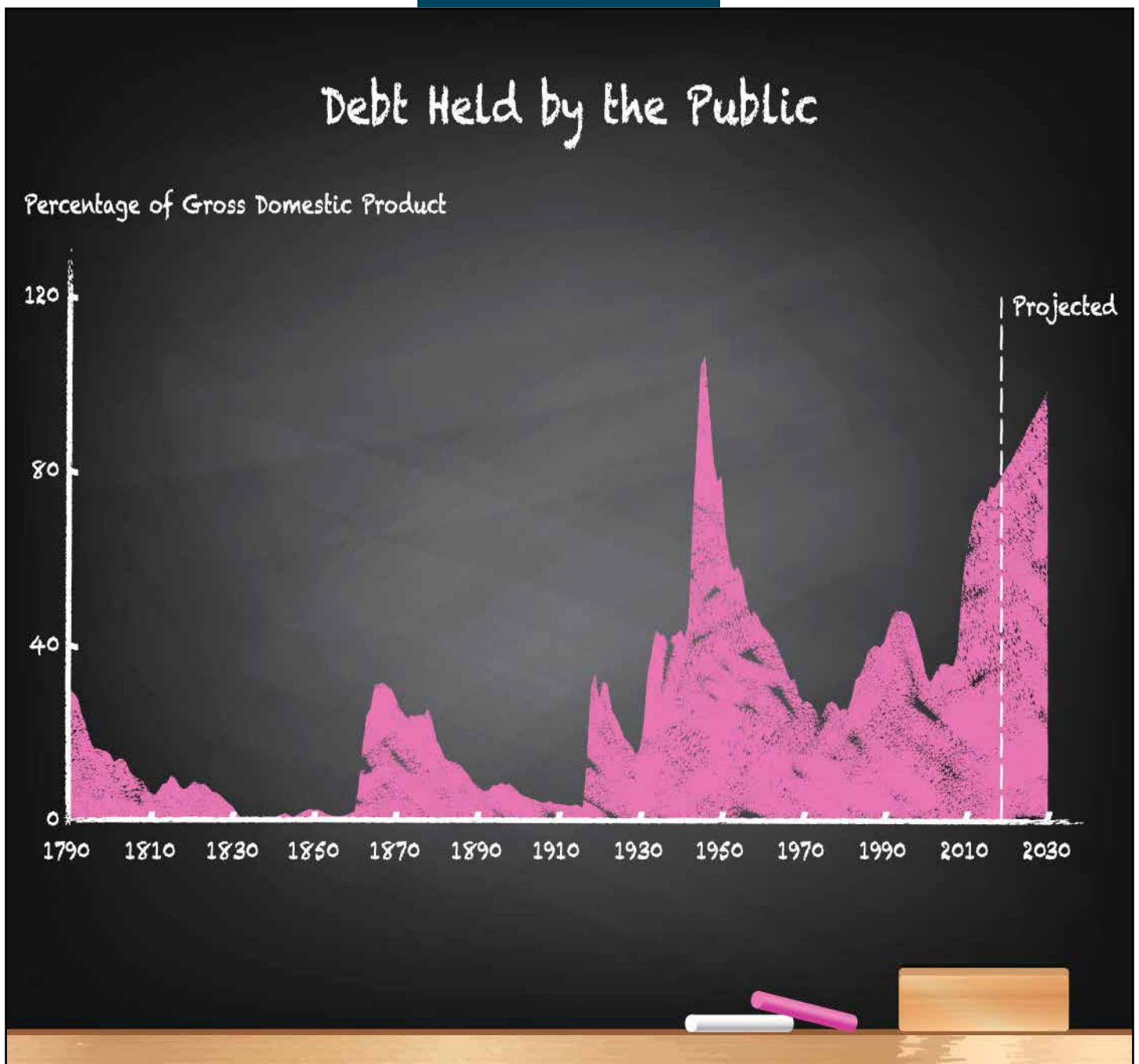


CBO

Federal Debt: A Primer



MARCH 2020

At a Glance

During the past decade, the federal government's debt increased at a faster rate than at any time since the end of World War II, outstripping economic growth over that period. At the end of 2019, federal debt was higher than at any other time since just after the war.

This report presents the Congressional Budget Office's analysis of federal debt, ways to measure it, and the consequences of its growth.

- Debt held by the public, which indicates the extent to which federal borrowing affects the availability of private funds for other borrowers, is the measure of debt CBO uses most often in its reports on the budget.
- At \$16.8 trillion, debt held by the public at the end of 2019 was equal to 79 percent of gross domestic product (GDP), far greater than the average debt for the past 50 years. CBO projects that if current laws generally remained unchanged, that debt would increase to \$31.4 trillion, or 98 percent of GDP, by 2030. Such high and rising debt could significantly affect the U.S. economy and the federal budget.
- Debt held by the public net of financial assets, gross debt, and debt subject to limit are other measures of federal debt.



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Unless otherwise indicated, all years referred to in this report are federal fiscal years, which run from October 1 to September 30 and are designated by the calendar year in which they end.

Budgetary figures are presented in nominal dollars and compared with nominal gross domestic product.

The projections in this report are from Congressional Budget Office, *The Budget and Economic Outlook: 2020 to 2030* (January 2020), www.cbo.gov/publication/56020.

Numbers in the text and tables may not add up to totals because of rounding.



Summary

From the end of fiscal year 2008 to the end of 2019, the nominal amount of federal debt held by the public in the United States almost tripled; it doubled as a percentage of gross domestic product (GDP). Although large by historical standards, the current debt-to-GDP ratio is similar to that of many other developed nations.

This Congressional Budget Office report explains how federal borrowing is structured and measured, who owns it, how it has evolved over time, how much it is projected to grow, and what its budgetary and economic consequences are.

What Is Debt Held by the Public?

To finance the government's activities, the Treasury issues securities—collectively labeled debt held by the public—that differ in time to maturity, the ways they are sold to investors, and the structure of their interest payments. Marketable securities make up the lion's share of that debt, and nontradable securities, such as savings bonds, make up the rest. The Treasury sells securities in the capital markets—often through a primary dealer intermediary—to various U.S. buyers (such as the Federal Reserve System, mutual funds, financial institutions, and individual people), to private investors overseas, and to the central banks of other countries. Domestic investors currently own about three-fifths of outstanding debt held by the public.

The annual growth in federal borrowing is driven primarily by budget deficits. At the end of 2019, federal debt held by the public was \$16.8 trillion, equal to about 79 percent of GDP, a higher percentage than at any other time since just after World War II.

Debt held by the public is a measure that indicates the extent to which federal borrowing affects the availability of private funds for other borrowers. All else being equal, an increase in government borrowing reduces the amount of money available to other borrowers, putting upward pressure on interest rates and reducing private

investment. It is the measure of debt most often used by CBO in its reports on the budget.

What Are Other Ways to Measure Debt?

Several other measures provide information about the nation's debt, although each has limitations. In addition to discussing debt held by the public, this report examines debt held by the public net of financial assets, gross debt, and debt subject to limit by statute.

Debt Held by the Public Net of Financial Assets

Government spending includes not only payments for services or physical assets, such as real estate or military resources, but also spending that results in the acquisition of financial assets. When the government issues debt to acquire those assets—for example, to finance student loans—its overall financial condition remains roughly unchanged, as does the amount of debt held by the public net of financial assets. If those assets are retained, they generate dividends, payments of interest, and repayments of principal that will reduce the government's need to borrow. If financial assets are sold by the government, the proceeds can be used to pay down a portion of the federal debt. Although calculating the value of those assets is not always straightforward, debt held by the public net of financial assets reflects the government's overall financial condition more comprehensively than other measures can.

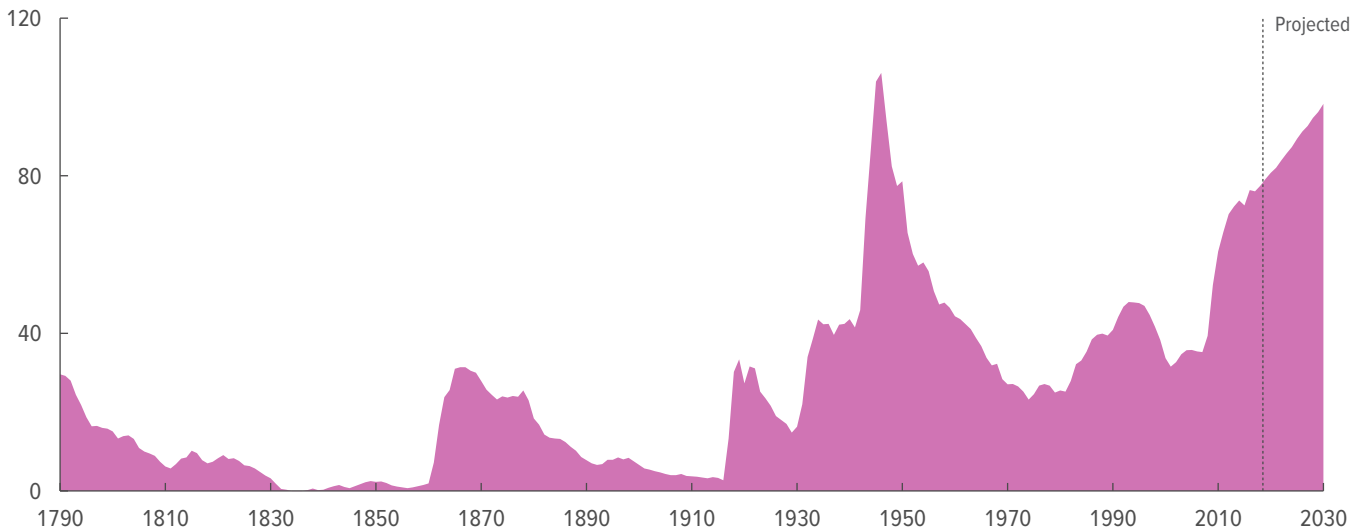
Gross Debt

Another measure of the government's overall financial position is gross debt, which consists of debt held by the public along with Treasury securities held by federal trust funds and other government accounts. The value of intragovernmental Treasury securities—that is, the debt owed by the Treasury to such funds—indicates the amount by which cumulative revenues (for example, payroll tax collections for the Social Security and Medicare trust funds) have exceeded payments from those trust funds or accounts, plus interest attributed to the surpluses. The value of intragovernmental Treasury

Figure S-1.

Federal Debt Held by the Public

Percentage of Gross Domestic Product



Source: Congressional Budget Office, using data from the Board of Governors of the Federal Reserve and the Department of the Treasury.

securities is not, however, a meaningful measure of the government's long-term obligations for those programs.

Debt Subject to Limit

The rough equivalent of gross debt, debt subject to limit is usually constrained by amounts specified in law: It is the maximum amount of debt that the Treasury can issue to the public or to other federal agencies. The main difference between debt subject to limit and gross debt is that the statutory limit excludes most debt issued by the Federal Financing Bank—an arm of the Treasury that can issue up to \$15 billion in its own debt. Debt subject to limit also accounts for other adjustments that are excluded from calculations of gross debt.¹

What Does CBO Project for Federal Debt Over the Next Decade?

In CBO's baseline, which incorporates the assumption that current laws governing taxes and spending generally remain unchanged, debt is projected to grow at a substantially faster rate than the U.S. economy. In baseline projections that CBO published in January 2020, debt

held by the public reaches \$31.4 trillion (98 percent of GDP) by 2030 (see Figure S-1).² At that point, such debt would be the largest since 1946 and more than twice the average over the past 50 years.

In CBO's estimation, debt as measured other ways also would grow faster than the economy, although the growth in gross debt would be slowest because spending from the Social Security and Medicare trust funds is projected to exceed receipts to those funds. As a result, those funds are projected to redeem more in Treasury securities than they purchase, thereby reducing gross debt.

The projected growth in debt would dampen economic output over time and pose other significant risks to the nation's fiscal and economic outlook. Moreover, the resulting higher interest costs would increase payments to foreign debt holders and thus reduce the income of U.S. households by rising amounts.

1. Those adjustments include different treatment for lease obligations for the Tennessee Valley Authority, the National Railroad Retirement Investment Trust, the Securities Investor Protection Corporation, and the Public Company Accounting Oversight Board.

2. See Congressional Budget Office, *The Budget and Economic Outlook: 2020 to 2030* (January 2020), www.cbo.gov/publication/56020.

1

Chapter 1: Debt Held by the Public

Debt held by the public consists mostly of securities that the Treasury issues to raise cash to fund the federal government's activities and to pay off debt as it matures. Comparing debt with the total output of the nation's economy—its gross domestic product—provides a picture of the federal government's fiscal health and its ability to service the debt. The Congressional Budget Office typically reports both on the amount of debt held by the public and on that debt as a percentage of GDP. The debt-to-GDP ratio provides a view of debt in relation to the size of the economy and is also a useful measure for comparing amounts of debt in different years.

The Treasury borrows money from the public by selling securities in the capital markets—often through a primary dealer intermediary—to various U.S. buyers (such as the Federal Reserve System, mutual funds, financial institutions, and individual people); to private investors overseas; and to the central banks of other countries, notably China and Japan.

The various Treasury securities differ in time to maturity, the ways they are sold, and the structure of their interest payments. Those differences affect interest rates and help determine the amount of interest the government pays on its outstanding debt.

The amount that the government borrows each year—the new cash the government must raise above the amount required to pay off maturing securities—is largely determined by the size of the federal deficit. Other factors that affect borrowing—collectively, other means of financing—are not reflected in the budget totals. Those factors include changes in the government's cash balances and the cash flows of federal programs that provide loans and loan guarantees. Less than 1 percent of debt held by the public is issued by other agencies, such as the Tennessee Valley Authority. Debt issued by Fannie Mae and Freddie Mac—the two government-sponsored

housing enterprises under federal conservatorship—is not included in debt held by the public.¹

Trends in Debt Held by the Public

The federal government borrowed heavily to finance defense spending during World War II, and by 1946, debt held by the public had reached 106 percent of GDP. Over the next few decades, however, the economy and inflation grew faster than the amount of outstanding debt, and the debt-to-GDP ratio declined steadily, reaching 23 percent in 1974. During that period, the amount of debt grew slowly—inching up, on average, by about \$2 billion a year, from \$242 billion in 1946 to \$283 billion in 1970 (see Figure 1-1).

That trend ended in the 1970s. Federal budgets were in deficit for the decade, and the amount of debt held by the public more than doubled, reaching \$712 billion in 1980. Because GDP also increased during that time, the ratio of debt to GDP rose only slightly—to 26 percent by 1980.

Between 1980 and 1993, lower revenues and higher spending relative to GDP in most of those years resulted in deficits that averaged close to 4 percent of GDP, causing growth in debt held by the public to outpace nominal GDP growth: By 1993, the debt totaled \$3.2 trillion, having risen from 26 percent of GDP in 1980 to 48 percent of GDP in 1993. It remained close to that ratio through 1997.

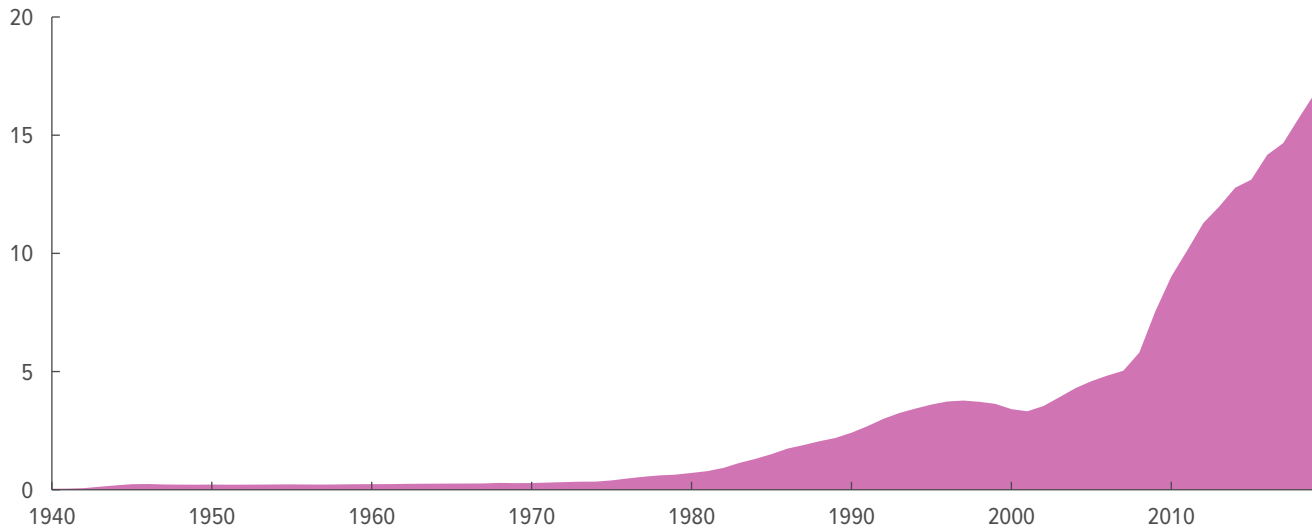
From 1998 through 2001, the United States experienced strong economic growth, revenues rose rapidly, and outlays declined relative to GDP. As a result, the federal government recorded surpluses for four years, which caused debt held by the public to decline by more than \$450 billion—to 32 percent of GDP, its lowest level since the early 1980s. Between 2002 and 2007, debt remained fairly steady at about 35 percent of GDP;

1. See Congressional Budget Office, *Accounting for Fannie Mae and Freddie Mac in the Federal Budget* (September 2018), www.cbo.gov/publication/54475.

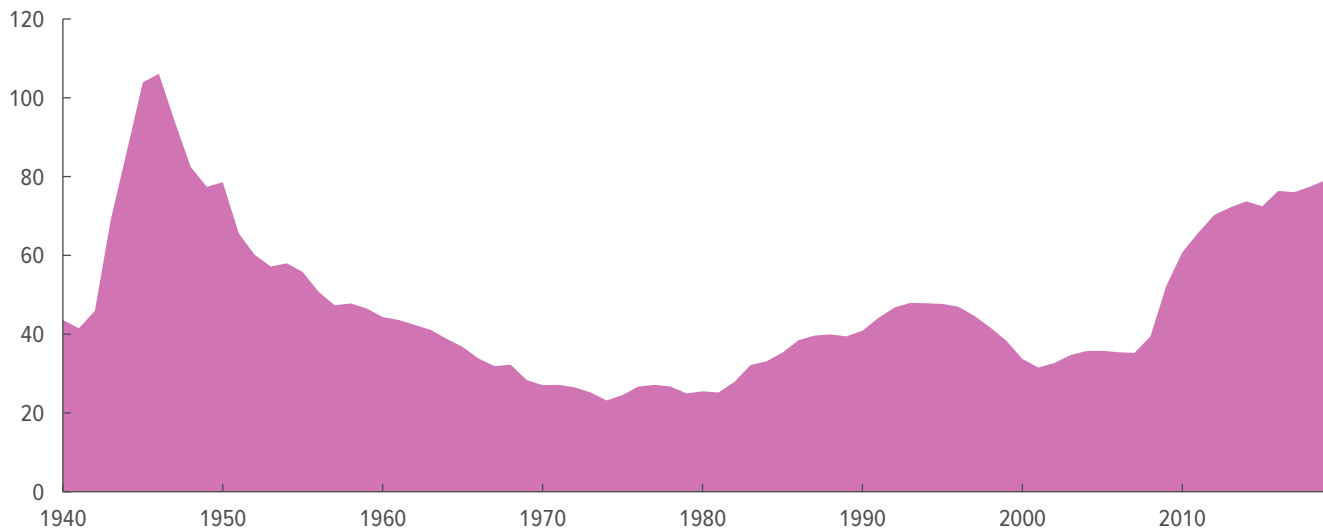
Figure 1-1.

Debt Held by the Public, 1940 to 2019

Trillions of Dollars



Percentage of Gross Domestic Product



Source: Congressional Budget Office, using data from the Office of Management and Budget.

deficits boosted debt held by the public by more than \$1.7 trillion, but economic growth boosted GDP as well.

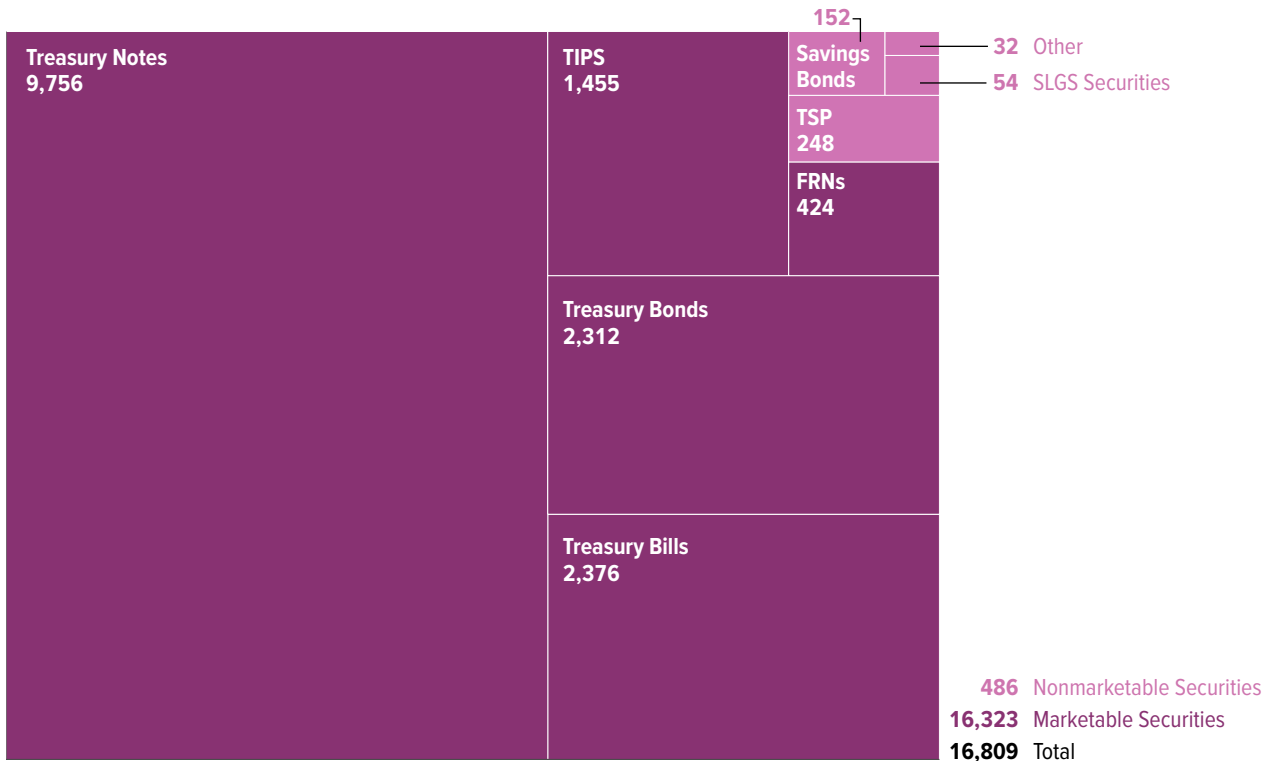
From 2007 to 2009, the United States experienced the most severe financial crisis and recession since the Great Depression. In 2009, federal revenues dropped sharply and outlays increased substantially, pushing the deficit to \$1.4 trillion, or 10 percent of GDP (the largest percentage since 1945). In 2010, the deficit was nearly

\$1.3 trillion (9 percent of GDP) because of continued declines in revenues and increases in spending relative to the size of the economy. Debt rose from 39 percent of GDP at the end of 2008 to 70 percent by the end of 2012. Overall, between 2009 and 2012, the Treasury borrowed \$5.5 trillion from the public, increasing debt held by the public to \$11.3 trillion.

Figure 1-2.

Components of Debt Held by the Public at the End of Fiscal Year 2019

Billions of Dollars



Source: Congressional Budget Office, using data from the Department of the Treasury.

FRNs = floating-rate notes; SLGS = State and Local Government Series; TIPS = Treasury inflation-protected securities; TSP = Thrift Savings Plan.

Although deficits have generally declined during periods of economic expansion, large deficits have persisted recently despite consistent growth in the economy. Between 2012 and 2019, the debt rose, on average, by nearly 6 percent annually (compared with nominal GDP growth of about 4 percent). At the end of 2019, federal debt held by the public was equal to 79.2 percent of GDP, higher than at any other time since just after World War II. In 2019, the government's interest costs for that debt totaled \$404 billion.

Types and Amounts of Debt Held by the Public

The Treasury issues marketable and nonmarketable securities to finance the government's activities.² Marketable

issues are sold at regular auctions and can be resold. At the end of 2019, those securities accounted for \$16.3 trillion, or 97 percent, of debt held by the public (see Figure 1-2). Nonmarketable issues are purchased directly; they are not auctioned and cannot be traded on the secondary market. At the end of 2019, those issues accounted for \$486 billion, or 3 percent, of debt held by the public.

Marketable Securities

The maturity of Treasury bills, notes, bonds, floating-rate notes (FRNs), and Treasury inflation-protected securities (TIPS) ranges from a few days to 30 years. Auctions of marketable securities are held regularly throughout the year (see Box 1-1).

Treasury bills, which mature in one year or less, are sold at a discount. Purchasers pay less than face value but

2. See TreasuryDirect, "Treasury Securities & Programs" (accessed March 10, 2020), <https://go.usa.gov/xmaNC>.

Box 1-1.

Scheduled Issuances of Marketable Securities

The Treasury regularly auctions its bills, notes, and bonds, as well as Treasury inflation-protected securities (TIPS) and floating-rate notes. The amount of each issue available during those auctions (which number in the hundreds each year) is determined by the federal government's borrowing needs. The auction schedules and the mix of maturities are chosen to ensure liquidity so that investors can buy or sell the issues quickly and in large amounts without causing price fluctuations (see the table).

Bidding on securities is either competitive or noncompetitive. Competitive bids are submitted mostly by large financial institutions for their own accounts or on behalf of customers in the resale market. The bids specify the amount each investor would pay for the security. The Treasury sorts the bids in ascending order of the discount rate (for Treasury bills) or yield (for notes and bonds) it will accept, until the quantity of accepted bids reaches the amount of securities available for sale. Successful bidders are awarded securities at the highest accepted discount rate or yield.

Noncompetitive bids are submitted by investors through the Treasury or through certain banks, brokers, or dealers. Buyers specify an amount to purchase but cannot specify a yield; their bids are guaranteed to be fulfilled at the highest accepted yield.

Treasury Bills

The Treasury offers 1-, 2-, 3-, and 6-month bills. Once every four weeks, the Treasury also auctions 1-year bills. As needed, the Treasury may issue cash management bills to fund a temporary cash shortfall. The maturities of such bills vary, but typically they are shorter than 3 months. At the end of 2019, the outstanding face value of all Treasury bills was roughly

\$2.4 trillion, accounting for about 15 percent of all marketable Treasury debt.

Treasury Notes

The Treasury has changed its portfolio of notes significantly over the past two decades. At the beginning of 2000, after a series of annual surpluses, notes were offered only in maturities of 2, 5, and 10 years. In 2003, after two years of deficits, the 3-year note was reintroduced, and in 2008, with debt continuing to increase, the Treasury reintroduced the 7-year note. Each month, the Treasury offers 2-, 3-, 5-, and 7-year notes. Quarterly auctions are held for 10-year notes, with reopenings of previous 10-year issues. (In a reopening, the Treasury issues an additional amount of a previously issued security. The security has the same maturity date and interest rate as the original but a different issue date and, usually, a different purchase price.) At the end of 2019, the outstanding value of notes was \$9.8 trillion, or about 60 percent of all marketable debt.

Treasury Bonds

The Treasury temporarily stopped issuing bonds in 2001 because the budget balance had improved over the previous few years. That hiatus ended in 2006, when the Treasury announced that it would again offer 30-year bonds. Bonds are now issued quarterly, with interim monthly reopenings. At the end of 2019, the outstanding value of bonds was \$2.3 trillion, or about 14 percent of all marketable debt.

Treasury Inflation-Protected Securities

TIPS were added to the auction schedule in 1997, beginning with maturities of 10 and 30 years. The Treasury discontinued 30-year TIPS in 2001, began to issue 5- and 20-year TIPS in 2004, and replaced the 20-year with 30-year TIPS in 2010. The value of outstanding TIPS totaled \$1.5 trillion at the end of 2019, or about 9 percent of all marketable debt.

Continued

receive that value at its maturity. Treasury notes and bonds are "coupon" securities: The semiannual interest payments (the coupons) are set at the time of issuance, and purchasers collect the principal at maturity. Treasury notes range in maturity from 2 to 10 years; Treasury bonds mature in 30 years. FRNs mature in 2 years; their quarterly coupons are based on the prevailing interest rate for 13-week Treasury bills.

TIPS differ from other Treasury securities in that their principal amounts are adjusted semiannually to account for inflation.³ The interest rate is fixed and determined at auction, but the coupon payments vary because the rate

3. The inflation adjustment is based on the consumer price index, not seasonally adjusted, for all urban consumers. The adjustment to the value of outstanding TIPS is made daily but not paid until maturity. For more information, see TreasuryDirect, "TIPS in Depth" (accessed March 10, 2020), <https://go.usa.gov/xEusU>.

Box 1-1.

Continued

Scheduled Issuances of Marketable Securities**Floating-Rate Notes**

Floating-rate notes—all with a 2-year maturity—were introduced in 2014. The notes are auctioned quarterly but have

monthly reopenings of the most recent issues. The value of outstanding notes in the series totaled \$424 billion at the end of fiscal year 2019—just 3 percent of all marketable debt.

Schedule of Treasury Auctions of Marketable Debt

Type of Issue and Time to Maturity	Annual Issues	Auction Frequency	Recent Auction Proceeds (Billions of dollars) ^a
Bills			
One month (28 days)	52	Weekly	39
Two months (56 days)	52	Weekly	35
Three months (91 days)	52	Weekly	42
Six months (182 days)	52	Weekly	36
One year (364 days)	13	Every four weeks	26
Cash management	Variable	As needed	Variable
Notes			
Two years	12	Monthly	40
Three years	12	Monthly	38
Five years	12	Monthly	41
Seven years	12	Monthly	32
Ten years	12	Quarterly ^b	27
Bonds (Thirty years)	12	Quarterly ^b	19
Treasury Inflation-Protected Securities			
Five years	4	Semiannually ^b	17
Ten years	6	Semiannually ^b	14
Thirty years	2	Annually ^b	8
Floating-Rate Notes (Two years)	12	Quarterly ^b	20

Sources: Congressional Budget Office; Department of the Treasury.

a. Representative auction amounts are taken from December 2019 or, for securities that were not auctioned that month, the amount from the most recent auction. The amounts shown exclude purchases made by the Federal Reserve as part of its System Open Market Account activities.

b. After initial auctions, the Treasury regularly reopens sales of previously issued securities. A reopened security has the same maturity date and interest rate as the original but, usually, a smaller auction amount.

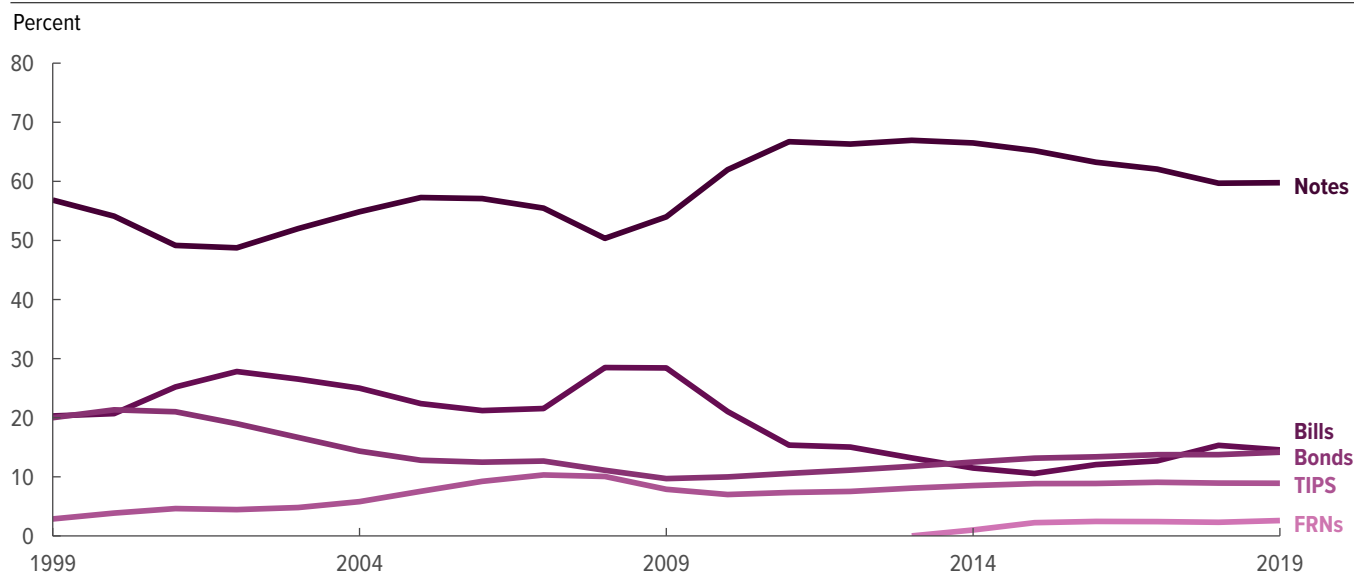
is applied to the inflation-adjusted principal. Because the value of the securities increases with inflation, TIPS mitigate the risk to investors that the rate of inflation will be higher than they anticipate.

Since the late 1990s, Treasury notes typically have accounted for more than half of all outstanding marketable securities, peaking at 67 percent in 2013 (see Figure 1-3). Treasury bills made up between 20 percent

and 30 percent of marketable debt until 2010, when the Treasury began to issue fewer short-term instruments. Those securities declined to just 11 percent of marketable debt in 2015 before rising back to 15 percent in 2019.

By the end of 2019, bonds accounted for 14 percent of the Treasury's outstanding marketable debt, in line with their typical share since the end of the 1990s. TIPS were first issued in 1997 and—after an initial growth phase

Figure 1-3.

Outstanding Marketable Debt, by Type of Treasury Security

Sources: Congressional Budget Office; Department of the Treasury.

FRNs = floating-rate notes; TIPS = Treasury inflation-protected securities.

through 2004—have represented between 7 percent and 10 percent of outstanding marketable debt since then. By the end of 2019, the share of debt taken up by FRNs, which were introduced in 2014, was just 3 percent.

The Treasury weighs several considerations as it chooses the mix of securities to offer the public. Investors' preferences and needs must be considered: Offerings that best meet investors' needs typically will lower the Treasury's overall cost of borrowing. Short-term instruments generally have lower interest costs, but they expose the government to the risk of paying higher interest rates when it refinances the issues. Conversely, long-term securities typically involve higher rates but provide more certainty about the future costs of interest payments because they require less frequent financing.

The average remaining maturity of all outstanding marketable securities decreased to roughly four years at the end of 2008 because increased borrowing in Treasury bills at the beginning of the recession continued during the ensuing financial crisis. After that, interest rates remained low by historical standards, and even as the Treasury increased the share of debt in longer-term securities, the average rate it paid to service the national debt remained at 2.4 percent in 2019. By the end of that year,

the average maturity had lengthened to nearly six years, the longest since 2001 (see Figure 1-4).

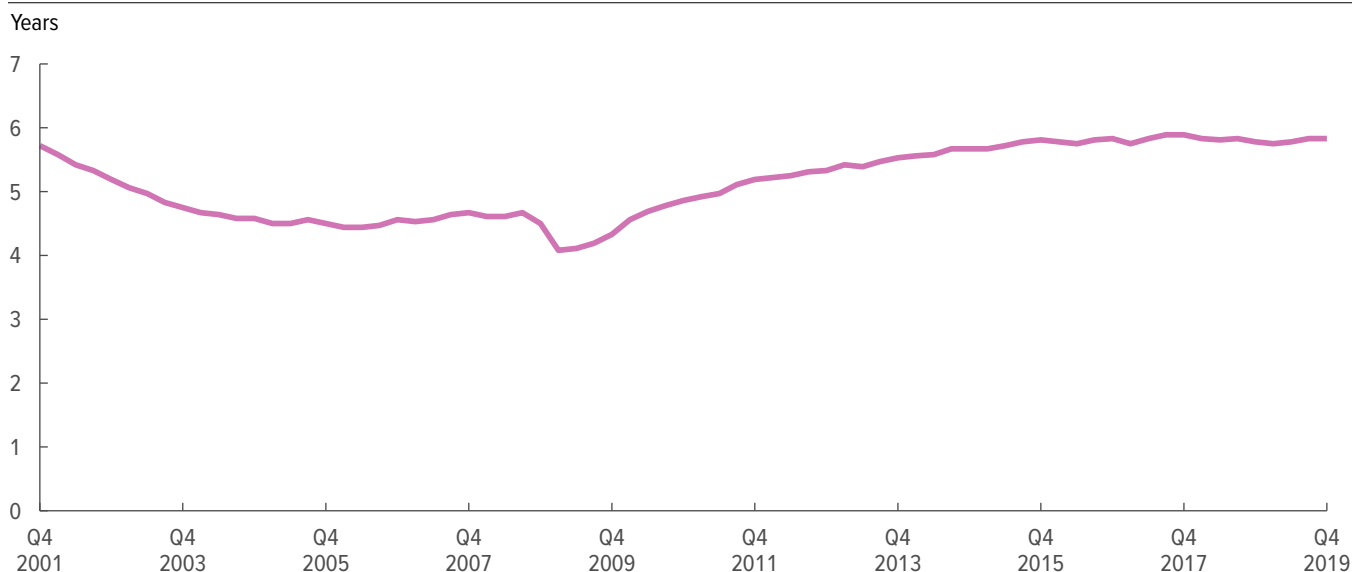
Nonmarketable Securities

Nonmarketable securities are nontransferable debt instruments that are not traded in secondary markets. Savings bonds, State and Local Government Series (SLGS) securities, and securities issued to the federal government's Thrift Savings Plan (TSP) account for most of those outstanding securities; foreign and domestic zero-coupon bonds and other issues make up a much smaller portion.⁴ Unlike the issuances of marketable securities, which are tied to the size of the federal deficit, nonmarketable securities are issued on the basis of investors' demand.

Savings Bonds. Savings bonds, first issued in 1935, gained popularity during World War II as a way for the public to help finance increased defense spending. Now offered in several series with varying characteristics,

4. TSP is a retirement program for federal employees that is similar to private-sector 401(k) plans. Zero-coupon bonds do not provide coupon payments over the life of the security; they are sold at a discount to face value, and the full face value is paid at maturity.

Figure 1-4.

Average Remaining Maturity of Marketable Debt

Source: Congressional Budget Office, using data from the Department of the Treasury.

Data are quarterly averages by fiscal year.

those bonds generally are purchased either as gifts or through payroll deductions by individual investors.⁵ At the end of 2019, the value of outstanding savings bonds was \$152 billion. (That amount includes \$26 billion in matured savings bonds that do not accrue interest.)

EE/E Bonds. Series EE bonds have changed several times since their introduction in 1980. Those purchased since May 2005 earn monthly interest that is compounded semiannually for up to 30 years. Series EE bonds typically pay little interest, but the Treasury guarantees that their face value will at least double 20 years after issuance. The face value of outstanding EE bonds (and of E bonds, their predecessors) has declined steadily: At the end of 2019, the total of unmatured bonds was about \$78 billion, \$11 billion less than two years earlier.

Other Savings Bonds. The Treasury also issues Series I bonds, which are inflation-indexed savings bonds. At the end of 2019, about \$46 billion in I bonds was outstanding—an amount that was relatively steady for several years. Series HH/H bonds, discontinued in 2004,

make cash coupon payments to bondholders every six months. At the end of 2019, the face value of that series totaled \$3 billion.

State and Local Government Series Securities. The Treasury issues SLGS securities as part of its regulation of the tax-exemption privilege accorded to governments. That privilege allows state and municipal governments to issue tax-exempt bonds that typically carry interest rates below those of taxable instruments, such as marketable Treasury securities or corporate bonds.

In the absence of rules to the contrary, issuers of tax-exempt bonds would have an incentive to borrow at tax-exempt rates and reinvest the funds at higher, taxable rates, thereby making a profit—a practice known as tax arbitrage. To prevent that, federal law allows state and local governments to borrow only for legitimate public purposes—to fund infrastructure projects, for example. During a period when borrowed funds might sit idle between the identification of a project and its commencement—and to avoid violating tax arbitrage rules—issuers can invest in SLGS securities. (The yield, or rate of return, on those securities is limited to one basis point below that of a Treasury security of

5. For more information on savings bonds and other securities, see TreasuryDirect, “Products in Depth” (accessed March 4, 2020), <https://go.usa.gov/xmCG8>.

Table 1-1.

Deficits and Other Means of Financing, 2005 to 2019

Billions of Dollars

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2005– 2019
Deficit	318	248	161	459	1,413	1,294	1,300	1,077	680	485	442	585	665	779	984	10,889
Other Means of Financing																
Changes to the Treasury's cash balance	-1	16	23	296	-96	35	-252	27	3	70	40	155	-194	225	-2	346
Other ^a	-21	-28	22	13	425	145	61	49	19	242	-146	312	26	80	71	1,272
Subtotal	-22	-11	45	309	329	180	-190	76	22	312	-105	466	-168	305	69	1,618
Net Treasury Borrowing From the Public	297	237	206	768	1,742	1,474	1,109	1,153	702	797	337	1,051	498	1,084	1,053	12,507

Sources: Congressional Budget Office; Department of the Treasury; Office of Management and Budget.

a. Consists primarily of the net cash flows for federal credit programs.

similar maturity; a basis point is one one-hundredth of a percentage point.)

The Treasury also allows state and local governments to place funds in demand deposit accounts with depository institutions (so called because funds may be withdrawn at any time without notice to the institution). Interest accrues on those deposits daily at a rate tied to the yield on the most recent auction of the 3-month Treasury bill.

Demand for SLGS securities declined substantially over the 10 years after the recession, as interest rates remained low and state and local governments refinanced smaller amounts of existing debt. In addition, Public Law 115-97, the major tax legislation enacted in 2017, canceled some of the tax benefits afforded to state and local governments, making SLGS securities less desirable to investors.⁶ In 2007, the face value of outstanding SLGS securities peaked at nearly \$300 billion; by the end of 2019, their value had fallen by more than 80 percent, to \$54 billion.

Thrift Savings Plan. The retirement savings program for federal workers and members of the uniformed services is similar to private-sector 401(k) plans in that it allows federal employees to invest in funds that track financial assets, including domestic and foreign equities,

6. A provision of that law bans municipal bond issuers, which had been significant buyers of SLGS securities, from using escrow accounts as a way to restructure existing debt.

fixed-income securities, and U.S. government securities. The government securities are nonmarketable securities that the Treasury issues specifically to the G Fund of the TSP. Although they have a maturity of just one day, they earn interest at a rate equal to the average market yield on outstanding marketable Treasury securities with four or more years to maturity. In total, the value of G Fund securities was \$243 billion at the end of 2019.

Zero-Coupon Bonds and Other Nonmarketable Securities. In the 1980s, the government issued a series of zero-coupon bonds with a total face value of \$30 billion and a 30-year maturity. The bonds were issued to the Resolution Funding Corporation, a government-sponsored enterprise, as part of a plan to resolve the savings and loan crisis of the 1980s and 1990s. The first of those bonds matured in October 2019. The federal government also has many other small accounts with nonmarketable securities that at the end of September 2019 had a total value of \$2 billion.

Borrowing Other Than to Finance Budget Deficits

The amount that the Treasury borrows or redeems is determined primarily by the budget deficit or surplus in a given year. Additional factors—other means of financing that are not directly included in budget totals—also affect the need to borrow from the public. Over the 2005–2019 period, those other means of financing led the Treasury to borrow \$1.6 trillion beyond the amount

needed for cumulative budget deficits, primarily related to net increases in direct lending to postsecondary students and in the Treasury's cash balances (see Table 1-1).

Financing Government Loans

The cumulative effects on borrowing other than to cover the federal deficit are driven mostly by federal credit programs. The Treasury borrows from the public to finance its lending programs; its net borrowing is later reduced by the amounts of principal and interest received.

Under the Federal Credit Reform Act of 1990, the cash flows of most government lending to the public are not recorded in the federal budget as the transactions occur—when payments are made or receipts are collected. Instead, the budget shows the net subsidy costs (the expected lifetime cost to the government of a loan or loan guarantee) associated with those activities, and those costs are recorded in the budget when the commitment is made.⁷

Such treatment results in a disconnect between the budget and the Treasury's borrowing because borrowing needs are determined by the cash flows of the transactions. For direct loans, for example, the amount the government must borrow is generally more than the cost recorded in the budget. For a loan program with a 10 percent subsidy rate, the government might disburse \$1,000 in cash for a loan and then receive cash repayments later, but the budget would record a \$100 cost in the year of disbursement and nothing in future years (unless the estimated subsidy rate turned out to be incorrect).⁸

To reconcile such transactions with the estimated budgetary cost, the government uses nonbudgetary “credit-financing accounts” that are credited with a program's subsidy amounts that are shown in the budget. Those accounts record all cash flows associated with the program. If the financing accounts need cash up front (for example, to cover disbursements of direct loans), funds are borrowed from the Treasury, which in turn

borrows from the public through the issuance of securities. In 2019, borrowing by the financing accounts exceeded \$70 billion, and those accounts held a total of \$1.4 trillion in Treasury securities.

Federal lending for higher education accounts for the bulk of the government's loan disbursements; in 2011, the Treasury borrowed \$152 billion to finance those loans. (Before 2010, the Department of Education primarily guaranteed private-sector loans.)⁹ However, as loans are repaid, such net borrowing has dropped below \$50 billion annually. At the end of fiscal year 2019, the amount outstanding in education loans totaled \$1.2 trillion, accounting for 87 percent of the debt used to finance federal credit programs.

Changes in Cash Balances

The cash balance the Treasury maintains to handle day-to-day transactions and to ensure its ability to meet the need for emergency funding rises and falls with daily receipts and required disbursements. Over the past six years, that daily balance has averaged about \$270 billion; at the end of 2019, it stood at \$382 billion.

Cash balances can cause significant annual variation in other means of financing if the amount held by the Treasury on the final day of a fiscal year is more or less than it was on the final day of the year before. For example, over the course of 2017, the Treasury drew on its cash holdings to pay obligations, but it could not fully replenish those balances because of constraints imposed by the debt ceiling at the end of the year. (See Chapter 2 for a more detailed discussion of the debt ceiling and its effects.) In 2018, however, the Treasury added \$225 billion to its cash balance—by borrowing more than would otherwise be necessary to finance the deficit—increasing debt held by the public by that amount.

Other Factors That Affect Federal Borrowing

Federal borrowing can rise or fall depending on the amount of debt issued by other federal agencies, changes in the amount of checks outstanding and in accrued interest costs that have not yet been paid, and limitations imposed by the debt ceiling. (Unlike most other costs in the budget, interest costs are recorded as outlays when they accrue, not when they are paid.) The Tennessee

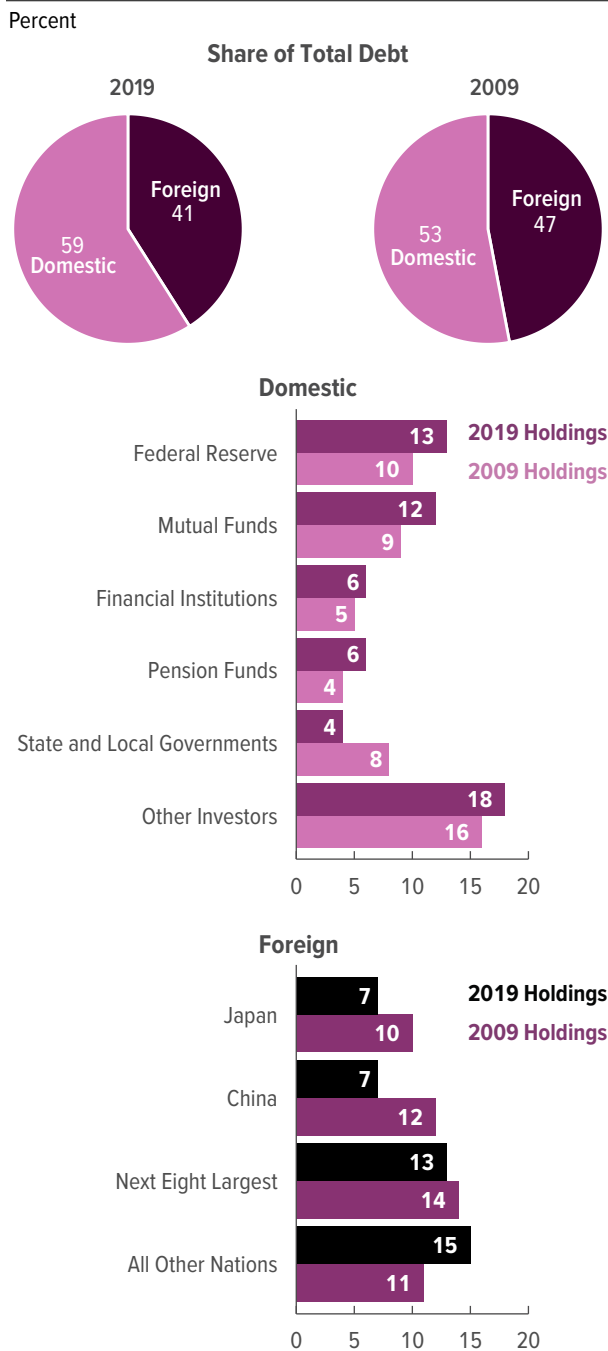
7. See Congressional Budget Office, *Cash and Accrual Measures in Federal Budgeting* (January 2018), www.cbo.gov/publication/53461.

8. The subsidy rate is the cost divided by the amount disbursed; a positive subsidy rate indicates a government subsidy and therefore costs to the government; a negative rate indicates savings.

9. For more on those loan programs, see Congressional Budget Office, *Federal Aid for Postsecondary Students* (June 2018), www.cbo.gov/publication/53736.

Figure 1-5.

Holders of Treasury Debt



Source: Congressional Budget Office, using data from the Department of the Treasury.

Valley Authority’s issues accounted for most of the \$21 billion in non-Treasury debt included in debt held by the public at the end of 2019; other agencies issued

smaller amounts.¹⁰ When agencies borrow on their own behalf, the Treasury need not borrow for them.

Constraints imposed by the debt ceiling can affect the amount of debt outstanding. In March 2015, for example, a temporary suspension of the debt ceiling expired, and the reinstated ceiling was set at the amount of outstanding debt. To manage the government’s cash needs while net borrowing was restricted, the Treasury relied on “extraordinary measures,” including disinvesting the daily securities held by the TSP’s G Fund and the Exchange Stabilization Fund.¹¹ Because the impasse had not been resolved by the end of September 2015, the \$200 billion in outstanding disinvested securities was recorded as an accounting adjustment that reduced other means of financing. In October 2015, when the debt ceiling was again suspended and the Treasury was free to resume normal operations, those funds were reinvested, the \$200 billion accounting adjustment was reversed, and that amount, plus interest, was added to other means of financing for 2016.

Ownership of Federal Debt Held by the Public

Investors find federal debt an attractive investment because it is considered to be essentially free of default risk. Treasury securities also are valued for liquidity—they can be bought and sold quickly and in large quantities without affecting their price. At the end of September 2019, domestic investors owned about \$9.6 trillion, or 59 percent, of outstanding debt held by the public; foreign investors owned about \$6.6 trillion, or 41 percent (see Figure 1-5).

Domestic Ownership

Domestic holdings of Treasury debt increased substantially during the 2009–2019 period, rising from about \$4.0 trillion to \$9.6 trillion over that decade. At the end of 2019, the Federal Reserve System held \$2.1 trillion—about 13 percent of the total, and more than any other single entity. A decade earlier, the Federal Reserve held \$0.8 trillion—about 10 percent of debt held by the public. Much of the increase resulted from the central bank’s decision to make large-scale asset purchases to

10. Fannie Mae and Freddie Mac, both of which are in federal conservatorship, also may issue debt independently of the Treasury. That debt is not included in measures of federal debt.

11. For more information on the extraordinary measures available to the Treasury, see Congressional Budget Office, *Federal Debt and the Statutory Limit, February 2019* (February 2019), www.cbo.gov/publication/54987.

put downward pressure on yields during and after the 2007–2009 recession.

Other major holders include mutual funds, financial institutions, pension and retirement funds, and state and local governments. Over the 2009–2019 period, mutual funds increased their holdings to \$1.9 trillion from \$0.7 trillion, raising their share of the total to 12 percent. Financial institutions and pension funds also increased their holdings over the period, each raising their share of outstanding debt to 6 percent. Although total Treasury debt owned by state and local governments increased, that growth was outpaced by growth in the debt. As a result, the state-and-local share decreased to 4 percent in 2019 from 8 percent in 2009. In 2019, other investors, a broad category that includes individual people, personal trusts, and corporations, owned \$3.0 trillion in Treasury securities—about 18 percent of the total and 2 percentage points more than a decade earlier.

Foreign Ownership

Foreign holdings of U.S. debt increased substantially over the 2009–2019 period—from about \$3.6 trillion in 2009 to \$6.6 trillion in 2019. As a percentage of debt

held by the public, however, foreign holdings declined—from 47 percent to 41 percent.

At the end of 2019, the 10 countries with the largest holdings were Japan, China, the United Kingdom, Brazil, Ireland, Luxembourg, Switzerland, the Cayman Islands, Hong Kong, and Belgium. (Information about foreign owners of Treasury debt is approximate.) Securities are not necessarily owned by a listed country's citizens. In some cases, ownership is recorded for institutions domiciled in that country—often for tax purposes—but the owners reside elsewhere.

Overall, private entities in China and Japan and those countries' central banks were the largest foreign investors. By the end of 2019, those concerns held \$2.2 trillion in Treasury securities, or 14 percent of outstanding debt held by the public. The dollar amount of debt that Chinese and Japanese entities held in 2019 was almost one-third more than they held in 2009, but the share of total debt those entities owned declined. The largest increase in foreign ownership of Treasury securities was among countries other than the largest 10 owners.

Chapter 2: Other Measures of Federal Debt

Several measures of federal debt other than debt held by the public (see Chapter 1) identify the effects of the government’s borrowing on financial markets and inform assessments of the government’s financial condition: debt held by the public net of financial assets, gross debt, and debt subject to statutory limit. Another measure, general government net liabilities, is used by the Organisation for Economic Co-operation and Development for international comparisons of its member countries’ debt (see Box 2-1).

Debt Held by the Public Net of Financial Assets

Debt held by the public net of financial assets reflects the government’s overall financial condition by accounting for the fact that government lending results in the acquisition of financial assets: The government’s cash balances and the value of assets acquired through various lending activities are subtracted from debt held by the public. The calculation is not straightforward, however, because of the subjectivity of assigning value to financial assets.

Federal holdings of financial assets increased substantially over the 2009–2019 period, primarily because of the increase in federal lending for postsecondary education. The money the Treasury disburses for those loans is excluded from calculations of the deficit (just their subsidy costs are counted) but the sums borrowed to finance those loans are included in all measures of federal debt. Moreover, loans represent an asset to the government that will result in future payments of principal and interest.

Financial assets acquired by the government affect its financial position. If the assets are retained, they can generate income from interest, dividends, and repayments of principal that will reduce the government’s need to borrow in the future. If they are sold, the proceeds can be used to pay down a portion of the federal debt.

Debt net of financial assets also provides a more comprehensive picture of the government’s overall effect

on credit markets than does debt held by the public. When the government borrows to make loans that will be repaid in the future, the overall supply of credit is essentially unchanged. Therefore, the issuance of that debt does not crowd out, or take the place of, debt issued in the private sector to the same degree that debt issued for other purposes does.

In 2011, the federal student loan program stopped providing loan guarantees to banks and instead began lending to borrowers directly, with the result that the magnitude of federal holdings of financial assets began to increase markedly. In total, at the end of 2019, the government’s financial assets—loans as well as cash—had an estimated value of nearly \$1.8 trillion.¹ Subtracting that amount from the \$16.8 trillion in debt held by the public leaves about \$15.0 trillion in debt held by the public net of financial assets. Debt held by the public at the end of 2019 was equal to about 79 percent of gross domestic product; debt net of financial assets was about 71 percent of GDP.

Government Loans and Guarantees

The present value of government loans and loan guarantees at the end of fiscal year 2019 totaled \$1.4 trillion.² The value of direct loans represents nearly all of the government’s assets from credit programs; net assets from

1. See Department of the Treasury, Bureau of the Fiscal Service, *Final Monthly Treasury Statement: Receipts and Outlays of the United States Government for Fiscal Year 2019 Through September 30, 2019, and Other Periods* (October 2019), <https://go.usa.gov/xdmXQ> (PDF, 3.2 MB). That amount does not include assets held by the Federal Reserve. Because of its need for flexibility and autonomy in setting monetary policy, the central bank is an independent federal entity. Although it remits earnings to the Treasury, the Federal Reserve’s receipts and expenditures are not included directly in the federal budget.
2. A present value is a single number that expresses a flow of current and future income, or payments, in terms of an equivalent lump sum received, or paid, at a specific time. The present value depends on the rate of interest—the discount rate—that is used to translate future cash flows into current dollars.

Box 2-1.

A Measure of Debt Among OECD Countries

The Organisation for Economic Co-operation and Development (OECD) uses *general government net financial liabilities* as its measure of national indebtedness. In the OECD's usage, *general government* encompasses central and local governments, thus broadening the idea of federal debt net of financial assets to apply to government at all levels. For the United States, the measure accounts for local, state, and federal debt.

The OECD defines net financial liabilities as the “gross financial liabilities of the general government sector less the financial assets of the general government sector. Such assets may be cash, bank deposits, loans to the private sector, participation in private sector companies, holdings in public corporations or foreign exchange reserves, depending on the institutional structure of the country concerned and data availability.”¹ Although various countries interpret the definition differently—and thus comparisons are not completely straightforward—in the view of the Congressional Budget Office, the construct is still useful.

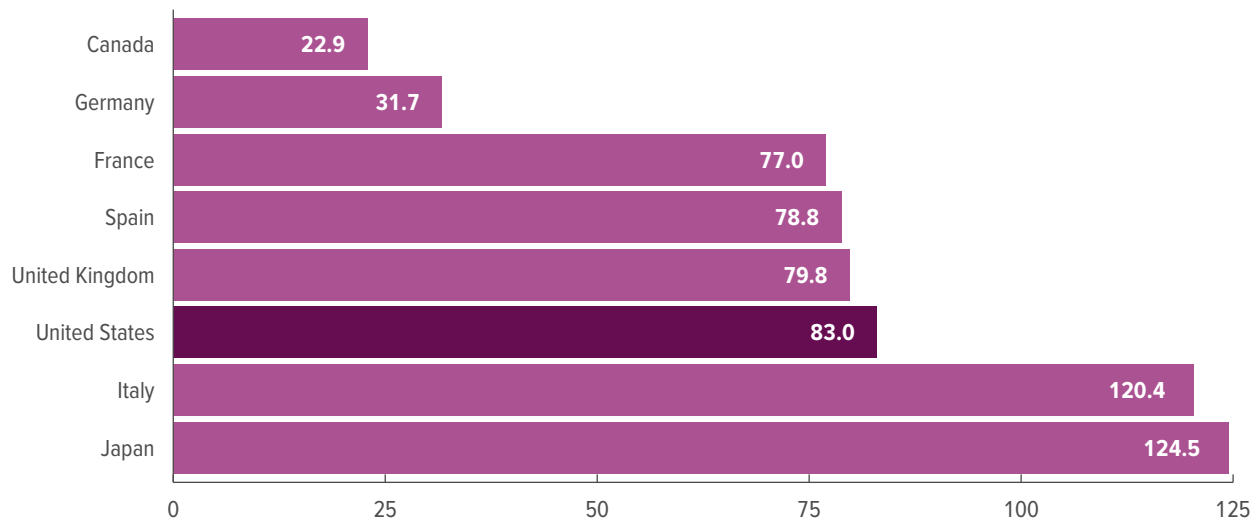
1. See Organisation for Economic Co-operation and Development, “Notes to Statistical Annex Tables 29-37: Fiscal Balances and Public Indebtedness: Annex Table 37—General Government Net Financial Liabilities” (accessed March 10, 2020), <https://tinyurl.com/wb3t8p2>.

After the start of the global financial crisis in 2007, government debt increased sharply around the world. According to the OECD, at the end of calendar year 2007, U.S. net financial liabilities were equal to 45 percent of gross domestic product (GDP), 38 percentage points below the level they would reach in 2018. That rise in net liabilities over the period was smaller, relative to GDP, in the United States than it was in several other large member nations: Between 2007 and 2018, Japan's level increased by 53 percentage points, the United Kingdom's by 50 percentage points, and France's by 45 percentage points. Canada's ratio did not significantly change over the period; Germany's declined by 8 percentage points.

By the end of 2018, general government net financial liabilities relative to GDP among some of the larger OECD countries ranged from a low of 23 percent in Canada to a high of 125 percent in Japan (see the figure). The average for all OECD countries was 65 percent. As calculated by the OECD, U.S. general government net financial liabilities at the end of calendar year 2018 reached 83 percent of GDP, close to the figures for France, Spain, and the United Kingdom.

Debt of Selected Countries at the End of Calendar Year 2018

Percentage of Gross Domestic Product



Source: Congressional Budget Office, using data from the Organisation for Economic Co-operation and Development.

guaranteed loan programs account for only \$32 billion. The present value of loan guarantees—such as those made by the Federal Housing Administration—is based on anticipated income from fees, net of payouts to cover losses from defaults.

The Department of Education conducts most of the government's direct lending. On the basis of Treasury data, the Congressional Budget Office estimates that the outstanding value of education loans was \$1.3 trillion at the end of 2019. Another \$186 billion in financial assets was derived from the government's other direct loan programs (such as those for rural areas and small businesses) and guaranteed loan programs (such as those for housing).

Cash

The Treasury's cash holdings constitute another significant financial asset—primarily in the form of bank deposits. Because cash flows fluctuate throughout the year with the timing of tax collections and spending, the Treasury maintains deposits of varying amounts at the Federal Reserve and in banks throughout the country. Over the 2009–2019 period, its end-of-year balances ranged from a low of \$58 billion (in 2011) to a high of \$385 billion (in 2018). The balances fluctuated significantly during the 2013–2019 period because constraints imposed by the debt ceiling restricted the Treasury's ability to maintain consistent balances.

Gross Debt

In addition to offering securities for public sale, the Treasury issues securities to various accounts of the federal government. Gross debt consists of debt held by the public plus debt issued to those accounts—about 90 percent of it held in the federal trust funds, mostly for Social Security and for retirement programs for federal employees and military service members.

Although trust funds are designated by law, there is no substantive difference between those funds and others, including special funds (for example, the Department of Defense's fund for financing military retirees' health care), revolving funds (including the Deposit Insurance Fund), and public enterprise funds (such as for the Postal Service). All major trust funds and many other government funds invest in the Treasury's nonmarketable Government Account Series (GAS) securities.

The various transactions that occur in any year between the trust funds and the Treasury are

intragovernmental—they have no net effect either on federal borrowing from the public or on the total budget. Annual surplus cash flows from a program's activities are retained by the Treasury, and the trust fund is credited with a corresponding amount of nonmarketable Treasury securities. The Treasury then uses the cash to finance the government's other activities. The rates of interest that most GAS securities earn are similar to those for publicly issued debt, and the Treasury issues additional debt to the trust funds in the amount of the interest payments.

When a trust fund's expenses exceed its cash income, the administering agency redeems its securities for cash as needed. The Treasury, in turn, must obtain that cash from tax revenues or other sources of income or by borrowing from the public. However, neither the issuance of the securities, nor the payments of interest, nor any other transactions between the Treasury and the trust funds have any net budgetary effect.³ Although trust funds have an important legal meaning in that their balances are a measure of the amounts that the government has the legal authority to spend for certain purposes under current law, they have little relevance in an economic sense unless the limits of that authority are reached.

The federal trust funds are essentially an accounting mechanism. Although their balances (in the form of government securities) are assets for the individual programs, they are liabilities for the rest of the government. The resources necessary to redeem government securities in the trust funds and thereby pay for benefits or other spending in some future year must be generated from taxes, income from other government sources, or borrowing from the public in that year.

The amount of Treasury securities held by trust funds reflects what has happened in the past—the cumulative amount by which receipts have exceeded outlays—but

3. CBO estimates that, if current law generally remains the same, several trust funds will exhaust their balances over the next decade. By law, however, CBO's baseline projections must incorporate the assumption that scheduled payments from those funds will continue to be made in full, even though there would be no legal authority to do so once the funds are exhausted. For example, if the Disability Insurance Trust Fund's balance declines to zero and current revenues are insufficient to cover benefits specified in law, the Social Security Administration would no longer be permitted to pay full benefits when they were due. See Barry F. Huston and William R. Morton, *Social Security: What Would Happen If the Trust Funds Ran Out?* Report RL33514, version 29 (Congressional Research Service, June 12, 2019), <https://go.usa.gov/xmbKE>.

those balances do not indicate the government's total future obligations for the programs. Hence, gross federal debt is a poor indicator of the government's overall financial position. For example, the securities held by the trust funds for Social Security's Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI) programs represent a policy decision to set the payroll tax over the past few decades so that revenues would exceed outlays, thus generating a surplus, in anticipation of rising benefit costs as the baby-boom generation retires. Because costs now exceed revenues, the Social Security trust funds run annual deficits. The effect is to reduce gross debt as the funds redeem more Treasury securities than they purchase. In fact, the government's future liabilities for Social Security far exceed the accumulated balances in its trust funds. CBO currently projects that if current law governing the program's taxes and benefits did not change, the OASI and DI trust funds would be exhausted in the decade after 2030. The contribution of those funds to the gross debt would be diminished, but substantial liabilities would remain.

Beyond Social Security, the amount of government debt held by trust funds and other government accounts bears even less relationship to the government's total liabilities. Some programs with significant anticipated outlays (such as Medicare) hold little government debt relative to their obligations, whereas others (such as the Civil Service Retirement System) hold considerable amounts even though the revenues they collect are projected to exceed outlays for the foreseeable future.

Debt Subject to Limit

The Congress traditionally has limited the amount of debt the Treasury can issue. Before World War I, it generally had to approve each debt issue separately. The 1917 enactment of the Second Liberty Bond Act led to an overall dollar limit on debt. The modern concept of debt subject to limit—now often called the debt ceiling—was created in 1939 in Public Law 76-201. That law set \$45 billion as the total amount of federal debt that could be outstanding at any time. Since then, the limit has been raised or suspended often (see Figure 2-1). In March 2019, the debt limit was raised to \$22 trillion. That limit has since been suspended until the end of July 2021⁴

What Is Included in Debt Subject to Limit?

The debt limit applies to virtually all gross federal debt other than securities issued by the Tennessee Valley Authority or other federal agencies that are permitted to issue debt directly to the public. It also excludes debt issued by the Federal Financing Bank (FFB) and that issued by Fannie Mae and Freddie Mac (the housing entities' debt also is excluded from other standard measures of federal debt).

Options for the Treasury When Debt Issuance Is Limited

When the Treasury's borrowing reaches the statutory limit and it cannot issue new debt (other than for the purpose of refinancing maturing securities), it must use alternative strategies (called extraordinary measures) to continue to fund government activities. Because the government now runs annual deficits, without further borrowing those strategies allow government operations to continue only for a limited time.

Suspending Flows and Redeeming Securities in Government Accounts. When the federal debt has reached the limit, the Treasury can delay new deposits to certain accounts and redeem securities in three funds: the Thrift Savings Plan's G Fund, the Exchange Stabilization Fund (ESF), and the Civil Service Retirement and Disability Fund (CSRDF).⁵

Because the G Fund and ESF are invested in one-day securities, the Secretary of the Treasury can at any time suspend the daily reinvestment of the funds (that is, withdraw all of the balances or reduce them). At the end of 2019, those balances exceeded \$265 billion.

For the CSRDF, the Treasury can redeem securities in amounts equal in value to benefit payments due in the near future. The Treasury also can suspend investment of all additional receipts to the fund if they would cause a breach of the debt limit. Once the debt limit is raised, the Treasury must restore the principal—and any interest lost—to the G Fund and CSRDF. It has no similar obligation concerning the ESF.

Swapping Debt With the Federal Financing Bank. Debt issued by the FFB, which cannot exceed \$15 billion, is considered intragovernmental and not subject to the

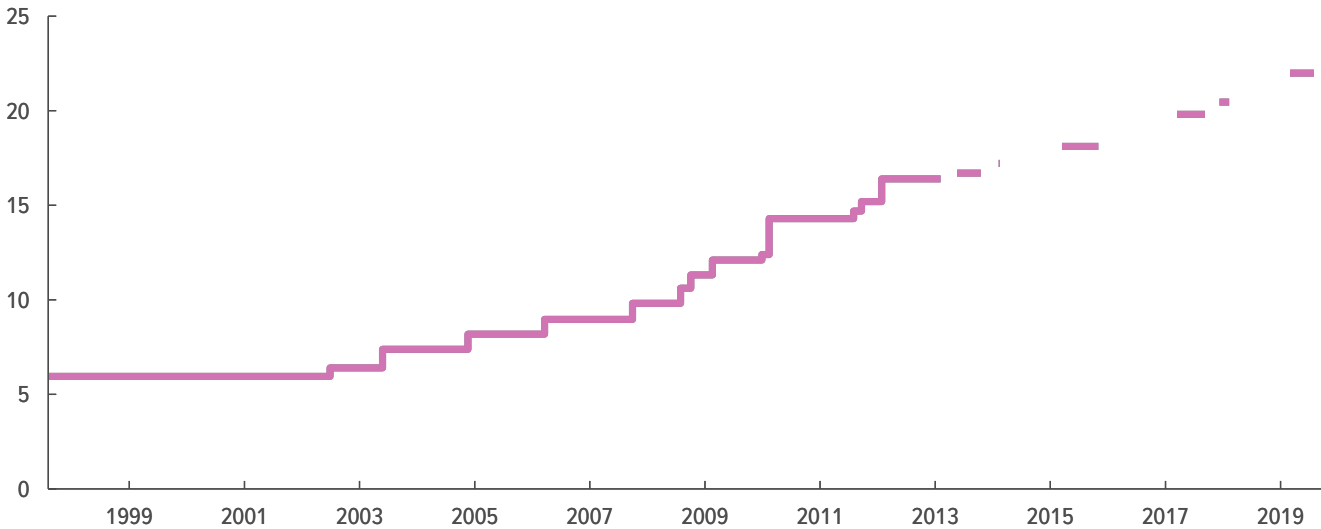
4. For a series of reports on the debt limit, see Congressional Budget Office, "Major Recurring Reports," *Federal Debt and the Statutory Limit* (various years), <https://go.usa.gov/xnfS3>.

5. The G Fund is a component of TSP invested solely in Treasury securities, the ESF is an emergency fund controlled by the Treasury to stabilize exchange rates, and the CSRDF is the trust fund for federal employees' retirement plans.

Figure 2-1.

Statutory Limits on Federal Debt

Trillions of Dollars



Source: Congressional Budget Office.

Gaps in the line indicate suspensions of the debt limit.

debt ceiling. In the past, the Treasury has swapped securities that are counted toward the debt limit for securities issued by the FFB, thus decreasing the debt subject to limit. At the end of 2019, the FFB had about \$9 billion in outstanding debt; increasing the amount of FFB securities to the maximum of \$15 billion in exchange for Treasury securities would give the Treasury about \$6 billion of additional room for borrowing from the public.

Suspending Sales of Nonmarketable Securities. When the debt limit is about to be reached, the Treasury can suspend sales of securities in the nonmarketable State and Local Government Series. That action does not clear any room under the debt ceiling, and it has virtually no effect on the debt markets because SLGS securities are not sold and traded in secondary markets. However, suspending their sales—which averaged about \$4 billion per month in 2019 before a suspension period began—removes some uncertainty about the path of debt because the timing and amounts of issuance to state and local governments are difficult to predict.

Consequences of a Debt Limit

Once the debt limit is reached, the Treasury cannot issue additional debt that will increase the amount outstanding. (The Treasury can issue additional debt only in amounts equal to those that result from maturing debt or that are cleared by taking the extraordinary measures.) If the limit is not increased or suspended and the government is running deficits (as it is now), the restriction ultimately would lead to delays of payments for government activities, a default on the government's debt obligations, or both.

By itself, setting a limit on the debt cannot control deficits because the decisions that trigger borrowing are made through other legislative actions that occur largely before the debt ceiling is reached. By the time an increase is needed, it is too late to curtail federal spending or to avoid paying pending obligations without incurring negative consequences. However, the need to raise the debt limit in order to continue to operate the government can focus lawmakers' attention on budgetary issues.

Chapter 3: CBO's Projections of Federal Debt

The amount of federal debt held by the public in the United States nearly tripled from 2008 to 2019, rising from \$5.8 trillion at the end of fiscal year 2008 to \$16.8 trillion at the end of 2019. Over the same period, it doubled relative to gross domestic product, increasing from 39 percent to 79 percent of GDP. The Congressional Budget Office projects that the gap between the government's spending and its revenues would grow in coming years if current laws governing taxes and spending generally remained unchanged. As a result, in CBO's baseline projections, the nation's debt rises significantly, both in dollar terms and as a percentage of GDP.

In those projections, CBO estimates the total amount and composition of debt that would be issued by the Treasury over the decade to come. Information from recent Treasury auctions and the Treasury's public statements is incorporated into CBO's estimates of the debt portfolio for the first few years. For the rest of the 10-year projection period, CBO estimates the mix of securities that the Treasury will issue: That mix would cause the weighted average of years to maturity on outstanding instruments to move toward the historical average.

At the end of fiscal year 2019, Treasury bills constituted 15 percent of outstanding marketable debt, well below the long-term average of 23 percent. CBO projects that over the next decade, the Treasury will issue more of those securities, increasing the share of Treasury bills to 20 percent of marketable debt by 2030. CBO projects a corresponding decrease in the share of debt held in Treasury notes, from 60 percent of marketable debt in 2019 to 55 percent in 2030.

Debt Held by the Public

In CBO's January 2020 baseline budget projections, debt held by the public grows at an average annual rate of 5.9 percent (well above projections for GDP growth)

and reaches \$31.4 trillion by 2030.¹ The debt rises from 79 percent of GDP in 2019 to 98 percent in 2030 (see Table 3-1). Most of that increase stems from continued large budget deficits—averaging about \$1.3 trillion a year. CBO estimates that in order to finance deficits through 2030, the Treasury would need to borrow an additional \$14.1 trillion from the public.

The other means of financing also would add to the Treasury's borrowing needs. CBO projects that borrowing for activities other than deficit financing would add roughly \$530 billion (mostly for new student loans) to the debt by 2030. All told, in that year, the government's annual interest payments on debt held by the public would total \$858 billion, equal to 2.7 percent of GDP and about 11 percent of total federal outlays.

Debt Held by the Public Net of Financial Assets

At the end of 2019, the Treasury held roughly \$1.8 trillion in financial assets. Debt net of financial assets was therefore less than debt held by the public by the same amount, resulting in a total of \$15.0 trillion (see Table 3-2). In CBO's baseline projections, the government's financial assets increase to \$2.4 trillion by 2030, resulting in total debt net of financial assets of \$29.1 trillion.

Most of the growth in financial assets over the coming decade is projected for the outstanding balances on education loans. CBO estimates that, under current law, the Treasury would hold \$1.8 trillion in student debt in 2030. The rest of the assets would consist of cash balances and other loans and guarantees held by the government. The outstanding value of those other credit activities is projected to decrease from \$186 billion to \$89 billion over the 2019–2030 period, as interest receipts and principal repayments exceed disbursements.

1. At the time this report was prepared, the most recent budget projections were from January 2020. See Congressional Budget Office, *The Budget and Economic Outlook: 2020 to 2030* (January 2020), www.cbo.gov/publication/56020.

Table 3-1.

CBO's Projections of Federal Debt

Billions of Dollars

	Actual, 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Debt Held by the Public at the Beginning of the Year	15,750	16,803	17,855	18,886	20,066	21,248	22,453	23,827	25,196	26,545	28,152	29,667
Changes in Debt Held by the Public												
Deficit	984	1,015	1,000	1,116	1,119	1,152	1,315	1,333	1,313	1,538	1,466	1,742
Other means of financing ^a	69	37	30	64	63	53	60	35	36	69	49	38
Total	1,053	1,052	1,031	1,180	1,182	1,205	1,375	1,369	1,349	1,606	1,516	1,780
Debt Held by the Public at the End of the Fiscal Year	16,803	17,855	18,886	20,066	21,248	22,453	23,827	25,196	26,545	28,152	29,667	31,447
Debt Held by Government Accounts	5,865	5,935	6,015	6,046	6,048	6,023	5,963	5,913	5,706	5,432	5,138	4,757
Gross Federal Debt	22,668	23,790	24,901	26,112	27,295	28,476	29,790	31,109	32,252	33,583	34,805	36,204
Debt Subject to Limit ^b	22,687	23,810	24,921	26,132	27,317	28,498	29,813	31,133	32,276	33,609	34,831	36,231
Memorandum:												
Debt Held by the Public as a Percentage of GDP	79.2	80.8	82.0	83.9	85.6	87.3	89.4	91.2	92.6	94.7	96.2	98.3
Debt Held by the Public Net of Financial Assets (Billions of dollars) ^c	14,961	15,976	16,976	18,092	19,211	20,363	21,678	23,011	24,325	25,862	27,328	29,071
Debt Held by the Public Net of Financial Assets (Percentage of GDP)	70.5	72.3	73.7	75.6	77.4	79.2	81.3	83.3	84.9	87.0	88.6	90.8
Average Interest Rate on Debt Held by the Public (Percent)	2.5	2.4	2.3	2.3	2.4	2.5	2.6	2.6	2.7	2.7	2.8	2.8

Source: Congressional Budget Office.

GDP = gross domestic product.

- a. Factors not included in budget totals that affect the government's need to borrow from the public. Those factors include cash flows associated with federal credit programs such as student loans (because only the subsidy costs of those programs are reflected in the budget deficit), as well as changes in the government's cash balances.
- b. The amount of federal debt that is subject to the overall limit set in law. Debt subject to limit differs from gross federal debt in that it excludes most debt issued by agencies other than the Treasury and the Federal Financing Bank. The debt limit is currently suspended through July 31, 2021.
- c. Debt held by the public minus the value of outstanding student loans and other credit transactions, cash balances, and other financial instruments.

Gross Debt and Debt Subject to Limit

Like growth in debt by the other measures, growth in gross federal debt and in debt subject to the statutory limit is projected to outpace GDP growth. (CBO's baseline is constructed under the assumption that the debt ceiling would be raised as necessary.) At the end of 2019, gross federal debt and debt subject to limit each totaled \$22.7 trillion—about \$16.8 trillion in debt held by the public and \$5.9 trillion in debt held by government accounts. In CBO's baseline projections, those measures of debt increase by an average of more than 4 percent annually, reaching \$36.2 trillion in 2030.

The increases projected both for gross debt and for debt subject to limit stem primarily from the projected growth in debt held by the public. Overall, however, CBO projects that the broader measures would increase more slowly over the next decade because of a decline projected for the amount of debt held by the trust funds. The largest balances among all of the government's accounts are now in the trust funds for Social Security's Old-Age and Survivors Insurance and Disability Insurance programs. By the end of 2019, those trust funds had accrued \$2.9 trillion in intragovernmental debt. In CBO's baseline projections, that combined balance declines to \$857 billion by the end of 2030 as securities are redeemed to pay benefits (see Table 3-3).

Table 3-2.

CBO's Projections of Debt Held by the Public Net of Financial Assets

Billions of Dollars

	Actual, 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Debt Held by the Public	16,803	17,855	18,886	20,066	21,248	22,453	23,827	25,196	26,545	28,152	29,667	31,447
Financial Assets (Net of liabilities)												
Treasury's operating cash balance	382	350	315	330	355	370	390	385	380	420	445	460
Credit programs												
Department of Education programs	1,262	1,319	1,371	1,420	1,470	1,521	1,574	1,629	1,686	1,731	1,772	1,815
Other	186	198	211	211	200	186	173	158	143	126	109	89
Subtotal	1,447	1,517	1,582	1,632	1,670	1,707	1,747	1,788	1,828	1,857	1,881	1,904
National Railroad Retirement Investment Trust	24	24	23	23	22	22	21	21	20	20	19	19
Other ^a	-12	-11	-11	-11	-10	-10	-9	-8	-8	-7	-7	-7
Total	1,842	1,879	1,910	1,974	2,037	2,089	2,149	2,185	2,221	2,289	2,339	2,376
Debt Held by the Public Net of Financial Assets	14,961	15,976	16,976	18,092	19,211	20,363	21,678	23,011	24,325	25,862	27,328	29,071

Sources: Congressional Budget Office; Department of the Treasury; Office of Management and Budget.

a. Includes other cash and monetary assets (mostly related to transactions with the International Monetary Fund), offset by liabilities such as interest accrued but not yet paid to the public.

By contrast, the balances of other trust funds increase. For example, the retirement funds for federal civilian and military employees held a combined \$1.8 trillion in Government Account Series securities at the end of 2019; under current-law projections, those balances rise to \$2.7 trillion at the end of 2030.

Overall, the combined balance of all trust funds is projected to increase slowly through 2022; after that, in CBO's projections, the decreases in the Social Security funds outweigh increases in other funds' balances. At the end of 2030, the trust funds contribute only \$3.9 trillion to gross federal debt, down from \$5.2 trillion at the end of 2019.

Uncertainty Surrounding CBO's Projections

Even if federal laws generally remained unchanged for the next decade, actual budgetary outcomes would differ from CBO's baseline projections because of changes both in economic conditions and in a host of other factors that affect federal spending and revenues. The agency aims for projections in the middle of the distribution of possible outcomes, given the baseline assumptions about federal tax and spending policies, while recognizing that actual outcomes typically differ from projected results.

CBO's projections, including those concerning federal debt, are based in part on its economic forecast for the coming decade, which depends on CBO's projections for interest rates, inflation, and growth in productivity, among other variables. Discrepancies between CBO's forecasts and actual economic outcomes can cause significant differences between its baseline budget projections and actual budgetary outcomes. The potential for such discrepancies in other inputs to the baseline also contributes to uncertainty about CBO's projections.

Experience gives some indication of the magnitude of uncertainty surrounding CBO's projections. Between 1985 and 2018, the average absolute error in CBO's projection of debt held by the public for the second year of its baseline (often called the budget year) was 1.7 percent of GDP.² (That calculation excludes the effects of legislation enacted after CBO completed its projections.) By contrast, the average absolute error in sixth-year projections was 7.1 percent of GDP. Errors in the projections of debt tend to compound over time, so the uncertainty surrounding those projections is greater for years farther in the future. For example, in CBO's baseline published in January 2020, federal debt held by the public is

2. See Congressional Budget Office, *An Evaluation of CBO's Past Deficit and Debt Projections* (September 2019), www.cbo.gov/publication/55234.

Table 3-3.

CBO's Projections of Trust Fund Balances

Billions of Dollars

	Actual, 2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Social Security ^a	2,901	2,900	2,873	2,813	2,715	2,576	2,398	2,183	1,925	1,621	1,266	857
Civilian Retirement ^b	960	960	973	986	998	1,009	1,019	1,029	1,040	1,050	1,060	1,070
Military Retirement	827	917	1,022	1,126	1,239	1,363	1,485	1,612	1,630	1,641	1,661	1,676
Medicare	303	276	258	221	182	144	109	114	114	97	103	83
Unemployment Insurance	84	87	89	86	80	75	76	77	79	80	80	80
Airport and Airway	15	15	14	14	14	15	15	16	17	18	20	21
Other ^c	155	149	137	134	137	140	143	146	149	152	155	158
Total	5,246	5,303	5,366	5,381	5,365	5,322	5,244	5,177	4,953	4,659	4,346	3,946
Memorandum:												
Railroad Retirement (Non-Treasury holdings) ^d	26	25	24	22	22	21	20	19	19	18	18	18

Source: Congressional Budget Office.

a. Consists of the trust funds for Old-Age and Survivors Insurance and Disability Insurance.

b. Consists of Civil Service Retirement, Foreign Service Retirement, and several small retirement funds.

c. Primarily the Highway Trust Fund and the trust funds for federal employees' health and life insurance, Superfund, and various insurance programs for veterans.

d. The Railroad Retirement and Survivors' Improvement Act of 2001 established the National Railroad Retirement Investment Trust, which is permitted to invest in non-Treasury securities, including stocks and corporate bonds. The trust also holds a small amount of Treasury securities, included in "Other."

projected to equal 89 percent of GDP in 2025.³ Taking into account errors in past projections, CBO estimates that there is approximately a two-thirds chance that, under current law, federal debt would be between 80 percent and 98 percent of GDP in that year.

The Long-Term Outlook for Debt

Beyond the coming decade, the fiscal outlook is daunting. In CBO's projections, growing budget deficits boost federal debt dramatically over the next three decades. Although long-term projections are highly uncertain, the aging of the population generally and the growth in per capita spending on health care would almost certainly boost federal outlays as a percentage of GDP after 2030 if current laws generally remained in place. Outlays would rise even more because of markedly higher interest costs, driven by projected increases in federal borrowing. Federal revenues also would continue to increase relative to GDP, but they would not keep pace with outlays. As a result, by 2050, debt is projected to reach 180 percent

of GDP—far higher than any percentage previously recorded in the United States.

Consequences of Growth in the Debt

If federal debt as a percentage of GDP continues to rise at the pace of CBO's current-law projections, the economy would be affected in two significant ways: Growth in the nation's debt would dampen economic output over time, and higher interest costs would increase payments to foreign debt holders and thus reduce the income of U.S. households by rising amounts.

The increases in debt that CBO projects would also pose significant risks to the fiscal and economic outlook, although those risks are not currently apparent in financial markets. In addition, high debt might cause policymakers to feel constrained from implementing deficit-financed fiscal policy to respond to unforeseen events or for other purposes, such as to promote economic activity or strengthen national defense. Negative economic and financial effects that were less abrupt but still significant—such as expectations of higher inflation or an increased burden of financing public and private activity—would also have a greater chance of occurring.

3. See Congressional Budget Office, *The Budget and Economic Outlook: 2020 to 2030* (January 2020), Box 1-1, www.cbo.gov/publication/56020.

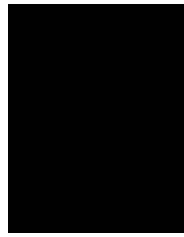
Those effects would worsen the consequences associated with high and rising federal debt.

U.S. debt is high by historical standards and projected to continue rising. High and rising federal debt increases the likelihood of a fiscal crisis because it erodes investors' confidence in the government's fiscal position and could result in a sharp reduction in their valuation of Treasury securities, which would drive up interest rates on federal debt because investors would demand higher yields to purchase Treasury securities. However, the debt-to-GDP ratio has no identifiable tipping point because the risk of a crisis is influenced by other factors, including the long-term budget outlook, near-term borrowing needs, and the health of the economy. Moreover, because the United States currently benefits from the dollar's position as the world's reserve currency and because the federal government borrows in dollars, a financial crisis—similar to those that befell Argentina, Greece, or Ireland—is less likely in the United States. Although no one can predict

whether or when a fiscal crisis might occur or how it would unfold, the risk is almost certainly increased by high and rising federal debt.

Not all effects of the projected path of debt are negative, however. In addition to allowing policymakers to maintain current-law spending and revenue policies, that path would cause underlying interest rates to be higher than they otherwise would be, giving the Federal Reserve more flexibility in implementing monetary policy.

Nevertheless, to put debt on a sustainable path, lawmakers would need to significantly change tax and spending policies—increasing revenues more than under current law, reducing spending below projected amounts, or adopting some combination of those approaches. In all likelihood, the more time that passes before changes are made, the greater the burden those changes will place on future generations.



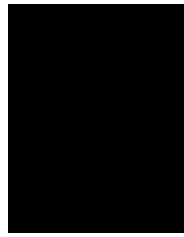
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About This Document

This report was prepared at the request of the Chairman of the Senate Committee on the Budget and the Ranking Member of the House Committee on the Budget to provide background on the Congressional Budget Office's baseline projections of federal debt. It updates earlier work (Congressional Budget Office, *Federal Debt and Interest Costs*, December 2010, www.cbo.gov/publication/21960). In keeping with CBO's mandate to provide objective, impartial analysis, this report makes no recommendations.

Avi Lerner wrote the report with guidance from Christina Hawley Anthony, Theresa Gullo, Leo Lex, and Sam Papenfuss. Michael Falkenheim, Edward Gamber, John Kitchen, John Seliski, and Jeffrey Werling provided comments.

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CBO seeks feedback to make its work as useful as possible. Please send comments to communications@cbo.gov.

Phillip L. Swagel
Director
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