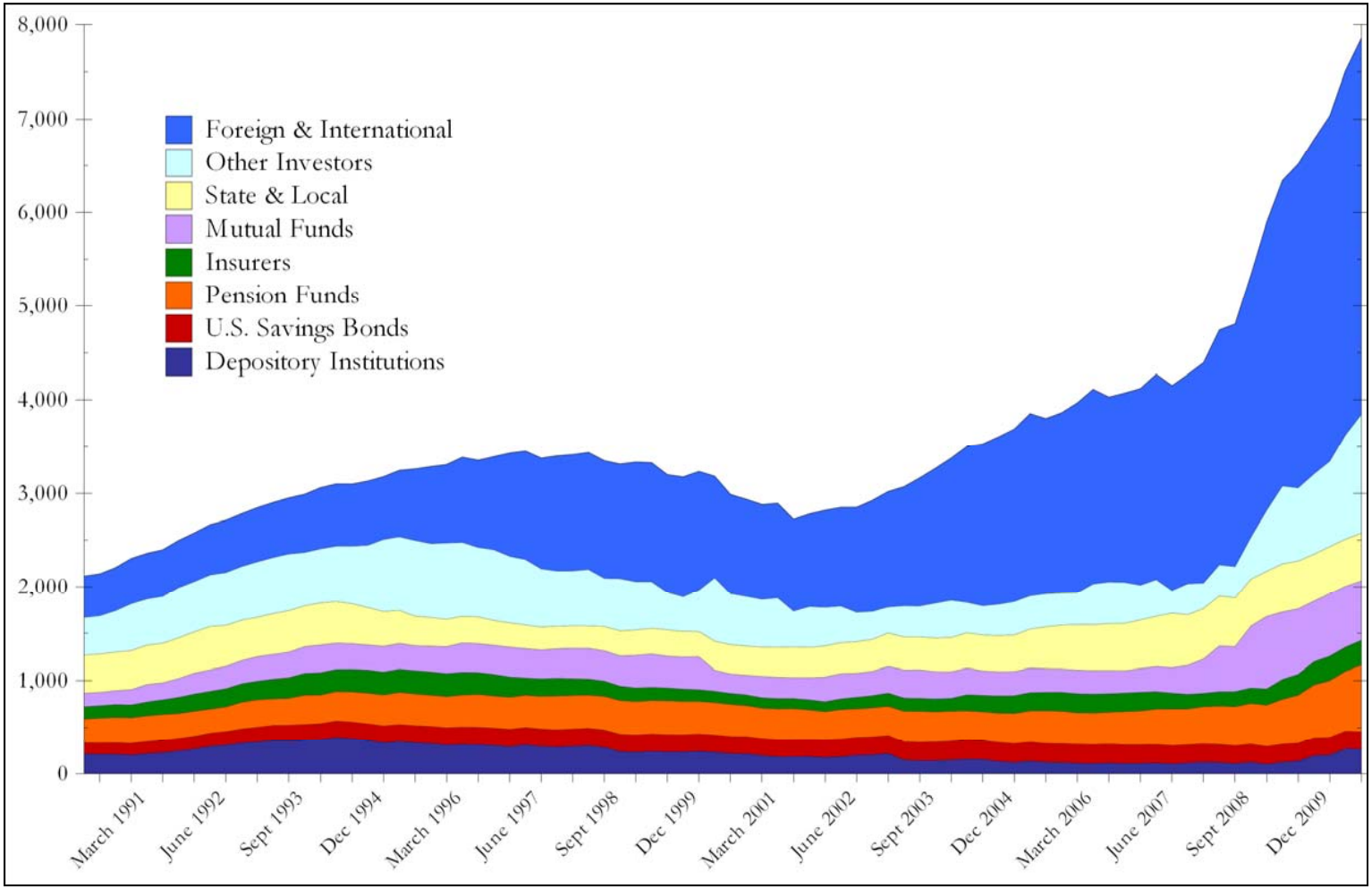



**Source:** CRS, based on data obtained from Treasury International Capital System (http://www.treasury.gov/resource-center/data-chart-center/tic/Pages/index.aspx), January 2011 release.

**Notes:** Color reflects increases (blue) and decreases (pink) in holdings since November 2009. United Kingdom includes Channel Islands and Isle of Man. Oil Exporters includes Ecuador, Venezuela, Indonesia, Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Algeria, Gabon, Libya, and Nigeria. Caribbean Banking Centers include Bahamas, Bermuda, British Virgin Islands, Cayman Islands, Netherlands Antilles and Panama. China (PRC) excludes Hong Kong and Macau, which are reported separately. See source for additional notes.

**Figure 9. Holdings of U.S. Treasury Securities By Type of Investor**

$Billions




**Source:** CRS, based on data from U.S. Treasury, *Treasury Bulletin*, various issues, Table OFS-2.

**Notes:** Other investors category includes individuals, government-sponsored enterprises, brokers and dealers, bank personal trusts and estates, corporate and non-corporate businesses, and other investors.

# What Is the "Best" Measure of Federal Debt?

Measures of federal debt, because they represent accumulated deficits over time, are backward-looking measures of the government's fiscal condition. Some forward-looking measures of the federal debt may more accurately reflect the federal government's fiscal condition and its ability to face future budgetary challenges.[46]

Factors expected to affect future federal outlays and receipts, such as demographic structure, design of major mandatory spending programs such as Medicare and Medicaid, the growth of health care costs, may all have important consequences on future budgets. Federal debt and the costs of servicing in some projection scenarios generate feedback effects that could reduce the sustainability of debt burdens. For example, higher debt servicing requirements could put upward pressure on interest rates, which could crowd out private investment, which in turn, would slow economic growth, thus reducing the economy's ability to finance government activities.

Some contend that commonly used measures of federal debt within the current system of budget concepts have some important limitations.[47] Federal budget concepts generally adhere to a cash basis, rather than an accrual basis used by many firms. Accrual accounting, in which liabilities and assets are recognized when taken on, rather than when funds are acquired or disbursed, has some advantages for medium- and long-term financial planning. The federal government does use a modified form of accrual accounting for loan and loan guarantee programs since passage of the Federal Credit Reform Act (FCRA) as well as for certain federal retirement programs.[48]

A wider use of accrual accounting could pose thorny problems for federal financial management, however. Accrual accounting methods necessarily involve complex judgments of future cost and revenue streams. Because the information and knowledge to make those decisions often resides deep within federal agencies, the ability to make such accrual accounting decisions could give agencies greater flexibility to shift budgetary resources among programs and time periods, which could undermine the OMB's ability to exercise tight budgetary controls and Congress's ability to control spending,[49]

Federal debt concepts such as total debt and debt held by the public are not netted against assets held by the federal government. In the wake of financial interventions undertaken in 2007-2008, the U.S. government acquired substantial assets. For example, the federal government acquired financial assets in return for support from the Troubled Asset Relief Program (TARP), through the deprivatization of mortgage giants Fannie Mae and Freddie Mac, and in other ways. OMB and CBO in recent years have presented calculations of federal debt net of financial assets to reflect those holdings. Recent financial statements of the U.S. Government issued by the U.S. Treasury

[46] For more information, see CRS Report RL33623, *Long-Term Measures of Fiscal Imbalance*, by D. Andrew Austin.

[47] President's Commission on Budget Concepts, *Report of the President's Commission on Budget Concepts*, October 1967.

[48] CRS Report RL30346, *Federal Credit Reform: Implementation of the Changed Budgetary Treatment of Direct Loans and Loan Guarantees*, by James M. Bickley.

[49] For details of federal budgetary control measures, see CRS Report R40610, *Federal Financial Management Reform: Past Initiatives and Future Prospects*, by Virginia A. McMurtry.

also present some estimates of the value of "heritage assets," as well as certain unfunded liabilities not reflected in current federal budget concepts.[50]

One forward-looking measure of fiscal condition is the *fiscal gap*. A fiscal gap represents the size of fiscal adjustment, either though spending reductions or revenue increases or a combination of both, that would stabilize the ratio of debt to GDP. CBO, as well as other organizations, compute fiscal gap estimates for the federal government. The latest CBO long-term calculations estimated the 75-year fiscal gap at about 0.7% of GDP under an "Extended Baseline" scenario and at 8.7% of GDP under an "Alternative Fiscal Scenario."[51] Many budget analysts consider the more optimistic "Extended Baseline" projections less realistic than the more pessimistic "Alternative Fiscal Scenario."

# Conclusion

The federal government's ability to borrow at relatively low interest rates allows it to shift buying power backwards and forwards through time, in order to support macroeconomic policy goals and lessen financial shocks borne by citizens.[52] The reputation of federal debt as one of the safest investments possible allows Treasury securities to play a central role in financial markets. On the other hand, a growing federal debt could place a high burden on future generations and hinder economic growth. Rapid growth of federal debt could also increase the probability of a financial crisis or fears of a sovereign default.[53]

The future trajectory of federal spending and revenues implied by current law and expected economic conditions, according to many respected organizations, implies that the federal government will face increasingly difficult fiscal challenges. Finding ways to stabilize the federal growth has therefore become a prominent concern of policymakers.

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[50] U.S. Treasury, *Financial Report of the U.S. Government FY2010*, available at http://www.gao.gov/financial/fy2010financialreport.html.

[51] CBO, *Long-Term Budget Outlook*, June 2010, available at http://www.cbo.gov/doc.cfm?index=11579.

[52] CRS Report RL33657, *Running Deficits: Positives and Pitfalls*, by D. Andrew Austin.

[53] CBO, *Federal Debt and the Risk of a Fiscal Crisis*, issue brief, July 27, 2010, available at http://www.cbo.gov/doc.cfm?index=11659.