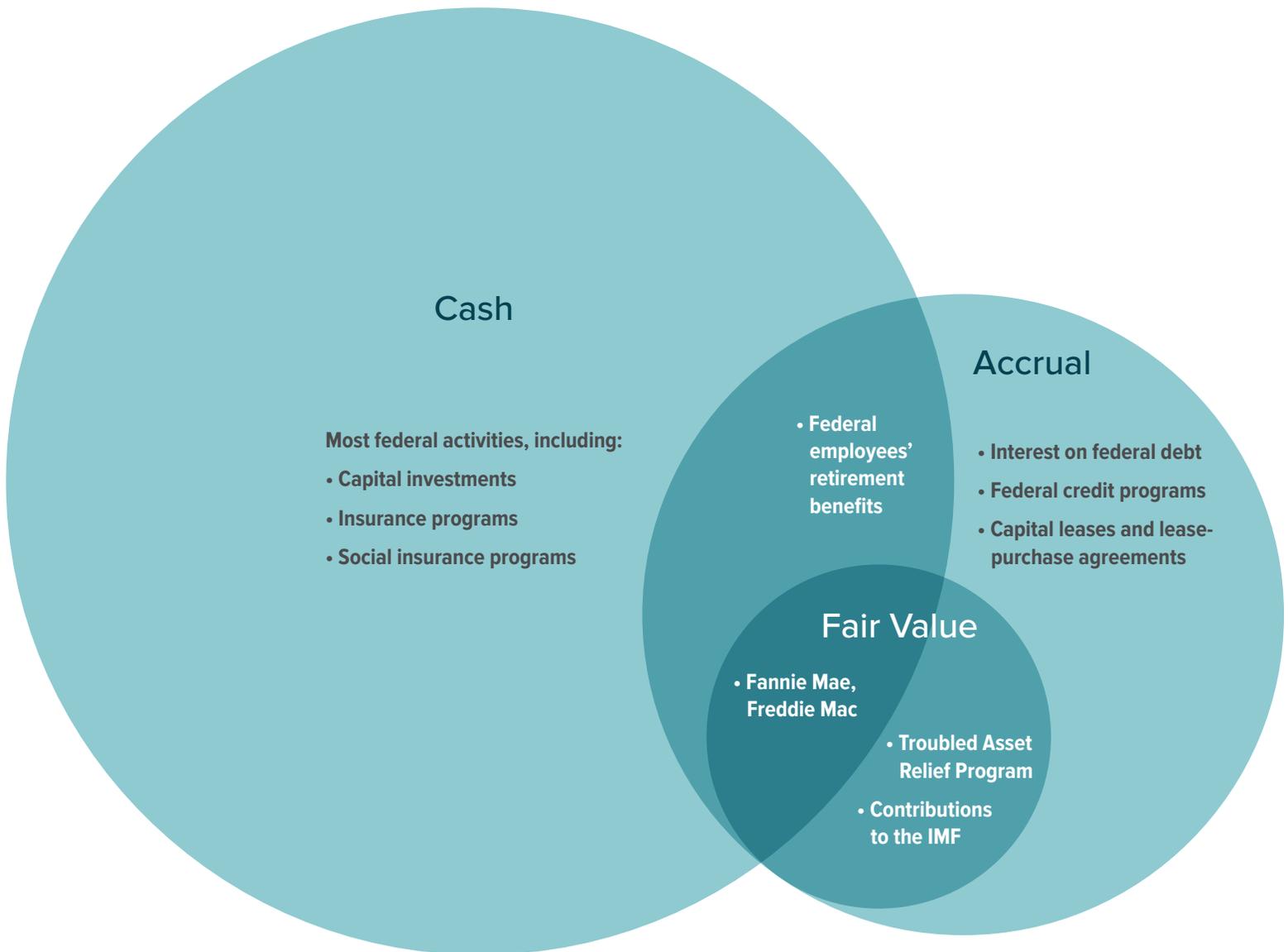


CBO

Cash and Accrual Measures in Federal Budgeting





Contents

Summary	1
What Roles Do Cash and Accrual Measures Play in the Federal Budget Process?	1
What Are the Advantages and Disadvantages of Cash and Accrual Measures?	2
What Are the Criteria for Assessing Information Provided by Cash and Accrual Measures?	2
What Are Potential Approaches for Selectively Expanding the Use of Accrual and Other Long-Term Measures in the Federal Budget Process?	2
Overview of the Federal Budget Process	3
BOX 1. THE FEDERAL BUDGET PROCESS AND BUDGET ENFORCEMENT PROCEDURES	4
An Illustration of Cash Versus Accrual Measures	5
The Role of Cash and Accrual Measures in the Federal Budget Process	6
Accrual-Based Budgetary Treatment	6
BOX 2. ILLUSTRATING ALTERNATIVE BUDGETARY TREATMENTS: ESTIMATING THE SAVINGS FROM LIMITING FORGIVENESS OF GRADUATE STUDENT LOANS	10
BOX 3. ACCOUNTING FOR MARKET RISK IN ACCRUAL-BASED ESTIMATES	14
Other Measures Used in the Federal Budget Process	16
Advantages and Disadvantages of Cash and Accrual Measures	18
BOX 4. INTERNATIONAL EXPERIENCE WITH ACCRUAL BUDGETING: WHAT ARE THE LESSONS?	20
Expanding the Use of Accrual Measures in the Federal Budget and Budget Process	22
Criteria for Assessing Information Provided by Cash and Accrual Measures	22
Approaches to Expanding the Use of Accrual and Other Long-Term Measures in the Federal Budget Process	26
About This Document	29
Tables	
1. Estimates of the Costs of Legislation Authorizing Illustrative Settlements Using Alternative Measures	7
2. Accrual and Long-Term Measures Used in the Federal Budget Process	9
3. Comparing Cash and Accrual Measures of Costs	19
4. Assessing 10-Year Cash and Accrual Measures of Selected Noncredit Federal Programs	23
Figures	
1. Current Budgetary Treatment for Selected Federal Programs	8
2. The Budgetary Treatment of Federal Credit Programs With Positive Subsidy Costs	12



Cash and Accrual Measures in Federal Budgeting

Summary

The federal budget serves many important functions, including tracking the government's cash flows, serving as a key instrument in national policymaking, summarizing how fiscal policy changes over time, and communicating the nature and scope of governmental activities. The net costs of federal activities are estimated throughout the federal budget using two fundamentally different accounting measures—cash accounting and accrual accounting. The principal difference between cash and accrual accounting lies in the timing of when the commitment (or collection) of budgetary resources is recognized. Transactions in cash-based accounting are recorded when payments are actually made or receipts collected. By contrast, accrual measures summarize in a single number the anticipated net financial effects at a specific point in time of a commitment that will affect federal cash flows many years into the future. That is, accrual methods record the estimated value of expenses and related receipts when the legal obligation is first made rather than when subsequent cash transactions occur. Currently, most federal activities are recorded in the budget on a cash basis, with the major exception of federal credit programs, which are recorded on an accrual basis.

Whether programs are accounted for on a cash or an accrual basis can, in some cases, significantly affect the size and timing of their estimated deficit effects. Cash-based estimates used in the budgeting process generally reflect costs over the 10-year period on which the process focuses, but that period may not be long enough to capture the full extent of some activities' effects. Accrual-based estimates that consider long-term effects provide more complete information about programs that involve longer time frames. Such estimates could give lawmakers a tool to use in setting and enforcing targets for long-term deficit control because, for the purposes of Congressional budget enforcement procedures, legislative proposals would receive credit (or be charged) within the 10-year budget horizon for the ultimate effects of

provisions that would save (or cost) money over a longer period. For example, accrual estimates might provide useful information about the net costs of changes in federal retirement benefits and in a limited number of federal insurance programs. In addition, some analysts believe accrual-based estimates would provide particularly useful information about certain social insurance programs because of their long time frames and the magnitude of cash flows involved.

This report discusses the relative merits of cash and accrual measures and explores the implications of expanding the use of accrual measures for decisionmaking purposes. In subsequent reports, the Congressional Budget Office will examine in greater detail how an accrual treatment would differ from the current cash treatment for specific types of programs.

What Roles Do Cash and Accrual Measures Play in the Federal Budget Process?

Measures of budgetary effects inform policymakers' decisions about how to allocate limited federal resources. Lawmakers rely on estimates of such effects to determine how legislative proposals would affect the federal deficit and whether they would trigger statutory or legislative "budget enforcement" procedures that are designed to control revenues, spending, and deficits.

The federal budget currently reports the costs of nearly all commitments on a cash basis. The rationale for that approach is that cash measures are simple, understandable, and can be used to reliably estimate most programs' fiscal effects. However, the costs of some commitments with long-term budgetary effects are reported on an accrual basis. For instance, the Federal Credit Reform Act of 1990 (FCRA) requires federal direct loans and loan guarantees—for which cash flows typically extend well beyond the 10-year budget horizon—to be recorded in the budget on an accrual rather than a cash basis. For such programs, the budget records a single payment or receipt that represents the net present value of expected

future cash flows. Policymakers made the switch to more accurately measure the full net cost of credit programs over the long term and to facilitate comparisons of the net cost of direct loans, loan guarantees, and grants. In addition, certain transactions related to federal retirement benefits are reported on an accrual basis in agencies' budgets (in order to measure some of the long-term costs of current employees), but the overall budget totals reflect current-year cash flows—the government's payments to annuitants and employees' contributions to the retirement funds.

What Are the Advantages and Disadvantages of Cash and Accrual Measures?

Cash and accrual measures have competing advantages and disadvantages in the budget:

- Cash measures are transparent, verifiable, and track changes in debt held by the public. They also work well for programs with short timing lags.
- However, the cash measures used in the federal budget process may provide incomplete information about some programs that involve future commitments because the 10-year window truncates the budgetary effects. For example, cash measures fail to show the liability that taxpayers incur in a given year for federal employees' accrued retirement benefits and the long-term costs or savings that would result from changes in those benefits. In such cases, cash projections that extend farther into the future can highlight long-term trends, even if they are not an integral part of the budget process.
- In combination with truncated time horizons, cash accounting introduces opportunities for policymakers to adjust budgetary outcomes through timing shifts—that is, by instituting nonsubstantive policies that simply delay payments or accelerate receipts without materially changing their underlying value.
- Accrual measures succinctly convey whether policy changes are expected to increase or decrease the deficit over the long term, thereby facilitating comparisons of the net cost of programs with cash flows that differ in timing (or exposure to market risk) and potentially improving lawmakers' opportunity to control long-term costs when commitments are initially made.¹
- Accrual estimates, however, are methodologically complex, sensitive to technical assumptions, subject to the uncertainties of projecting program activity far into the future, and therefore more volatile and harder to explain and understand than cash measures.
- Increasing the use of accrual measures in the budget would require new account structures and reestimates to reconcile present-value estimates with actual cash flows.

What Are the Criteria for Assessing Information Provided by Cash and Accrual Measures?

CBO has identified three criteria to assess the trade-offs between the 10-year cash measures now used in the federal budget process and accrual measures that reflect budgetary effects over longer periods:

- Do the measures convey complete information about budgetary effects? That is, do they correctly indicate whether programs have net costs or savings and provide a reasonable sense of the magnitude of such effects?
- Is the government's commitment of future resources firm enough to record future cash flows before they occur? Budget projections generally reflect anticipated cash flows stemming from future commitments as long as they are probable under current laws and policies; but the case for accrual measures may be stronger for commitments that are legally binding or otherwise firm and that require no further Congressional action to ensure that agencies have sufficient resources to pay for them.
- Can underlying long-term cash flows be projected and discounted with sufficient accuracy so that accrual measures can be reliably used in the budget process?

What Are Potential Approaches for Selectively Expanding the Use of Accrual and Other Long-Term Measures in the Federal Budget Process?

For programs where accrual measures are judged to be useful, the Congress could require such measures for all aspects of budgetary treatment and accounting; expand the use of accrual measures only for the Congressional budget process; or use those measures as supplemental information.

1. Market risk is a component of financial risk that remains even with a well-diversified portfolio and is correlated with macroeconomic conditions.

- Requiring accrual-based budgetary treatment and accounting, as was done for federal credit programs, would change measures of how programs affect the budget deficit and would require new account structures and periodic revisions to estimates. Because the basis of measurement would be consistent throughout the federal budget process, lawmakers would have a reasonable idea of how their decisions about resource allocation would ultimately affect the Administration's execution of statutory budget enforcement mechanisms.
- Using accrual estimates only for purposes of Congressional budget enforcement would change legislative cost estimates and might affect decisions about the allocation of resources. That approach would be less burdensome than reporting accrual estimates in the budget, which would remain cash-based. However, because the allocation of resources across federal programs might ultimately depend on how the Administration executes statutory requirements related to budget enforcement, using different measures for Congressional and statutory budget enforcement could cause confusion.
- Using accrual estimates as supplemental information would allow policymakers to judge their value without changing the budget numbers or budget enforcement procedures.

Overview of the Federal Budget Process

The federal budget is a measure of the overall scope and magnitude of federal activities that involve the spending or collection of money under existing laws. It is also the primary tool that lawmakers use to allocate the government's resources among competing priorities and to promote economic growth and prosperity. The 1967 *Report of the President's Commission on Budget Concepts* concluded that, in addition to its role in national policymaking, the budget must be understandable to the public, as well as to lawmakers.² It should convey the overall size of government relative to the economy, as well as the relative size of different government programs. Estimates of budget totals should be useful for analyzing the impact of federal spending and tax revenues on the economy,

2. See President's Commission on Budget Concepts, *Report of the President's Commission on Budget Concepts* (October 1967), pp. 11–23, <http://tinyurl.com/y7lxv3gp>.

informing the government's borrowing needs, and measuring the public debt.

The federal budget *process* is the mix of procedures that the President and the Congress use to consider, enact, and execute the laws that allocate those resources. That process is governed by various rules and procedures for meeting budgetary goals through the use of enforcement mechanisms that aim to control revenues, spending, and deficits on the basis of estimates prepared by both the Congressional Budget Office and the Office of Management and Budget (OMB).³

Most estimates of how federal activities would affect the federal deficit reflect cash-based measures of costs over a 10-year period. That period begins with the budget year—the upcoming fiscal year for which the Congress must enact new legislation to allow federal agencies to continue operating—and spans nine subsequent years. However, the costs of some federal commitments with long-term budgetary effects—in particular, the government's credit programs—are recorded in the budget (and in legislative cost estimates) on an accrual basis, showing net budgetary effects when commitments are made rather than when subsequent cash transactions occur.

To aid in Congressional deliberations, CBO prepares 10-year projections of federal cash flows and the resulting federal deficit. For the most part, CBO's budget projections incorporate the assumption that current laws governing taxes and spending in future years remain in place. CBO's estimates of the budgetary effects of proposed legislation are estimated relative to those projections.⁴

Whereas CBO provides estimates for use during Congressional deliberations, OMB's estimates are incorporated in the President's budget proposals and are used in implementing certain statutory requirements. For example, if newly enacted laws are estimated to cause certain limits to be breached, OMB must cancel

3. The Office of Management and Budget in the executive branch—referred to in this report as the Administration—is responsible for projecting cash flows related to enacted legislation in the federal budget. Its budgetary treatment of activities may differ from the treatment CBO uses in its cost estimates.

4. The Joint Committee on Taxation is a nonpartisan Congressional committee that assists Members with tax legislation. The staff of the Joint Committee on Taxation, not CBO, estimates the revenue effects of tax proposals.

Box 1.

The Federal Budget Process and Budget Enforcement Procedures

The federal budget process is an amalgam of procedures, developed over time, that policymakers in the legislative and executive branches use to plan, establish, control, and account for spending and revenue policies. It involves three main phases: the formulation of the President's budget proposals by the executive branch, the Congressional process for budgetary decisionmaking, and the execution of enacted budget-related legislation. The process is governed by various rules and procedures for meeting budgetary goals and enforcement mechanisms that aim to control revenues, spending, and deficits on the basis of estimates prepared by both the Congressional Budget Office and the Office of Management and Budget (OMB). Those enforcement mechanisms—as well as estimates of budgetary effects used to execute them—recognize the fundamental distinction between the three primary components of the federal budget:

- *Discretionary spending*—spending stemming from authority provided in annual appropriation acts;
- *Mandatory (or direct) spending*—spending controlled by laws other than appropriation acts; and
- *Revenues*—tax receipts and other collections stemming from the federal government's use of sovereign power.

Formulation of the President's Budget

OMB generally handles the formulation of the President's budget, on the basis of proposals and estimates provided by other agencies. That budget is essentially a request to the Congress to enact new legislation as necessary to implement the Administration's policies regarding spending and revenues. The budget recommends overall levels of spending and revenues for the coming fiscal year (the "budget year") and, usually, nine subsequent years; specifies how resources should be allocated among federal activities; and, in some cases, proposes changes to laws aimed at achieving those budgetary goals. It also includes detailed information about spending and revenues in the current year and the prior year. No budget enforcement procedures apply to the President's request. OMB usually transmits the budget to the Congress in February.

The Congressional Budget Process

The Congressional budget process provides the means for lawmakers to establish their own fiscal and budgetary goals and ensure that new legislation would comply with those goals. As envisioned in the Congressional Budget Act of 1974,

Congressional consideration of budgetary issues centers on a budget resolution, which, like the President's budget, sets forth an overall budget plan for the upcoming budget year (and usually nine subsequent years) and allocates resources among federal activities.¹ The budget resolution is enforced in each House of Congress—usually on the basis of estimates prepared by CBO and the Joint Committee on Taxation—through procedural mechanisms that are set forth in law and in the rules of each House.² Lawmakers use two principal mechanisms to ensure that proposed legislation complies with budgetary goals specified in a budget resolution:

- *Points of order*—parliamentary objections that lawmakers can raise against proposed legislation that would violate certain Congressional rules, particularly pay-as-you-go rules (described below) that prohibit the consideration of legislation estimated to have certain budgetary effects.
- *Reconciliation*—a parliamentary process that the Congress sometimes uses to reconcile spending and revenue amounts determined by legislation for a given fiscal year with amounts set in the budget resolution. When used, that process is triggered by reconciliation instructions in the budget resolution, which direct Congressional committees to propose changes in laws under their jurisdictions to achieve a specified budgetary result. Special rules govern Congressional consideration of reconciliation legislation.

Budget Execution

OMB generally handles budget execution—that is, OMB apportions the budgetary resources to executive branch agencies. The budget execution process also involves periodic execution reports by agencies, the recording of actual spending in the budget, preparation of accrual-based financial statements, and audits to verify that such financial statements track with underlying cash flows. OMB also determines, usually on the basis of its own estimates, whether new legislation enacted for a given fiscal year, in total, triggers statutorily prescribed mechanisms for budget enforcement and, if necessary, executes

1. Congressional resolutions are not presented to the President and do not have the force of law. In some years, the full Congress adopts a concurrent budget resolution that governs budget enforcement in both the House and the Senate. In other years, the chambers adopt separate resolutions or none at all.
2. See Congressional Budget Office, "Frequently Asked Questions About CBO Cost Estimates," www.cbo.gov/about/products/ce-faq.

Box 1.

Continued

The Federal Budget Process and Budget Enforcement Procedures

such mechanisms. Statutory mechanisms for controlling discretionary spending differ from those used to control mandatory spending and revenues.

Discretionary spending is limited by *caps on new discretionary appropriations* that were originally specified in the Budget Control Act of 2011 (BCA) and modified by subsequent legislation. Under current law, separate caps exist for defense and nondefense spending through 2021. If OMB determines that the total amount of discretionary funding provided in appropriation acts for a given year exceeds the cap for either category, the President must cancel new budgetary authority (following procedures specified in the BCA) to eliminate the breach.

Mandatory spending and changes to revenues are controlled through two enforcement mechanisms. First, *pay-as-you-go (PAYGO) procedures* (specified in the Statutory Pay-As-You-Go Act of 2010) require new legislation enacted during a given session of Congress with effects on mandatory spending or revenues to be deficit-neutral over specified periods of time. In other words, policy changes that would increase direct spending or reduce revenues must be offset by other changes that would reduce other direct spending or increase revenues.

(Introducing more accrual estimates to the budget would affect the size of the changes and give policymakers an incentive to pursue policies that would reduce costs far into the future to offset near-term increases in other spending or reductions in taxes.) That statutory PAYGO requirement applies not to individual pieces of legislation but rather to the cumulative net effect of all new laws enacted during a Congressional session. If, at the end of a session, OMB estimates that newly enacted legislation would violate that requirement, the President must order a sequestration—or across-the-board cut—of certain mandatory spending programs to offset the net cost of the new laws. In addition, under current law, *automatic sequestrations of mandatory spending* are scheduled to occur each fiscal year over the 2018–2025 period.³

3. Those automatic reductions were originally prescribed by the BCA, which established the Joint Select Committee on Deficit Reduction to propose legislation to reduce federal deficits by a total of \$1.2 trillion over a 10-year period. The BCA specified that unless lawmakers enacted legislation that achieved such savings, the automatic reductions would occur, without further legislation, through 2021. Those automatic reductions have since been extended into later years by subsequent legislation, most recently the Bipartisan Budget Act of 2015.

some new funding following statutorily specified procedures (a process called sequestration). To guard against triggering such reductions, lawmakers use certain procedures—outlined both in law and in rules that govern parliamentary procedures—to ensure that proposed legislation complies with budgetary goals established by the Congress (see Box 1).

An Illustration of Cash Versus Accrual Measures

The choice of whether to use cash or accrual measures as the basis for decisions about how to allocate resources affects both how costs are reported to the Congress and the public and how policymakers apply budget enforcement mechanisms. The basis used to estimate the size and timing of programs' budgetary effects has significant implications for how policymakers apply those mechanisms.

Cash and accrual measures differ when there are substantial lags between the time when budgetary commitments are made and the resulting cash flows occur. Whereas transactions in cash-based accounting are recorded

when payments are made or receipts collected, accrual estimates translate expected future cash flows into a present value that is comparable to a single equivalent amount at one point in time. Net present-value estimates adjust future payments (or income) for the time value of money—specifically, by discounting the value of future cash flows. Discounting recognizes that a dollar in the future is worth less than a dollar today because of the interest that could have been earned on that dollar in the meantime. Analysts begin by projecting the stream of cash flows they expect will result from a particular activity. To the extent practicable, such projections cover the entire period over which such effects are expected to occur. Analysts can then calculate the present value of that stream of cash flows by discounting each amount to current dollars and summing the resulting series. The higher the discount rate, the lower the present value of future cash flows. As a result, present-value calculations and other accrual measures depend on estimates of both cash flows and discount rates.

To illustrate the differences between the two approaches, suppose that lawmakers are considering legislation that

would authorize a settlement under which the federal government agreed to make payments to the affected parties equaling \$3 million annually for 10 years. A cash-based estimate would project outlays of \$3 million annually—or \$30 million over the 10-year budget window—equal to the nominal amount paid to the parties over the 10-year period (see Table 1). By contrast, on an accrual basis, the cost estimate would report, up front in the year the commitment was made, a present-value estimate equal to the discounted value of the annual payments to be made in future years. At a discount rate of 2 percent, the present value of payments to the parties would total \$26.9 million. Accrual estimates must ultimately be reconciled with the actual cash flows, which would still need to be tracked.⁵

In the context of the 10-year federal budget horizon, projections of budgetary effects under cash and accrual measures diverge for activities in cases where budgetary effects are expected to continue in later years. For such activities, if a cash measure is used, the 10-year budget window truncates the effects. The greater the magnitude of budgetary effects projected beyond the first 10 years, the greater the divergence. For example, suppose instead that the settlement entered into by the government would require payments to continue for 20 years. A cash-based estimate of costs used for the Congressional budget process would remain unchanged at \$30 million over 10 years (though CBO's estimate would disclose, as supplemental information, additional spending of \$30 million outside the projection period). By contrast, at a discount rate of 2 percent, an accrual-based cost estimate would account for all of the projected spending up front, reporting \$49.1 million as the present value of federal commitments entered into in the first year of the settlement.

The Role of Cash and Accrual Measures in the Federal Budget Process

With very few exceptions, the federal budget reports the costs of its commitments on a cash basis. That budgetary treatment applies to the government's largest programs—including Social Security, Medicare, and Medicaid—and the bulk of defense and nondefense spending that is governed by the annual appropriation process (see Figure 1).

5. In this case, the Treasury would pay 2 percent interest annually on the undistributed sums, which would be held in nonbudgetary accounts, and those interest outlays together with the original present-value amount would bring total outlays to \$30 million over 10 years.

However, the costs of some federal commitments with long-term budgetary effects—primarily loans and loan guarantees to nonfederal entities—are reported and reflected in the budget totals on an accrual basis. (Certain transactions related to federal retirement benefits are reported on an accrual basis in agencies' budgets, but the overall budget totals reflect the government's payments to annuitants and employees' contributions to the retirement funds on a cash basis.)

Usually, CBO's cost estimates are prepared using the same basis of measurement that the Administration uses to measure and report the net cost (or savings) of transactions as it executes those activities. However, for the purpose of applying Congressional rules related to budget enforcement, lawmakers require CBO to prepare cost estimates for certain types of legislative proposals on an accrual basis even though the budget accounts for those affected activities on a cash basis. In other situations, CBO also provides information about long-term budgetary effects on a supplemental basis (see Table 2 on page 9).

Accrual-Based Budgetary Treatment

Currently, the use of accrual measures in the budget is governed by laws that specify such budgetary treatment for particular programs or activities, or particular types of programs. Accrual-based budgeting is mostly confined to activities that are financial in nature, including federal credit programs, the Troubled Asset Relief Program, U.S. contributions to the International Monetary Fund, and certain kinds of leases involving capital assets (see Figure 1).⁶ The budget also reports the federal government's interest costs as outlays when they accrue, not when they are paid; however, the difference between the cash and accrual measures is small for most of the

6. The budget records the cost of capital leases and lease-purchase agreements up front on a present-value basis but records annual payments for operating leases on a cash basis. See Office of Management and Budget, *Appendix B—Budgetary Treatment of Lease-Purchases and Leases of Capital Assets*, OMB Circular No. A-11 (August 2017), www.whitehouse.gov/omb/circulars_a11_current_year_a11_toc. In addition, see Congressional Budget Office, *Report on the Troubled Asset Relief Program—June 2017* (June 2017), www.cbo.gov/publication/52840; *The Budgetary Effects of the United States' Participation in the International Monetary Fund* (June 2016), www.cbo.gov/publication/51663; *CBO's Budgetary Treatment of Fannie Mae and Freddie Mac* (January 2010), www.cbo.gov/publication/41887; and *The Budgetary Treatment of Leases and Public/Private Ventures* (February 2003), www.cbo.gov/publication/14257.

Table 1.

Estimates of the Costs of Legislation Authorizing Illustrative Settlements Using Alternative Measures

Millions of Dollars, by Fiscal Year

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2018– 2027
Case 1: Settlement Under Which \$3 Million Is Paid Out Annually for 10 Years											
Cash Outlays	3	3	3	3	3	3	3	3	3	3	30
Accrual Outlays ^a	26.9	0	0	0	0	0	0	0	0	0	26.9
Case 2: Settlement Under Which \$3 Million Is Paid Out Annually for 20 Years											
Cash Outlays	3	3	3	3	3	3	3	3	3	3	30
Accrual Outlays ^a	49.1	0	0	0	0	0	0	0	0	0	49.1

Source: Congressional Budget Office.

Transactions in cash-based accounting are recorded when payments are actually made or revenues received. Accrual measures summarize in a single number the anticipated net financial effects at a specific point in time of a commitment that will affect federal cash flows many years into the future. That is, accrual methods record expenses when the commitment is first made rather than when subsequent cash transactions occur.

a. Assumes a fixed discount rate of 2 percent.

Treasury’s debt issues.⁷ In all of those cases, federal agencies record ongoing cash flows that underlie accrual measures, but the accrual measures—rather than actual cash flows—are used in calculating the budget deficit.

FCRA-Based Budgetary Treatment. The Federal Credit Reform Act of 1990 specifies an accrual-based budgetary treatment for federal loans and loan guarantees. That treatment was largely intended to more accurately measure the cost of federal credit programs so they could be readily compared with other activities and to improve the allocation of budgetary resources.⁸ Specifically, under cash budgeting, even when underlying credit risks were similar, direct loans disbursed to nonfederal borrowers generally appeared to be more expensive over a 10-year period than guaranteed loans (where the government commits to make payments to a nonfederal lender in the event of a default by a borrower)—simply because of differences in the timing of federal outflows and inflows stemming from such commitments. Whereas direct loans involve up-front outlays when loans are disbursed and

gradual streams of repayments in later years, guaranteed loans typically generate up-front fees followed by federal payments in later years to cover defaults. Consequently, direct loans appeared as expensive as grants (or other more direct forms of financial assistance) in the first year, whereas loan guarantees appeared free in the year that they were made. As a result of the long lags in timing (because the term of most credit commitments extends well beyond the 10-year budget horizon), cash accounting made it difficult to compare the cost of either type of loan commitment with the cost of outright grant assistance or other types of spending programs. Thus, cash budgetary treatment gave lawmakers an incentive to favor loan guarantees over direct loans and grants without regard to the overall costs of credit.

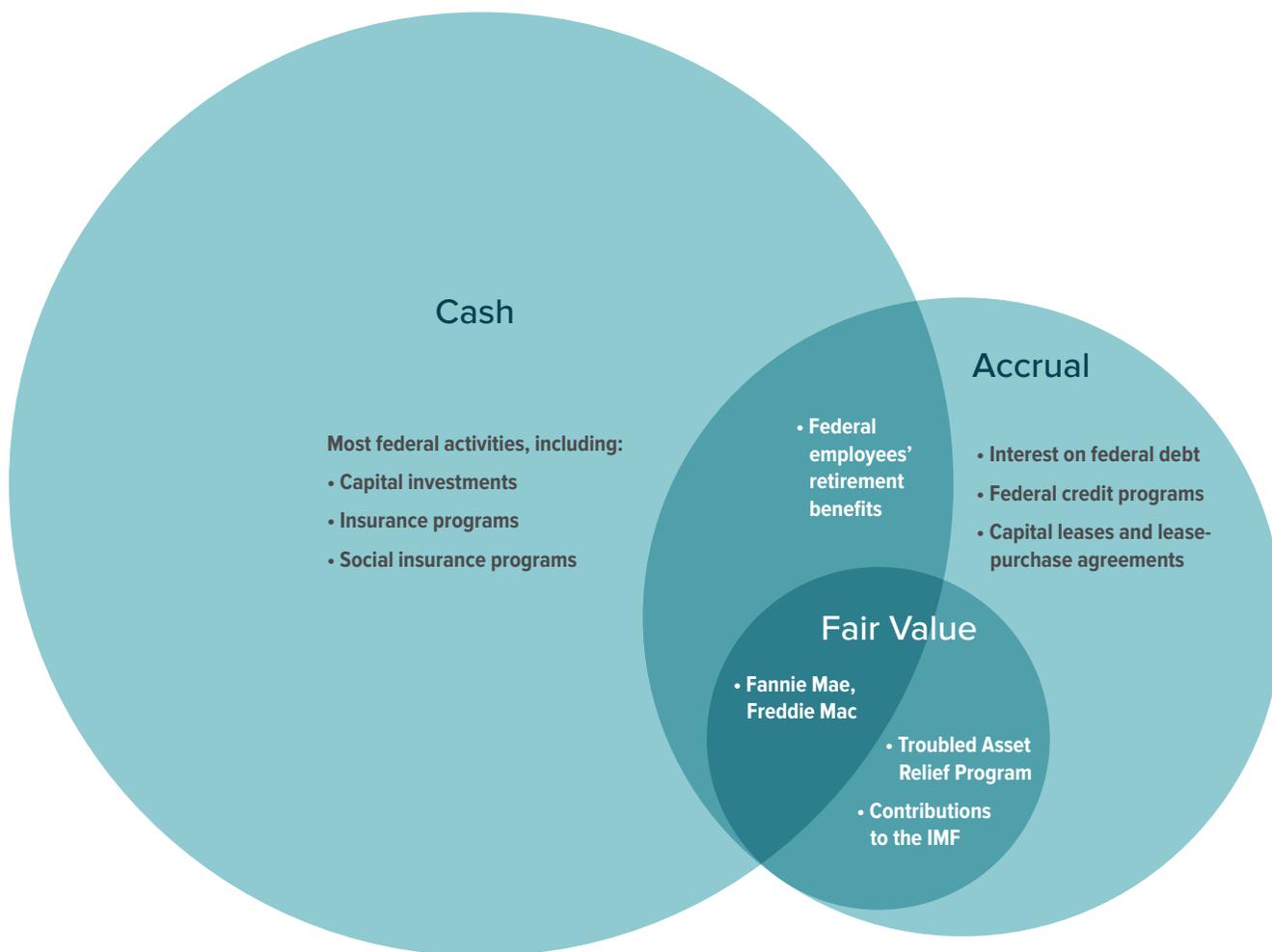
Under FCRA, the budget reflects the anticipated net cost (or savings) of loans or loan guarantees—known as the subsidy cost—on an accrual basis at the time the loan is disbursed. Subsidy costs represent the estimated net present value of the federal government’s expected cash flows stemming from a credit commitment over the life of the loan discounted back to the date of disbursement. Analysts take into account whatever information is available at the time of the commitment to inform judgments about the risk of default and the likelihood of recoveries in the event of default. Subsidy costs can be positive or negative. Positive subsidy rates mean that a credit program has a net cost, and thus funding must be available

7. Differences in timing are more pronounced for the inflation adjustments to the principal of outstanding Treasury inflation-protected securities, which have maturities of 5, 10, and 30 years; those adjustments are also measured on an accrual basis. See Congressional Budget Office, *Federal Debt and Interest Costs* (December 2010), www.cbo.gov/publication/21960.

8. Sec. 501 of the Federal Credit Reform Act of 1990, P.L. 93-344 (codified at 2 U.S.C. §661 (2016)).

Figure 1.

Current Budgetary Treatment for Selected Federal Programs



Source: Congressional Budget Office.

Transactions in cash-based accounting are recorded when payments are actually made or revenues received. Accrual measures summarize in a single number the anticipated net financial effects at a specific point in time of a commitment that will affect federal cash flows many years into the future. That is, accrual methods record expenses when the commitment is first made rather than when subsequent cash transactions occur. The fair-value approach reflects the market value of the federal government's obligations.

IMF = International Monetary Fund.

to cover the subsidy costs.⁹ Negative subsidy rates occur when income from interest, fees, or both is expected to exceed the government's outlays on a net present-value basis.¹⁰ For example, under the methodology specified in

FCRA for estimating subsidy rates, the Federal Housing Administration's single-family guaranteed loan program and the Department of Education's direct student loan program have negative subsidy rates (see Box 2).¹¹

9. For discretionary credit programs, the Congress appropriates the subsidy cost (if positive).

10. In the case of negative subsidy rates, the financing account—a below-the-line account used to track cash flows stemming from credit commitments—makes a payment to an on-budget receipt account.

11. Some direct student loan programs have positive subsidy rates, but on average, the subsidy rate for the entire direct loan program is negative. See Office of Management and Budget, *Budget of the U.S. Government, Fiscal Year 2018: Federal Credit Supplement* (May 2017), pp. 2 and 5, www.whitehouse.gov/omb/budget/Supplemental.

Table 2.

Accrual and Long-Term Measures Used in the Federal Budget Process

Activities for Which Accrual Measures Apply to All Aspects of Budgetary Treatment and Accounting	Activities for Which Accrual and Other Long-Term Measures May Be Used for Congressional Budget Enforcement ^b	Accrual and Long-Term Measures Provided for Informational Purposes
Federal direct loans and loan guarantees (FCRA basis)	Sales of federal assets ^c	<i>The Long-Term Budget Outlook</i> (cash basis, expressed as a percentage of GDP)
Troubled Asset Relief Program (fair-value basis)	Currency modernization (net present-value basis of budgetary effects over 30 years)	Measures of the fiscal gap (net present value as a percentage of GDP)
Contributions to the International Monetary Fund (fair-value basis)	Energy savings performance contracts and utility energy services contracts ^d	Long-term estimates for major legislation (cash basis) ^f
Agencies' annual contributions to federal retirement funds ^a	Fannie Mae and Freddie Mac (fair-value basis) ^e	Federal direct loans and loan guarantees (fair-value estimates provided in addition to FCRA estimates)
Capital leases and lease-purchase agreements	For all legislation: statement of whether direct spending and revenue effects exceed certain thresholds	
Federal interest costs	For legislation with major budgetary effects: long-term cash estimates	

Source: Congressional Budget Office.

A fair-value basis of measurement reflects the prices a well-diversified investor would charge to assume the market risks borne by the government.

A present value is a single number representing the sequence of projected cash flows of an asset or liability in terms of an equivalent lump sum received or paid at a specific point in time.

FCRA = Federal Credit Reform Act of 1990; GDP = gross domestic product; OMB = Office of Management and Budget.

- a. Transactions related to federal retirement programs are recorded using a mix of accrual and cash measures. In general, agencies' annual payments to federal retirement funds are recorded on an accrual basis. However, those payments are intragovernmental and do not affect the budget deficit. Federal payments for benefits to retirees are recorded on a cash basis.
- b. In general, the basis of measurement used for the budget also applies to legislative cost estimates. In limited circumstances, CBO estimates the budgetary effects of proposed legislation using a basis that differs from the underlying cash budgetary treatment of activities. Such instances are rare and usually in direct response to Congressional rules related to budget enforcement. OMB generally estimates the budgetary effects of newly enacted legislation on a cash basis (except when otherwise specified in law) for purposes of executing statutory budget enforcement mechanisms. In some cases, therefore, measures used for purposes of Congressional budget enforcement may differ from those used for statutory enforcement.
- c. The "asset test" requires CBO to estimate, on a net present-value basis, whether the proposed sale of a federal asset would result in net financial costs or savings to the government. The outcome of the test determines whether proceeds from the proposed sale are credited to the legislation (on a cash basis) for purposes of budget enforcement. That test also applies to OMB's preparation of estimates used to execute statutory procedures for budget enforcement.
- d. Applies only to proposals considered in the Senate.
- e. CBO's legislative cost estimates related to Fannie Mae and Freddie Mac present anticipated effects in the current year on a cash basis (consistent with OMB's treatment of those entities in the budget). CBO's baseline projections and legislative cost estimates show budgetary effects in future years on a fair-value basis.
- f. The Congress requires CBO to provide long-term cash estimates for major legislation and under certain other circumstances. In addition, when the information is particularly salient, CBO's legislative cost estimates may include long-term cash estimates as supplemental information.

Because present-value estimates are very sensitive to the choice of discount rate used to translate future cash flows into up-front dollars, using a systematic approach toward discounting is critical to ensuring that estimates can be readily compared. The methodology prescribed for federal credit programs requires agencies to use an estimate

of the government's borrowing cost as the discount rate. Thus, FCRA accounts for the time value of money (that is, the concept that money is worth more today than at some future date because of its ability to earn a return in the interim); but as discussed below, it does not fully account for the cost of risk borne by taxpayers.

Box 2.

Illustrating Alternative Budgetary Treatments: Estimating the Savings From Limiting Forgiveness of Graduate Student Loans

The federal government, through a variety of programs administered by the Department of Education, originates nearly \$100 billion annually in new federal student loans that are issued both to students at institutions of higher education and to their parents. By any measure, those programs, which involve loan terms that may extend for up to 30 years, have large budgetary effects. As a result, the budgetary treatment of student loans has important implications for lawmakers' perceptions of how those programs affect the federal deficit and the incremental effects of policy options.

Currently, budgetary effects related to student loans, like those of all federal credit programs, are recorded in the budget—and in legislative cost estimates—on an accrual basis, as specified by the Federal Credit Reform Act of 1990 (FCRA). Under FCRA, budgetary costs are estimated on a net present-value basis by discounting cash flows to the time of loan disbursement using rates on Treasury securities of comparable maturity. Indeed, policymakers' concerns about whether 10-year cash estimates conveyed appropriate information about the effects of proposals related to student loans was one of the factors that motivated lawmakers to enact FCRA. In particular, before

Alternative Budgetary Treatments for Estimating Savings From Limiting Public Service Loan Forgiveness

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2017– 2026	2017– 2036
Cash Basis^a												
Changes in Direct Spending												
Estimated Budget Authority	0	0	0	0	0	0	0	0	0	0	0	-2,390
Estimated Outlays	0	0	0	0	0	0	0	0	0	0	0	-1,995
Federal Credit Reform Act Basis^b												
Changes in Direct Spending												
Estimated Budget Authority	-200	-365	-455	-575	-710	-850	-1,005	-1,175	-1,315	-1,395	-8,045	-27,630
Estimated Outlays	-115	-270	-375	-475	-585	-710	-840	-985	-1,120	-1,210	-6,685	-23,670
Fair-Value Basis^b												
Changes in Direct Spending												
Estimated Budget Authority	-130	-240	-305	-395	-490	-585	-695	-810	-905	-960	-5,515	-18,985
Estimated Outlays	-75	-180	-250	-320	-405	-490	-580	-680	-770	-835	-4,585	-16,300

Source: Congressional Budget Office.

Estimates of changes in budget authority and outlays are relative to CBO's March 2016 baseline; CBO's economic and technical assumptions have since changed.

Through the Public Service Loan Forgiveness program, certain borrowers who are employed full time in public service can have their entire outstanding loan balance forgiven after 10 years of monthly payments in an income-driven repayment plan. The proposal, for which CBO originally prepared an estimate in 2016, would have limited the amount of loan forgiveness available to new borrowers as of July 1, 2017. Under the proposal, after 10 years of monthly payments, such borrowers could receive a maximum of \$57,000 in loan forgiveness.

- On a cash basis, the proposal would not reflect any savings until after 10 years, when the first borrowers covered by the option would begin to receive loan forgiveness. Estimated savings over the 2017–2036 period reflect additional repayments, attributable to loans issued over the 2017–2026 period, that would occur after 2026.
- CBO's FCRA and fair-value estimates of reductions in budget authority over the 2017–2026 period reflect underlying projections of cash flows attributable to loans disbursed during that period; however, CBO did not project additional cash flows underlying loans that would be disbursed after 2026. Rather, to project continued savings over the 2027–2036 period on a FCRA and fair-value basis, CBO assumed that the annual percentage reduction in budget authority over that period would equal the estimated percentage reduction between 2025 and 2026.

Box 2.

Continued

Illustrating Alternative Budgetary Treatments: Estimating the Savings From Limiting Forgiveness of Graduate Student Loans

the adoption of accrual-based budgetary treatment for all forms of credit assistance to students, cash-based budgeting created incentives for policymakers to favor guaranteed student loans (for which net costs occur gradually over the life of commitments) over direct student loans (for which most of the net costs occur up front, when loans are disbursed). Under FCRA, accrual measures facilitate more direct comparisons of the net costs of all types of credit programs and direct means of federal support.

In addition, CBO often provides estimates for legislative proposals for some credit programs, including student loans, on a fair-value basis that incorporates the agency's estimate of market risk—the risk that taxpayers face because federal receipts from payments on student loans tend to be low when economic and financial conditions are poor and resources are therefore more valuable. Under the fair-value approach, estimates are based on market values—market prices when they are available, or approximations of market prices when they are not—which better account for the risk that the government assumes. As a result, for a proposal that would result in larger loan repayments, the discount rates (or interest rates) used to calculate the present value of those repayments are higher for fair-value estimates than for FCRA estimates, and the budgetary savings from those larger repayments are correspondingly smaller.

Because they reflect budgetary effects that extend beyond the 10-year period on which the federal budget process focuses, the net present-value estimates prepared using either FCRA or fair-value methods sometimes differ dramatically from 10-year cash estimates traditionally used in that process. To illustrate such differences, CBO prepared three measures of budgetary effects for a proposal to restrict the Department of Education's

authority to limit forgiveness of certain student loans.¹ Through the Public Service Loan Forgiveness program, certain borrowers who are employed full time in public service can have their entire outstanding loan balance forgiven after 10 years of monthly payments. The proposal, for which CBO originally prepared an estimate in 2016, would have limited the amount of loan forgiveness available to new borrowers as of July 1, 2017. Under the proposal, after 10 years of monthly payments, such borrowers could receive a maximum of \$57,000 in loan forgiveness. By any measure, the proposal would generate net savings to taxpayers by requiring borrowers to repay a greater portion of their loans. As reflected in the table, however, 10-year cash and accrual measures vary considerably.

On a cash basis, the proposal would not reflect any increased repayments (relative to current law) until after 10 years, when the first borrowers covered by the option would begin to receive loan forgiveness at lower rates than would otherwise apply. After that initial 10-year period, projected cash flows would reflect larger repayments, and over a 20-year period, total net savings on a cash basis would amount to nearly \$2 billion. Over the first 10-year period that serves as the focus of the federal budget process, however, no such savings would occur. In contrast, both FCRA and fair-value estimates for the proposal reflect, in the years when credit commitments are made, the net present value of the full stream of anticipated increases in repayments stemming from those commitments. On a FCRA basis, with cash flows discounted at Treasury rates, CBO estimates that budgetary savings over the 10-year budget horizon would total \$6.7 billion. On a fair-value basis, CBO estimates such savings would total \$4.6 billion.

1. See Congressional Budget Office, "Limit Forgiveness of Graduate Student Loans," *Options for Reducing the Deficit, 2017 to 2026* (December 2016), pp. 30–31, www.cbo.gov/budget-options/2016/52175.

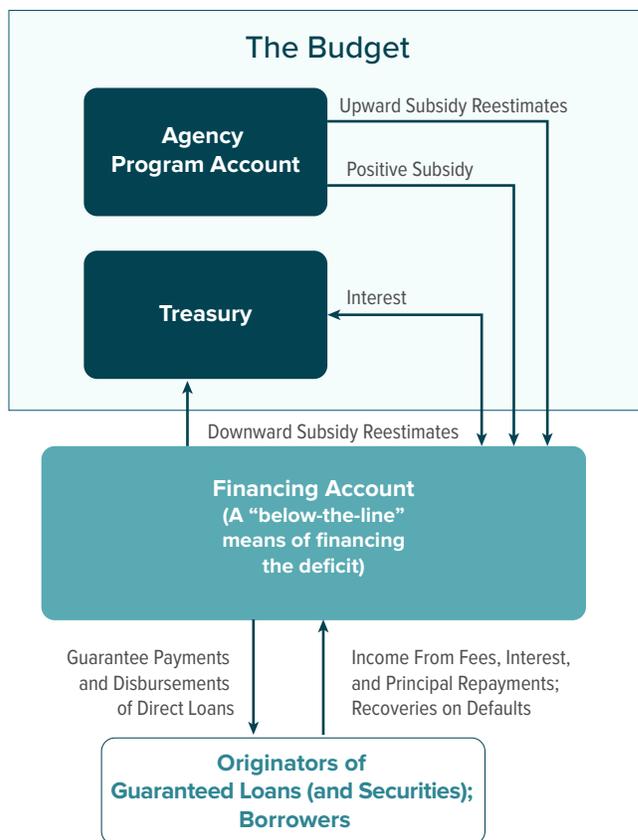
To ensure that subsidy costs in the budget remain consistent with subsequent cash flows, and to inform policymakers about the performance of federal loans, FCRA requires agencies to periodically reevaluate the subsidy cost of outstanding direct loans and loan guarantees and make adjustments—known as credit subsidy reestimates—to reconcile initial subsidy costs recorded at the time of disbursement with actual outcomes. The initial judgments that analysts make about default and recovery rates, interest rates, and effective maturities of the loans will probably differ from actual experience. FCRA provides permanent, indefinite budget authority to cover the full costs of credit subsidy reestimates without additional action by lawmakers. That authority means that agencies are held harmless for mistakes in their initial subsidy estimates; agencies face no penalties (or realize any benefits) if the original estimate turns out to be too low (or too high). In that sense, once an agency extends a loan or loan guarantee, its ultimate net costs to taxpayers are fully funded—no subsequent legislation is required to fully fund federal obligations. That treatment comports with the underlying nature of credit-related commitments, which involve firm, fixed contracts that are legally binding on both borrowers and the federal government. Once such commitments are made, their cost is largely beyond the control of lawmakers.¹²

Formally adopting the accrual-based budgetary treatment specified in FCRA required the Administration to create, for each credit program, a new set of accounting mechanisms to present the accrual-based budget estimates and reconcile those estimates with actual cash flows over the course of the program (see Figure 2). On-budget program accounts record outlays of estimated net subsidy costs (including any credit subsidy reestimates) for cohorts of loans or loan guarantees upon disbursement; such outlays, along with the amounts of credit subsidy reestimates and the various cash transactions associated with the loans and guarantees—for example, loan repayments for direct loans and the government’s costs for defaults on guaranteed loans—are

12. Lawmakers can pass subsequent legislation to modify the terms of existing loans. However, FCRA precludes agencies from making such modifications if they would involve net costs unless the Congress provides, in advance, the additional funding necessary to cover the cost of such modifications.

Figure 2.

The Budgetary Treatment of Federal Credit Programs With Positive Subsidy Costs



Source: Congressional Budget Office.

For each program, credit reform accounting requires two accounts: a *program account* and a *financing account*. (In addition, if the subsidy is negative, an on-budget receipt account is necessary.) The program account shows the net subsidy costs, and the financing account reflects the cash flows that make up those subsidy costs.

The cash flows between the financing account and originators of guaranteed loans (and securities) or borrowers of direct loans are a means of financing the deficit and are excluded from the calculation of the budget deficit—that is, they are “below-the-line” accounts.

If the credit program has a positive subsidy, the program account makes a single payment to the financing account for each credit cohort. (If the credit program has a negative subsidy, the financing account makes a payment to a receipt account in the Treasury.)

Restimates of the subsidy costs are annual. A positive (or upward) reestimate results in a payment from the program account to the financing account. A negative (or downward) reestimate results in a payment from the financing account to the on-budget receipt account in the Treasury.

The annual interest payments between the Treasury and the financing account can also flow in either direction. If the financing account has been a net borrower, it pays interest to the Treasury. If the financing account holds government securities, then the Treasury makes interest payments to the financing account.

credited to “below-the-line” financing accounts.¹³ Those accounts are considered below the line in the sense that their annual receipts and outlays are excluded from the calculation of the budget deficit—because the subsidy costs that are shown in the budget already reflect their value. Over time, as a credit program’s various cash flows evolve and credit subsidy reestimates are made to bring the recorded subsidy costs in line with actual results, the inflows or outflows of a financing account should net to zero.

Fair-Value Budgetary Treatment. In addition to the approach taken under FCRA accounting, a related approach, known as fair value, can be used to estimate the cost of federal credit programs and other types of financial assistance. FCRA measures do not fully account for the cost of the risk the government assumes when issuing loans or loan guarantees; hence, they make the reported cost of such transactions lower than the cost that private institutions would assign to similar credit assistance based on market prices. The fair-value approach seeks to incorporate a full measure of that risk by reflecting the market value of the federal government’s obligations.¹⁴

The difference between the two approaches lies in the treatment of the cost of market risk, which is the component of financial risk that remains even after investors

have diversified their portfolios as much as possible.¹⁵ It arises from shifts in macroeconomic conditions, such as productivity and employment, and from changes in expectations about future macroeconomic conditions. Loans and loan guarantees expose the government to market risk because future repayments of loans tend to be lower when the economy as a whole is performing poorly and resources are more highly valued.

To incorporate the cost of market risk, the fair-value approach generally entails using the discount rates on expected future cash flows that private financial institutions would use. Those discount rates are higher than Treasury rates; the difference effectively reflects the market risk inherent in the underlying cash flows (see Box 3).¹⁶ That approach uses market prices to measure the cost to the public of federal loans and loan guarantees.

The Emergency Economic Stabilization Act of 2008 (Division A of Public Law 110-343) required that the budget record the purchases and sales of financial assets through the Troubled Asset Relief Program using procedures similar to those in FCRA, but with an adjustment for market risk.¹⁷ Certain contributions to the International Monetary Fund are also accounted for in the budget on an accrual basis with market-risk adjustment following direction provided in the authorizing legislation.

Mixed Cash and Accrual Budgetary Treatment. The budget deficit reflects, on a cash basis, the cost of retirement benefits as they are paid to retired federal civilians and military personnel, net of revenues from current workers’ contributions toward their future benefits.

13. A credit cohort consists of all the loans or guarantees that a program obligates in a given fiscal year. If the cohort’s credit subsidy is positive, the program account makes a onetime subsidy payment to the financing account. (Administrative costs are also paid by the program account but are not included in the estimate of subsidy costs.)

The financing accounts also receive interest payments from the Treasury, which help to ensure that the ultimate budgetary effects are the same under cash and accrual measures. Separate accounts exist for credit subsidy reestimates. See Office of Management and Budget, *Circular A-11* (2017), Part 5, Section 185: Federal Credit, www.whitehouse.gov/omb/circulars_a11_current_year_a11_toc; and Marvin Phaup, “Credit Reform, Negative Subsidies, and FHA,” *Public Budgeting & Finance*, vol. 16, no. 1 (Spring 1996), pp. 23–36, <https://tinyurl.com/yb6v55ol>.

14. Fair-value accounting is controversial, and many budget analysts oppose its use. They argue that the cost of market risk will not affect federal cash flows. For example, see Government Accountability Office, *Credit Reform: Current Method to Estimate Credit Subsidy Costs Is More Appropriate for Budget Estimates Than a Fair Value Approach*, GAO-16-41 (January 2016), www.gao.gov/products/GAO-16-41.

15. For instance, individuals can diversify their investments in stocks through mutual funds and stock index funds, such as the Standard & Poor’s 500—an index of 500 large U.S. firms. Those investments minimize the idiosyncratic risk of any single company but still expose investors to overall declines in the stock market.

16. The fair value of an asset is defined as the price that would be received if it were sold in an orderly transaction between market participants. Similarly, for a liability such as a loan guarantee, the fair value is the price that would have to be paid to induce a market participant to assume the liability. See Congressional Budget Office, *Fair-Value Accounting for Federal Credit Programs* (March 2012), www.cbo.gov/publication/43027.

17. See Congressional Budget Office, *Report on the Troubled Asset Relief Program—June 2017* (June 2017), www.cbo.gov/publication/52840.

Box 3.

Accounting for Market Risk in Accrual-Based Estimates

Accrual estimates are frequently expressed as present values—that is, as a single number representing the sequence of projected cash flows of an asset or liability in terms of an equivalent lump sum received or paid at a specific point in time. Because present-value estimates are very sensitive to the choice of discount rate, using a systematic approach to selecting discount rates is critical to ensuring that estimates are credible. A widely used approach in the analysis of federal policy is to simply use an estimate of the government’s borrowing cost—the estimated yield on a Treasury security of comparable maturity—as the discount rate. Doing so effectively accounts for the time value of money (that is, the idea that money is worth more today than at some future date because of its ability to earn a return in the interim) but does not account for the risk inherent in lending money for federal policies correlated with the overall economy. Therefore, using Treasury rates conveys a misleading perception that assets (like loans) have greater value because the federal government owns them. To incorporate the cost of market risk, the fair-value approach generally entails using the discount rates that private financial institutions would use. That approach uses market prices to measure the value of the assets.

Market risk is the component of risk that remains even after a portfolio has been diversified as much as possible. It arises because most investments tend to perform relatively poorly when the economy is weak and relatively well when it is strong. People value income from investments more when the economy is weak and incomes are relatively low. The cost of market risk captures those collective assessments of the value of losses in bad times relative to good times. People who invest in assets that have market risk expect to earn a rate of return that is higher than Treasury rates as a reward for the risk that they bear. Hence, they would discount the projected cash flows at a higher rate than the Treasury rate.

Government programs have an exposure to market risk if, when the economy is weak, cash outflows tend to be larger (or conversely, cash inflows tend to be smaller). The market risk is effectively passed along to taxpayers and beneficiaries of government programs because they bear the consequences of the government’s financial losses. Moreover, that risk is costly to those taxpayers and beneficiaries because they also tend to value resources more highly when the economy is weak. To account for that cost, present-value estimates can incorporate an adjustment to the discount rate by adding a risk premium to

the yield on Treasury securities. The size of the risk premium for any given program depends on how much cash flows in that program fluctuate with overall economic conditions.

The Congressional Budget Office often refers to present-value estimates that include an adjustment for market risk as fair-value estimates because they represent the prices a well-diversified investor would charge to take on the market risks borne by the government. For some programs, adjusting present-value estimates for market risk, by including a risk premium in the discount rate, can significantly affect not only the magnitude of such estimates but also the sign—that is, whether proposed policy changes would generate budgetary costs or savings.¹ For example, using methods prescribed by the Federal Credit Reform Act of 1990 (FCRA), CBO estimated that the Federal Housing Administration’s single-family housing program would have a subsidy rate of -3.6 percent and generate \$8 billion in *net savings* in 2013. (A negative subsidy rate indicates a net gain to the government.) By contrast, incorporating a risk premium of 0.90 percentage points above Treasury rates, CBO estimated that the program’s subsidy rate would be 1.5 percent and that it would have a fair-value *cost* of \$3 billion in 2013.² In other programs, however, the amount of market risk is likely to be small, and hence accounting for it would produce a cost similar to that under FCRA.

Market risk can also be incorporated into cash estimates. For example, the Office of Management and Budget (OMB) and CBO made adjustments for market risk in projecting the cash flows from earnings of the Railroad Retirement Board’s National Railroad Retirement Investment Trust from investments in private securities. They made that adjustment by

1. The 2016 budget resolution requires CBO to supplement current FCRA estimates with fair-value estimates for legislation affecting federal credit programs related to housing, residential mortgages, and student loans (and, when practicable, other activities). CBO prepares such estimates using the same underlying projections of cash flows. Under the resolution, the Chairman of the House Committee on the Budget can choose whether to use FCRA or fair-value estimates for purposes of budget enforcement; in the Senate, budget enforcement is based on FCRA estimates.
2. CBO reported the risk adjustments for the major federal credit programs in spreadsheets in the data and supplemental information on its website. See Congressional Budget Office, *Fair-Value Estimates of the Cost of Federal Credit Programs in 2013* (June 2012), www.cbo.gov/publication/43352. For updated estimates, see Congressional Budget Office, *Fair-Value Estimates of the Cost of Selected Federal Credit Programs for 2015 to 2024* (May 2014); www.cbo.gov/publication/45383.

Box 3.

Continued

Accounting for Market Risk in Accrual-Based Estimates

projecting earnings using the Treasury rate of interest rather than the higher mean expected return for the assets in the fund. The adjustment for market risk has the advantage of avoiding the appearance that the budget could benefit by purchasing risky private-sector securities.³

In CBO's view, fair-value estimates provide a more comprehensive measure than FCRA estimates of the costs of federal credit programs and help lawmakers more fully understand the trade-offs between certain policies.⁴ Some analysts have expressed concern, however, about the potential drawbacks of using the fair-value approach in federal budgeting.⁵ They dispute the degree to which market prices represent market risks that are actually borne by the government and argue that the inclusion of the risk premium is a more significant departure from general federal budgetary practices than discounting alone because they do not view market risk as a cash cost.⁶ They

also point to implementation issues, volatility in estimates that would be introduced by the additional fluctuations in market risk premiums, and the challenges of communicating the basis of fair-value estimates. A common misperception of fair-value estimates is that they are based on more accurate measures of the likelihood that borrowers will default or that losses will occur than those used in FCRA-based measures, when in fact both types of estimates are based on the same range of possible cash flows.

In general, the usefulness of different approaches for constructing estimates of the costs of federal policies depends on the purpose for which those estimates are used.⁷ Fair-value estimates may be less useful than FCRA estimates in projecting the *average* budgetary effects of programs that provide credit assistance. However, projecting such effects is not the only, or necessarily even the primary, purpose of cost estimates. Cost estimates are tools that policymakers can use to make trade-offs between different policies that work toward a particular policy goal. By taking into account how the public assesses financial risks as expressed through market prices, fair-value estimates may be more useful than FCRA estimates in helping policymakers understand trade-offs between policies when some of them involve such risks.

3. See Congressional Budget Office, *Evaluating and Accounting for Federal Investment in Corporate Stocks and Other Private Securities* (January 2003), pp. 19–24, www.cbo.gov/publication/14245.
4. See the testimony of Douglas W. Elmendorf, Director, Congressional Budget Office, before the House Committee on Financial Services, *Estimates of the Cost of the Credit Programs of the Export–Import Bank* (June 25, 2014), www.cbo.gov/publication/45468.
5. For example, see Government Accountability Office, *Credit Reform: Current Method to Estimate Credit Subsidy Costs Is More Appropriate for Budget Estimates Than a Fair Value Approach*, GAO-16-41 (January 2016), www.gao.gov/products/GAO-16-41.
6. Fair-value estimates are higher than the costs that would be incurred by the federal government if actual cash flows turned out to match their statistical average. One analyst has suggested an approach that combines features of fair value and FCRA. Under that “expected returns” approach, the budget would report a fair-value estimate when credit was extended and then in subsequent years it would report the expected realization of the market risk premium on an annual basis. See Donald Marron, *The \$300 Billion*

Question: How Should We Budget for Federal Lending Programs? (Urban Institute, September 2014), <https://tinyurl.com/yaf77y>. Proponents of the fair-value approach argue that one of several options would be to use credit subsidy reestimates to adjust for the difference between actual costs and projected costs, including the risk premiums. Ultimately, the accrual costs must be reconciled with the cash flows whether a FCRA or a fair-value measure is used.

7. See the testimony of Douglas W. Elmendorf, Director, Congressional Budget Office, before the House Committee on Financial Services, *Estimates of the Cost of the Credit Programs of the Export–Import Bank* (June 25, 2014), pp. 9–10, www.cbo.gov/publication/45468.

Meanwhile, agencies make annual payments—calculated on an accrual basis—to federal retirement funds to account for the future costs of some benefits earned by existing workers.¹⁸ The purpose of those payments is to

more fully measure the long-term costs of deferred compensation payable to an agency's current workforce and to attribute those future costs to agencies' budgets.

18. Broadly speaking, accrual payments are used to account for the cost of most pension benefits but only some health-related benefits. Agencies accrue the full cost of pension benefits for participants in the Federal Employees Retirement System, which covers most current employees; but they pay only part of the accrual cost of benefits under the older Civil Service Retirement

System and none of the accrual cost of health insurance for civilian retirees. See Congressional Budget Office, *Options for Changing the Retirement System for Federal Civilian Workers* (August 2017), www.cbo.gov/publication/53003.

The accounting practices that are used resemble those used by private corporations to price transactions within the firm. Agencies' annual accrual transactions do not affect the deficit. They are intragovernmental transactions—payments from the agencies that are matched by receipts to the on-budget retirement funds that will ultimately pay retirees' benefits. Balances in those retirement funds represent the amount of resources legally available to the government to pay the benefits they provide.

Other Measures Used in the Federal Budget Process

In general, CBO's estimates for proposed legislation are prepared using the same basis of measurement that applies to affected activities' underlying budgetary treatment. However, for purposes of applying procedural rules that govern the consideration of legislation, lawmakers require CBO to prepare cost estimates for proposals related to certain activities on a different basis. The Congress has the flexibility to determine whether to enforce its budget-related rules on the basis of those alternative measures instead of 10-year cash estimates.

In addition, in fulfilling its mission to support the Congressional budget process, CBO prepares a wide range of studies and reports that are usually much broader in scope than a legislative cost estimate. Such analyses often provide important information about long-term budgetary effects and sometimes include accrual measures.

Accrual Measures Used to Enforce Congressional Rules. For some specific activities, lawmakers determine whether their budget enforcement mechanisms apply on the basis of measures that differ from how costs would ultimately be recorded in the budget. That approach offers the advantage of highlighting information about long-term net costs while avoiding the potential downsides of making wholesale changes to the budgetary treatment of affected activities.¹⁹ For example:

- Under long-standing guidelines, legislative cost estimates for proposals to sell federal assets impose an “asset test,” which specifies a methodology for estimating, on a net present-value basis, whether a proposed sale would result in net financial costs

or savings to the government. The outcome of the test determines whether proceeds from the sale are credited to the legislation for budget enforcement purposes.²⁰

- In some cases, the House and Senate require CBO to prepare certain estimates on a net present-value basis. For example, budget enforcement related to proposals to modernize U.S. currency—specifically, by transitioning from the \$1 note to the \$1 coin—is based on the net present value of anticipated budgetary effects over a 30-year period.²¹ Likewise, budget enforcement related to proposals that would affect federal agencies' use of certain long-term contracts to make energy-related investments is based on net present-value estimates of the long-term budgetary effects stemming from such contracts.²²
- After the U.S. government assumed control in 2008 of Fannie Mae and Freddie Mac—two federally chartered institutions that provide credit guarantees for almost half of the outstanding residential mortgages in the United States—CBO concluded that the institutions had effectively become government entities whose operations should be included in the federal budget. As a result, unlike the Administration, CBO has incorporated estimates of the budgetary costs of the two entities in its baseline

19. See Allen Schick, “Performance Budgeting and Accrual Budgeting: Decision Rules or Analytic Tools?” *OECD Journal on Budgeting*, vol. 7, no. 2 (November 2007), pp. 109–138, <http://dx.doi.org/10.1787/budget-v7-2-en>.

20. The methodology is specified in the joint statement of managers that accompanied the conference report on the Balanced Budget Act of 1997. See House Committee on the Budget, *Conference Report to Accompany H.R. 2015*, House Report 105-217 (July 30, 1997), pp. 1007–1014, <https://go.usa.gov/hb8Q>. In particular, Rule 15 specifies the types of cash flows to be included and the discount rate to be used in estimating the net present value of a proposed transaction.

21. See sec. 3106 of the Concurrent Resolution on the Budget for Fiscal Year 2016, S. Con. Res. 11, 114th Cong. (2015) (adopted).

22. The rule that pertains to legislation considered in the Senate is specified in sec. 3207 of the Concurrent Resolution on the Budget for Fiscal Year 2016, S. Con. Res. 11, 114th Cong. (2015) (adopted). Sec. 5109 of the 2018 budget resolution, H. Con. Res 71, 115th Cong. (2017) (adopted), specifies a similar rule that applies to legislation considered in the House of Representatives. For additional information on the budgetary treatment of energy savings performance contracts (ESPCs) and similar contracts to which those rules apply, see Congressional Budget Office, *Using ESPCs to Finance Federal Investments in Energy-Efficient Equipment* (February 2015), www.cbo.gov/publication/49869.

budget projections. CBO uses fair-value accrual estimates to account for the credit-related activities of Fannie Mae and Freddie Mac.²³ In contrast, OMB records in the budget the anticipated net cash flows to and from the Treasury of those entities' transactions.²⁴

- Under certain circumstances, for legislation related to federal credit programs, Congressional rules require CBO, to the extent practicable, to provide estimates on both a FCRA and a fair-value basis.²⁵

Long-Term Estimates on a Cash Basis. Accrual measures are one way of addressing the drawbacks of the truncated 10-year budget window; cash projections that extend over longer periods of time are another. To support the House and Senate Budget Committees in enforcing budget-related points of order, CBO is required by Congressional rules to determine whether legislation would have long-term budgetary effects—on a cash basis—exceeding certain thresholds.²⁶ In addition, the Concurrent Resolution on the Budget for Fiscal Year 2016 requires CBO to provide long-term cash estimates, spanning up to 30 years, for major legislation and under certain other circumstances.²⁷ Finally, when the informa-

tion is particularly salient, CBO's legislative cost estimates may include long-term cash projections as supplementary information; notable examples include CBO's estimates for the Affordable Care Act and immigration proposals.²⁸ Because of the considerable amount of time and staff resources required to produce such long-term estimates for legislation, which are highly uncertain, including such information is feasible only in limited circumstances.

More broadly, CBO annually issues long-term projections of spending and revenues related to Social Security and Medicare (and of the federal budget as a whole) over 30 years.²⁹ If future benefits are paid as specified in current law, those programs are projected to have a significant long-term impact on federal deficits. CBO's projections are expressed as a percentage of gross domestic product (GDP), which helps analysts assess the programs' sustainability and their long-term effects on the federal budget.³⁰ CBO has also reported on the long-term effects of a variety of policy options on Social Security's actuarial balance; those effects are generally expressed as a percentage of GDP at different points.³¹

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23. This approach provides policymakers with a more comprehensive measure of costs than either FCRA- or cash-based estimates. See Congressional Budget Office, *CBO's Budgetary Treatment of Fannie Mae and Freddie Mac* (January 2010), www.cbo.gov/publication/41887. For a comparison of the two entities' cost on a fair-value basis and a FCRA basis, see Congressional Budget Office, letter to the Honorable Barney Frank about the budgetary impact of Fannie Mae and Freddie Mac (September 16, 2010), www.cbo.gov/publication/21707.
24. CBO uses such cash-based estimates for the current year to ensure that its deficit projections ultimately align with those of OMB, which otherwise would be confusing and hard to compare if CBO did not use cash measures at that point.
25. Broadly speaking, in the Senate, fair-value estimates are provided as supplemental information. In the House of Representatives, the Chairman of the House Committee on the Budget decides whether to use FCRA or fair-value estimates for purposes of budget enforcement.
26. Specifically, CBO's estimates for legislation considered in the Senate indicate whether legislation would increase net deficits by more than \$5 billion in any of the four decades following the 10-year budget window. CBO's estimates for legislation considered in the House of Representatives indicate whether net increases in direct spending in any of those decades would exceed \$2.5 billion.
27. Sections 3107 and 3109 of the 2016 budget resolution require CBO to provide long-term cash estimates, spanning up to

30 years, for the following: legislation with anticipated spending effects in excess of 0.25 percent of projected GDP over the initial 10-year period (to the extent practicable); legislation that would increase limits on discretionary spending specified in the Budget Control Act (as modified); and certain proposals related to the Highway Trust Fund. That resolution also requires CBO to prepare long-term cash estimates if requested by the chairman of either the House or Senate Committee on the Budget. See Concurrent Resolution on the Budget for Fiscal Year 2016, S. Con. Res. 11, 114th Cong. (adopted May 5, 2015).

28. See Congressional Budget Office, cost estimate for the Patient Protection and Affordable Care Act (November 18, 2009), www.cbo.gov/publication/41423; and cost estimate for S. 744, the Border Security, Economic Opportunity, and Immigration Modernization Act (June 18, 2013), pp. 3 and 54–56, www.cbo.gov/publication/44225.
29. Those programs' actuaries issue 75-year projections on an annual basis.
30. CBO also publishes estimates of the fiscal gap, which is a present-value measure of the nation's fiscal imbalance over a 30-year period. See Congressional Budget Office, *The 2017 Long-Term Budget Outlook* (March 2017), www.cbo.gov/publication/52480.
31. See Congressional Budget Office, *Social Security Policy Options, 2015* (December 2015), www.cbo.gov/publication/51011.

Advantages and Disadvantages of Cash and Accrual Measures

Policymakers have long debated the merits of cash and accrual measures (see Table 3). Each measure offers important and potentially complementary information that can help serve policymakers' needs.³² Although some nations have adopted accrual-based budgets, to date U.S. policymakers have been highly selective in applying accrual-based budgetary treatment (see Box 4). In 2016, the House Committee on the Budget prepared a draft proposal that would require that the budget record the accrued cost of federal employees' retirement benefits and federal insurance programs on a fair-value basis, but that proposal has not been adopted.³³ Lawmakers have, however, expanded the role of accrual measures used for purposes of Congressional budget enforcement.

Basing budgetary decisions on cash measures offers key advantages:³⁴

- Cash measures are transparent, verifiable, and easy to understand, thus making it easier to discern patterns and trends.³⁵
- Cash measures work well for programs with short timing lags.

- Cash measures directly inform the government's borrowing needs, as every dollar spent without an offsetting reduction in other spending or increase in revenues requires an increase in borrowing.

However, because the federal budget process focuses primarily on effects that occur only over a 10-year period, cash-based measures may have several disadvantages:

- Ten-year baseline projections and legislative cost estimates may understate or overstate the net costs of programs that involve long-term federal commitments. For example, because federal workers receive retirement benefits long after they earn them, near-term decisions related to the federal workforce and retirement programs can result in budgetary effects that extend far into the future. The result is that 10-year cash estimates account for considerably less of legislation's effects on the programs than do accrual measures.³⁶
- In combination with truncated time horizons, cash accounting introduces opportunities for policymakers to adjust budgetary outcomes through timing shifts—that is, by instituting policies that seek to affect measures of the federal deficit by shifting the timing of payments or receipts even when the real (inflation-adjusted) value of those cash flows is essentially unchanged.

Because they can more readily incorporate long-term effects, accrual measures address some of the potential drawbacks of cash measures.³⁷ For that reason, basing budget allocation decisions on accrual measures offers some potential advantages.³⁸

32. This report does not address capital budgeting for federal investments, which can be implemented using accrual measures. For most programs, accrual accounting consolidates a long-term stream of future cash flows, but capital budgeting on an accrual basis would do the opposite: It would spread out the costs of projects with large up-front costs and long-term benefits or usefulness. (By contrast, in the federal budget, purchases of property, plant, and equipment, as well as infrastructure spending, are recorded when they occur.) Thus, accrual budgeting for capital investments is conceptually different from using accrual estimates for other activities and programs. See Congressional Budget Office, *Capital Budgeting* (May 2008), www.cbo.gov/publication/41689.

33. See House Committee on the Budget, *Proposed Rewrite of the Congressional Budget Process* (discussion draft, November 30, 2016), p. 22, <http://budget.house.gov/budgetprocessreform/>.

34. See Allen Schick, "Performance Budgeting and Accrual Budgeting: Decision Rules or Analytic Tools?" *OECD Journal on Budgeting*, vol. 7, no. 2 (November 2007), pp. 109–138, <http://dx.doi.org/10.1787/budget-v7-2-en>.

35. Although private firms produce accrual-based financial statements under Generally Accepted Accounting Principles, they also release cash-flow statements. Investors value the cash statements because they are free of assumptions and may provide an alternative perspective.

36. See Congressional Budget Office, *Options for Changing the Retirement System for Federal Civilian Workers* (August 2017), www.cbo.gov/publication/53003.

37. See General Accounting Office (now the Government Accountability Office), *Accrual Budgeting: Experiences of Other Nations and Implications for the United States*, GAO/AIMD-00-57 (February 2000), www.gao.gov/products/AIMD-00-57.

38. See Delphine Moretti, "Accrual Practices and Reform Experiences in OECD Countries—Results of the 2016 OECD Accruals Survey," *OECD Journal on Budgeting*, vol. 16, no. 1 (2016), pp. 9–28, <http://dx.doi.org/10.1787/budget-16-5jlv2jx2mtzq>; Ken Warren, "Time to Look Again at Accrual Budgeting," *OECD Journal on Budgeting*, vol. 14, no. 3 (2015), pp. 113–129, <http://dx.doi.org/10.1787/budget-14-5jrw6591hj6c>; and Abdul Khan, "Accrual Budgeting: Opportunities and Challenges," in

Table 3.

Comparing Cash and Accrual Measures of Costs

	Cash-Based Measures	Accrual-Based Measures
Budget Recognition	Reported when cash transactions occur.	Reported when obligations are incurred, regardless of when they are paid.
Advantages	Transparent, easy to track, and verifiable.	Facilitate policymakers’ control over program costs and comparisons of costs across programs with different cash-flow timing.
	Work well for programs with short timing lags.	Capture the time value of money and can reflect the full cost of risk.
	Closely link deficit to increase in borrowing from the public.	
Disadvantages	Cash flows outside the 10-year window are not reported (other than in supplemental cash estimates).	Like long-term cash estimates, accrual estimates can be methodologically complex and sensitive to assumptions. In addition, accrual estimates are particularly sensitive to the discount rate.
	May misrepresent the net budgetary effects of programs with significant timing lags.	Explaining the meaning of present-value measures is challenging.
	The budget can report short-term savings by delaying payments or accelerating the collection of revenues and other receipts even if there are no net savings over longer periods.	Uncertainty increases the farther into the future projections extend. Estimates differ from the sum of the nominal cash flows. Additional effort and account structures are needed to reconcile accrual estimates with the eventual cash flows.

Source: Congressional Budget Office.

- Accrual measures may provide more meaningful comparisons of the net costs of federal commitments with the costs of competing programs with different cash-flow timing.³⁹
- Accrual measures capture the time value of money and can reflect the full cost of risk.

- Accrual measures recognize the costs of long-term commitments when they are incurred and thus are more controllable by policymakers.⁴⁰ International experience provides some supporting evidence that policymakers may be more inclined to pursue cost-saving policy changes at the program level when

Marco Cangiano, Teresa Curristine, and Michel Lazare, eds., *Public Financial Management and Its Emerging Architecture* (International Monetary Fund, 2013), pp. 339–359. Also see, *Report of the President’s Commission on Budget Concepts* (October 1967), pp. 7–8, and 36–46, <http://tinyurl.com/y7lxv3gp>. For more analysis, see F. Stevens Redburn, “How Should the Government Measure Spending? The Uses of Accrual Accounting,” *Public Administration Review*, vol. 53, no. 3 (May/June 1993), pp. 228–236, www.jstor.org/stable/3110127.

39. See Jon R. Blondal, “Issues in Accrual Budgeting,” *OECD Journal on Budgeting*, vol. 4, no. 1 (October 2004), pp. 103–119, <http://dx.doi.org/10.1787/budget-v4-1-en>.

40. For example, cash measures do not clearly show the expected cost of the government’s insurance commitments, particularly in the case of the Pension Benefit Guaranty Corporation. Some analysts have examined budgeting for insurance programs by showing costs as the difference between what the government charges for insurance and what an actuarially sound premium would be. See General Accounting Office (now the Government Accountability Office), *Budget Issues: Budgeting for Federal Insurance Programs*, GAO/AIMD-97-16 (September 1997), www.gao.gov/products/AIMD-97-16. Also see Government Accountability Office, *Budget Issues: Accrual Budgeting Useful in Certain Areas but Does Not Provide Sufficient Information for Reporting on Our Nation’s Longer-Term Fiscal Challenge*, GAO-08-206 (December 2007), www.gao.gov/products/GAO-08-206.

Box 4.

International Experience With Accrual Budgeting: What Are the Lessons?

Budgeting practices vary greatly across the developed nations and have generally been suited to the special circumstances of national governments. New Zealand was the first to adopt accrual budgeting in 1994, and the United Kingdom began implementing the approach in 2001. Several other countries, including Australia and Canada, have also adopted accrual-based budgeting and generally have done so after first developing accrual-based financial accounting reports and often in the context of broader management reforms. As a result, their budgets generally report the cost of government programs—including public employees' pensions, insurance, and credit activities—using accrual measures. However, their budgets effectively continue to measure the costs of social insurance programs on a cash basis. Other countries, including Sweden, use a mix of cash and accrual measures for budgeting. That mix can be a pragmatic way to apply accrual concepts where they are most useful as an aid to decisionmaking and where they produce incentives for controlling commitments at the point that they are being made or extended. Most developed nations, including Germany and France, continue to budget on a cash basis.

No country currently reports the anticipated costs of its social insurance programs on an accrual basis either in the budget or in financial statements; those costs are generally detailed in fiscal sustainability reports. (Similarly, contributions to those programs by individuals and firms are reported as annual revenues.) The most important reason is that no present contractual obligation exists; governments can adjust the terms of those programs at any time.¹

Controlling Spending

Some countries that use accrual budgeting to measure the impact of current and new public policies continue to use cash

appropriations to control spending. Their reliance on cash appropriations could reflect concerns that those governments have about the volatility of accrual valuations and the discretion that agencies can exercise with respect to the assumptions used in formulating those valuations.² Other nations use either accrual appropriations or a mix of cash and accrual appropriations, and some evidence suggests that those countries have maintained control of their cash flows and the growth of their public debt.³ In fact, accrual budgeting may have helped some countries control their spending, although other factors, such as generally strong economies, may have also contributed. New Zealand's debt as a percentage of gross domestic product fell considerably after its budgetary reforms, and Canada's and Australia's fiscal sustainability also improved after those countries made similar changes—until the effects of the 2008 financial crisis became a factor.⁴

Constraining Public Employees' Pensions

When costs for public employees' pensions became more transparent and the size of the existing commitments clearer under accrual budgeting, policymakers in some countries took steps to reduce costs for new employees. For example, New Zealand closed its traditional pension plan to new employees when the accrual accounts reported the size of the liability.⁵

1. The International Public Sector Accounting Standards Board (IPSASB) issued an exposure draft on a proposal for reporting costs for social benefits in countries' financial statements. The IPSASB reasons that the maximum amount to be recognized as a liability consists of the costs that the entity will incur in fulfilling its present obligations. Thus, only the amounts of irrevocable commitments should be recognized as expenses and liabilities; those amounts are similar to the due and payable amounts that the U.S. Treasury relies on in its financial statements. See IPSASB, *Social Benefits* (Exposure Draft 63, Proposed International Public Sector Accounting Standard, October 2017), p. 10, <https://tinyurl.com/y8cp24g4>.

2. See Delphine Moretti, "Accrual Practices and Reform Experiences in OECD Countries—Results of the 2016 OECD Accruals Survey," *OECD Journal on Budgeting*, vol. 16, no. 1 (August 2016), pp. 9–28, <http://dx.doi.org/10.1787/budget-16-5jlv2jx2mtzq>. New Zealand took an alternative approach and excluded revaluations of assets and liabilities as well as gains and losses from accounting changes from its operating balance. See Government Accountability Office, *Budget Issues: Accrual Budgeting Useful in Certain Areas but Does Not Provide Sufficient Information for Reporting on Our Nation's Longer-Term Fiscal Challenge*, GAO-08-206 (December 2007), pp. 25–29, www.gao.gov/products/GAO-08-206.

3. The OECD equates accrual budgeting with accrual appropriations. Two approaches to treating noncash items under accrual appropriations exist: Cash can be appropriated for the full accrual amounts or appropriated only for the cash component of the full accrual amounts. See Jon R. Blondal, "Issues in Accrual Budgeting," *OECD Journal on Budgeting*, vol. 4, no. 1 (October 2004), pp. 104 and 108–109, <http://dx.doi.org/10.1787/budget-v4-1-en>.

4. See Ken Warren, "Time to Look Again at Accrual Budgeting," *OECD Journal on Budgeting*, vol. 14, no. 3 (October 2015), pp. 113–129, <http://dx.doi.org/10.1787/budget-14-5jrw6591hj6c>.

5. See Timothy C. Irwin, *Accounting Devices and Fiscal Illusions*, IMF Staff Discussion Note SDN/12/02 (International Monetary Fund, March 28, 2012), p. 10, www.imf.org/external/pubs/ft/sdn/2012/sdn1202.pdf (521 KB).

accrual measures are used because they accelerate the recognition of such savings.⁴¹

- Accrual measures are less susceptible to policies that seek to affect measures of the federal deficit through shifting the timing of payments or receipts even when the real value of those cash flows is essentially unchanged.⁴²

However, compared with cash-based estimates, accrual measures have some disadvantages:

- Accrual measures—though based on the same set of underlying cash flows that would be reflected in cash measures—are more complex and involve judgments about appropriate methodology that might lead to disagreement among analysts and policymakers (as it has for federal credit programs).⁴³
- Explaining the meaning of present-value estimates—which are sensitive to the choice of discount rates and thus more volatile and potentially harder for policymakers and the public to understand—is challenging.
- Accrual measures pose significant implementation and transition challenges, including establishing new accounts to reconcile accrual estimates and the actual cash flows and determining how to report the cost of existing commitments.

- Accrual measures may reflect projections of cash flows that are decades into the future and subject to so much uncertainty and sensitivity to the underlying assumptions that some may question the validity of using them to make near-term budgetary decisions. For instance, changes in technical assumptions can cause large reestimates of costs even in the absence of any substantive changes in policy. For example, in its financial statements over the 2015–2016 period, the Department of Veterans Affairs (VA) reported a large increase in costs (on an actuarial basis) for veterans' compensation largely as a result of changes in assumptions, causing current-year expenses reported in those years to swing from \$80 billion to \$550 billion.⁴⁴

Logistically, formally adopting accrual-based budgetary treatment for other activities would pose challenging implementation and transition issues.⁴⁵ As evidenced in the transition to accrual accounting for federal credit programs, applying that budgetary treatment to additional activities would require significant investments in accounting software and additional staff to reconcile accrual-based estimates of net costs with actual results.

CBO has not yet assessed the overall experience with credit reform accounting. However, the information revealed by the subsidy estimates was a factor in the 2010 switch from guaranteed student loans to direct student loans, which resulted in significant savings.⁴⁶ Although initial estimates of the costs of some programs'

41. For example, accrual budgeting may have facilitated changes to public-sector pensions and increases in premiums for some insurance programs in New Zealand. See General Accounting Office (now the Government Accountability Office), *Accrual Budgeting: Experiences of Other Nations and Implications for the United States*, GAO/AIMD-00-57 (February 2000), pp. 75–76, www.gao.gov/products/AIMD-00-57. Some analysts are skeptical that changing budget rules would change budget behavior. See Allen Schick, "Performance Budgeting and Accrual Budgeting: Decision Rules or Analytic Tools?" *OECD Journal on Budgeting*, vol. 7, no. 2 (November 2007), pp. 109–138, <http://dx.doi.org/10.1787/budget-v7-2-en>.

42. See Timothy C. Irwin, *Accounting Devices and Fiscal Illusions*, IMF Staff Discussion Note SDN/12/02 (International Monetary Fund, March 28, 2012), www.imf.org/external/pubs/ft/sdn/2012/sdn1202.pdf (521 KB).

43. See Marc Robinson, *Accrual Budgeting and Fiscal Policy*, IMF Working Paper WP/09/84 (International Monetary Fund, April 2009), <https://tinyurl.com/y76kfbzq>.

44. By contrast, in 2015, VA reported a small net actuarial gain due to changes in assumptions. (The VA's loan guarantees for veterans' housing benefits are accounted for separately.) See *Financial Report of the United States Government, FY 2016* (January 2017), p. 107, www.fiscal.treasury.gov/fsreports/rpt/finrep/fr/fr_index.htm.

45. See Abdul Khan and Stephen Mayes, *Transition to Accrual Accounting*, Technical Notes and Manuals (International Monetary Fund, September 2009), www.imf.org/external/pubs/ft/tnm/2009/tnm0902.pdf (125 KB).

46. CBO estimated that eliminating the Federal Family Education Loan program, which guaranteed loans made by private lenders, and replacing it with additional direct lending under the William D. Ford Federal Direct Loan Program would save the government a total of \$62 billion between 2010 and 2020. See Congressional Budget Office, *Costs and Policy Options for Federal Student Loan Programs* (March 2010), www.cbo.gov/publication/21018; and cost estimate for H.R. 3221, the Student Aid and Fiscal Responsibility Act of 2009 (July 2009), www.cbo.gov/publication/20954.

activities, including the FHA's single-family mortgage guarantee program, have required large upward reestimates, the Government Accountability Office (GAO) found no general trends or patterns in reestimates that suggest significant statistical bias. Overall, subsidy costs were underestimated by less than 1 percent of the amounts disbursed or guaranteed from 2001 through 2014. GAO noted significant annual fluctuations and the need for better documentation by some agencies.⁴⁷

Expanding the Use of Accrual Measures in the Federal Budget and Budget Process

Many commissions and organizations have suggested formally adopting an accrual-based budgetary treatment for other federal activities involving commitments that will extend over many years or occur far into the future.⁴⁸ For example, the 1967 *Report of the President's Commission on Budget Concepts* recommended that spending and receipts be reflected in the budget on an accrual rather than a cash basis, arguing that accrual measures provide a more comprehensive and accurate measure of how federal activities affect the economy, but that recommendation was not adopted.⁴⁹ In at least some cases, accrual measures would improve the information available to policymakers. And when accrual

estimates are formally used for budgetary treatment or incorporated into Congressional rules for budget enforcement, they are likely to have stronger effects on incentives and mechanisms to control costs than when they are provided in cost estimates on a supplemental basis. However, departing from cash measures for cost estimates would pose a number of challenges, especially if those changes were adopted in the budget.

Criteria for Assessing Information Provided by Cash and Accrual Measures

In assessing whether cash-based estimates provide policymakers with appropriate information, the vital concerns are whether they accurately indicate if activities involve net costs or savings and whether they provide a reasonable sense of the magnitude of overall effects. In most cases where cash-based estimates provide misleading information, the existence of budgetary effects that extend over many years—coupled with the truncation caused by the 10-year budget window—is the primary reason that distortions occur. Where cash-based measures pose problems, accrual-based measures might provide useful information, but they would also present trade-offs. In considering whether to depart from cash-based measures, policymakers would need to determine whether accrual-based measures, on balance, offer more meaningful information that warrants their added complexity. The prime candidates for use of accrual measures are federal employees' retirement programs, some federal insurance programs, and social insurance programs. For such programs, key considerations for policymakers include the following (see Table 4):

- How relevant are such measures to understanding overall budgetary effects?
- Is the nature of the government's commitment of future resources firm enough to justify recording future cash flows years before they occur?
- Are the measures practical to use and reliable enough for use in executing rules and procedures related to budget enforcement?

Relevance to Understanding Budgetary Effects.

Policymakers might consider the extent to which accrual measures provide useful information about the full extent of the budgetary effects of commitments that 10-year cash measures may not convey. A key factor is the extent to which 10-year cash and accrual measures

47. See Government Accountability Office, *Credit Reform: Current Method to Estimate Credit Subsidy Costs Is More Appropriate for Budget Estimates Than a Fair Value Approach*, GAO-16-41 (January 2016), www.gao.gov/products/GAO-16-41; and *Credit Programs: Key Agencies Should Better Document Procedures for Estimating Subsidy Costs*, GAO-16-269 (July 2016), www.gao.gov/products/GAO-16-269. In an analysis conducted in 2000, CBO found no pattern of statistical bias across agencies or departments, but it highlighted the need for more accuracy in the estimates. See Congressional Budget Office, *Credit Subsidy Reestimates, 1993–1999* (September 2000), www.cbo.gov/publication/12645.

48. The Simpson-Bowles Commission recommended changes in budget concepts, including the consideration of accrual accounting, to improve reporting of the cost of federal liabilities. See National Commission on Fiscal Responsibility and Reform, *The Moment of Truth* (December 2010), pp. 56–57, http://momentoftruthproject.org/sites/default/files/TheMomentofTruth12_1_2010.pdf (1.40 MB). The Peterson-Pew Commission recommended accounting for retirement, pension, and long-term insurance programs on an accrual basis. See Peterson-Pew Commission on Budget Reform, *Getting Back in the Black* (November 2010), pp. 28–29, <http://budgetreform.org/document/getting-back-black>.

49. See President's Commission on Budget Concepts, *Report of the President's Commission on Budget Concepts* (October 1967), pp. 7–8 and 36–46, <http://tinyurl.com/y7lxv3gp>.

Table 4.

Assessing 10-Year Cash and Accrual Measures of Selected Noncredit Federal Programs

Program	Relevance to Understanding Budgetary Effects	Nature of the Commitment	Practicality and Reliability
Federal Employees' Retirement Benefits ^a	Because of long lags in timing, the expanded use of accrual measures could provide a more accurate reflection of the net long-term budgetary effect of policy changes and trade-offs between different types of compensation.	Lawmakers can change retirement benefits after they have accrued.	Most of the account structure is in place, but the effect on the deficit could be large and difficult to communicate to the public. Cost estimates can vary significantly depending on the discount rate used for the accrual measure. Accrual measures depend on decades of projections for future wages and inflation—which are highly uncertain.
Federal Insurance Programs	Timing lags vary significantly across insurance programs, so the difference between cash and accrual measures depends on the program. However, the budgetary effects of changes in most federal insurance programs show up within the first 10 years. Some programs also face market risk. The differences are greatest for federal pension insurance.	Commitments are generally firm, but some programs, including federal pension insurance and flood insurance, may lack the resources to pay all the claims that they could face.	Reestimates for every insurance cohort with accrual measures would increase the complexity of the budget. For many programs, cash estimates already utilize most of the information needed for accrual estimates. However, estimating the accrual cost of federal guarantees of private pensions requires complex modeling. ^b
Social Insurance Programs, including Social Security, Medicare, and Medicaid ^c	Ten-year cash estimates reflect the overall pattern of rising spending, but cost estimates do not reflect the long-term budgetary effects of changes to the programs. No country currently accrues those costs.	Lawmakers could adjust commitments at any point through legislative changes to make the programs sustainable.	Adopting an accrual-based budgetary treatment would be a major change that might be hard to communicate to lawmakers and the public. Small changes in assumptions could result in larger swings than policy changes elsewhere in the budget. CBO routinely prepares a variety of analyses that highlight the anticipated long-term budgetary effects of social insurance programs within the context of the federal budget and the economy as a whole. Sensitivity analysis reveals the uncertainty surrounding the estimates.

Source: Congressional Budget Office.

a. See Congressional Budget Office, *Options for Changing the Retirement System for Federal Civilian Workers* (August 2017), www.cbo.gov/publication/53003.

b. See Wendy Kiska, Jason Levine, and Damien Moore, *Modeling the Cost of the Pension Benefit Guaranty Corporation's Multiemployer Program*, Working Paper 2017-04 (Congressional Budget Office, June 2017), www.cbo.gov/publication/52749; Congressional Budget Office, *Options to Improve the Financial Condition of the Pension Benefit Guaranty Corporation's Multiemployer Program* (August 2016), www.cbo.gov/publication/51536; and *The Risk Exposure of the Pension Benefit Guaranty Corporation* (September 2005), www.cbo.gov/publication/17160.

c. See Congressional Budget Office, *The 2017 Long-Term Budget Outlook* (March 2017), www.cbo.gov/publication/52480; *Social Security Policy Options, 2015* (December 2015), www.cbo.gov/publication/51011; and *Measures of the U.S. Government's Fiscal Position Under Current Law* (August 2004), www.cbo.gov/publication/15943.

communicate different information. The greater the difference between measures, the greater the need for policymakers to consider how relying on one particular measure might affect decisions related to resource allocation. For example, policymakers have incentives to limit costly activities or expand programs that generate budgetary savings in order to devote budgetary resources to other priorities. The case for accrual estimates—which have the potential to more accurately reflect anticipated net budgetary effects over the long run—is strongest where near-term cash estimates fail to demonstrate accurately whether commitments involve long-term costs or savings. If 10-year cash measures correctly indicate whether programs result in net costs or savings but fail to account for the full magnitude of budgetary effects, accrual measures might be helpful. But in cases where the measures are similar, accrual-based accounting would be less relevant.

For some federal programs, the potential added value of accrual information is clear. For example, accrual measures of federal retirement costs provide policymakers with a very different perspective of costs than cash measures do. The reason is that the time between when the commitments are incurred and when they are settled is long. However, no such sweeping statements can be made in the case of federal insurance programs because the time lags vary considerably across programs. For example, cash and accrual measures probably provide similar signals to policymakers for commitments that involve short or moderate lags in timing (such as those related to federal crop insurance) but very different signals for commitments that involve longer lags in timing.

In particular, cash measures fail to reveal information about the worsening financial condition of the Pension Benefit Guaranty Corporation (PBGC), which insures pension plans operated by private firms. Cash-based budget projections currently indicate that PBGC's activities will reduce deficits over the next 10 years. The budget reports savings largely because of long timing lags between income (including premiums paid by plans and income from assets of certain failed plans) and payments for financial assistance to annuitants in terminated single-employer plans and to insolvent multiemployer plans (which may take more than 20 years to be fully realized for both programs). Accrual measures could provide helpful information about the pension

guarantees, which are not a long-term source of net savings.⁵⁰ (Cash measures also led to estimates of significant net savings over 10 years for the Community Living Assistance Services and Supports, or CLASS, program, which was intended to generate neither costs nor savings over the long run.)⁵¹

In addition, adjusting the accrual measures for the cost of market risk would raise the estimated cost of insurance programs and might send decidedly different signals than cash measures, particularly for those that insure against risks that are closely correlated with the state of the economy.

Nature of the Commitment. Another critical consideration is whether federal commitments are sufficiently firm to justify including, in accrual measures, cash flows that are anticipated to occur far into the future. The government commits resources for the future in different ways: by signing contracts; by assuring federal workers that they will receive a pension; and by offering insurance on crops, pensions, and bank deposits. Sometimes those commitments are explicit, contractual, or otherwise legally binding; once made, they will affect cash flows in future years. Other commitments may be

50. Under current law, PBGC does not have access to any budgetary resources beyond income generated by its insurance programs, which CBO expects will restrict the agency's ability to pay all the claims that are likely to arise. In 2016, CBO projected the net costs (claims less premium income) for PBGC's multiemployer program to be \$101 billion over 20 years on a fair-value basis (compared with \$34 billion on a cash basis) without regard for the current-law limitation on federal financial liability. See Congressional Budget Office, *Options to Improve the Financial Condition of the Pension Benefit Guaranty Corporation's Multiemployer Program* (August 2016), www.cbo.gov/publication/51536.

51. The Patient Protection and Affordable Care Act (P.L. 111-148) authorized the CLASS program, a voluntary federal program for long-term care insurance. Unlike most health insurance, which is sold on an annual basis, participants were to pay premiums over several years that would cover health care costs incurred far in the future. The program was intended to generate neither costs nor savings over the long run, but the cost estimate anticipated net savings of \$70 billion over 10 years. CBO estimated that CLASS would increase budget deficits in later decades by more than the initial savings in the first 10 years. The program was never implemented because of concerns about its sustainability. See Congressional Budget Office, letter to the Honorable Tom Harkin, providing additional information on CLASS program proposals (November 25, 2009), www.cbo.gov/publication/41833.

implicit or not as firm; they will be met under current law or policy if sufficient resources are available to cover their costs, but they are ultimately governed by laws and policies that could be changed at any time.⁵²

The treatment of federal programs in the *Financial Report of the United States Government*, which is generally prepared on an accrual basis, is a potential source of insight into the nature of federal commitments.⁵³ However, that report serves different purposes than the budget, and the criteria used to determine whether commitments are reflected in financial statements are based on standards and rules for financial reporting that may not be suitable for budget projections. For example, financial statements reflect future costs or receipts from existing commitments or agreements that are considered binding and probable on the basis of past transactions or events. In some cases—including certain federal insurance programs—financial statements exclude potential costs that might arise in the future under existing policies.⁵⁴ Budget projections, however, generally reflect anticipated cash flows stemming from commitments—even if they are not firm—as long as they are probable under current laws and policies.

Accrual measures are particularly well-suited in instances where federal commitments are firm and legally binding; that is, they cannot be unilaterally changed by the government, and the government's obligation to discharge those commitments is clear. Federal credit programs fall in that category because they involve firm contractual

commitments between federal agencies and borrowers (or originators of guaranteed loans and securities).

That rationale may not apply to other programs that might otherwise be candidates for accrual-based budgetary treatment. For example, federal commitments to pay retirement benefits to federal workers are not contractual obligations. Rather, those benefits are governed by underlying laws that could be changed at any time. Nevertheless, some analysts argue that expanding the use of accrual measures to account for federal retirement programs may be warranted, given their potential for illuminating the full extent of costs stemming from near-term decisions about the federal workforce and compensation structure.

Measuring the government's commitment on an accrual basis is particularly complicated for programs where lawmakers retain legal control over the amount of resources available to cover the net costs of federal commitments. Indeed, with some exceptions (most notably, estimates of future spending related to entitlement programs), CBO's baseline projections and legislative cost estimates reflect legal limits to agencies' authority to obligate federal resources precisely so that policymakers can apply budget enforcement mechanisms to new laws that would increase or reduce the amount of legally available resources.

For example, although most federal insurance commitments involve legally binding commitments to make payments if certain events occur, some insurance programs face constraints on the availability of budgetary resources to discharge such commitments in a timely fashion. In particular, the ultimate cost of federal commitments related to flood and pension insurance may exceed amounts payable over a given period of time because of budgetary resource constraints on amounts agencies can spend to discharge claims.⁵⁵ In keeping with the rules and procedures that govern the Congressional budget process, CBO's baseline projections and legislative cost estimates for both flood and pension insur-

52. See Government Accountability Office, *Fiscal Exposures: Improving Cost Recognition in the Federal Budget*, GAO-14-28 (October 2013), www.gao.gov/products/GAO-14-28.

53. Agencies prepare their financial statements on an accrual basis, and the Treasury consolidates those statements in Department of the Treasury, *Financial Report of the United States Government FY 2016* (January 2017), www.fiscal.treasury.gov/fsreports/rpt/finrep/ft/fr_index.htm. Also see Congressional Budget Office, *Comparing Budget and Accounting Measures of the Federal Government's Fiscal Condition* (December 2006), www.cbo.gov/publication/18262.

54. Financial statements make a distinction between losses that are probable and reported on the balance sheet and those that are contingent and disclosed in notes. By contrast, CBO's cost estimates for federal insurance programs reflect the range of possible outcomes, including events that are unlikely. See Congressional Budget Office, *Measures of the U.S. Government's Fiscal Position Under Current Law* (August 2004), pp. 12–17, www.cbo.gov/publication/15943.

55. Through the National Flood Insurance Program, the government offers insurance against flood risks to residential properties. The program's ability to borrow from the Treasury is limited by statute. The government also insures private pension plans against the risk that a firm sponsoring an underfunded pension plan fails. However, PBGC's ability to pay claims is limited to its own resources, which will probably not be sufficient to cover the claims.

ance reflect resource constraints; thus, they indicate the amount of claims that are payable during a given period, which may be less than the amount owed to policyholders.⁵⁶ If such limits are reached, lawmakers would need to decide whether to enact new legislation to enable agencies to continue to pay all claims as they arise.⁵⁷

For programs that face resource constraints or other sources of fiscal imbalance, estimates and projections prepared on either a cash or an accrual basis may understate the full cost of federal commitments if they reflect those constraints. Alternative measures that ignore such constraints (whether prepared on a cash or accrual basis) would reflect the full cost of the commitments, thus more comprehensively illuminating programs' fiscal imbalances, but they also might prematurely recognize costs stemming from commitments that might not be paid in the future absent a change in current law.

Practicality and Reliability. One primary advantage of accrual measures is their ability to correct for timing issues posed by cash measures. In some cases, however, it may not be practical to estimate the net present value of long-term effects with sufficient accuracy. Projections of budgetary effects always involve some uncertainty. The challenges are greater with accrual measures because they may span a longer period of time, estimates can vary substantially depending on the discount rate used, and analysts need to make more judgments if market risk is taken into account. Consequently, some analysts may question the validity of using accrual measures to make near-term budgetary decisions.

Approaches to Expanding the Use of Accrual and Other Long-Term Measures in the Federal Budget Process

To improve decisionmaking about resource allocations across and within programs, policymakers have options for incorporating information about long-term budgetary effects for select federal programs into the federal budget process:⁵⁸

- Policymakers could expand the use of accrual measures for all aspects of budgetary treatment and accounting for additional activities where they believe such changes would be useful.
- Alternatively, lawmakers could maintain cash budgetary treatment but require the use of accrual-based measures for purposes of enforcing Congressional rules.
- More broadly, policymakers could consider accrual and other long-term measures as supplemental information without any direct consequences for budget enforcement, although such information could have less impact on policymakers' decisions.

The more that accrual-based measures were formally incorporated in the budget process, the greater their potential to ensure that long-term effects would be taken into consideration. Such changes would affect measures of activities' impact on the deficit, though possibly in different ways. In addition, they could potentially alter how the burden of statutory budget enforcement mechanisms—namely, required cuts to budgetary resources—would affect different federal programs.

Adopting Accrual-Based Budgetary Treatment and Accounting. Under this approach, accrual measures for some programs would be reported in the budget and used for purposes of budget enforcement, as is now the case for federal credit programs. Such an approach would ensure that policymakers' decisions about resource allocation were based on estimates of the net cost of federal commitments that capture the cash flows beyond the 10-year budget window. Because measures used throughout the federal budget process would be developed on a consistent basis, estimates used for purposes of considering legislation would be consistent with those used to determine whether statutory budget enforcement mechanisms ultimately apply. As with credit programs, underlying cash flows would still be tracked for purposes of debt management and to reconcile accrual-based estimates recorded in the budget with actual cash flows.

Policymakers would need to agree on which programs might be candidates for such modified budgetary treatment. On the basis of international experience, some agreement exists among analysts that accrual-based budgetary treatment might be particularly useful for federal employees' retirement benefits and for a limited number

56. By contrast, the Administration's baseline projections and cost estimates for pension and flood insurance do not take into account constraints on budgetary resources.

57. For example, after the flooding that accompanied Hurricane Katrina, lawmakers increased the National Flood Insurance Program's ability to borrow from Treasury to allow claims to be paid in a timely fashion.

58. This report does not address the broader issue of how accrual measures might affect perceptions of the overall scope and magnitude of federal activities.

of federal insurance programs.⁵⁹ Some analysts also maintain that displaying the budgetary effects of social insurance programs, including Social Security, on an accrual basis might provide policymakers more helpful information and stronger incentives to make changes to those programs.⁶⁰

Using Accrual Measures Only for Purposes of Congressional Budget Enforcement. Under this approach, the costs of most federal activities would continue to be reported in the budget on a cash basis, but Congressional budget enforcement would depend on accrual measures. That approach might improve policymakers' ability to base resource allocation decisions on the underlying economic substance of policy options but would be less burdensome than adopting accrual measures for all aspects of federal budgeting and accounting.

The major disadvantage of this approach is that estimates used for the consideration of new legislation might have a different basis than the estimates used by the Administration to execute statutory requirements for budget enforcement—namely, sequestration. In other words, such differences might affect both the overall magnitude of required reductions in federal spending and the spread of those reductions across affected programs. Using different measures for the Administration's execution of statutory budget rules and the Congressional budget process could also introduce confusion and complicate communication between the Administration and the Congress.

The different treatments of Fannie Mae and Freddie Mac in the budget and Congressional budget process illustrate the trade-offs. Accrual estimates that incorporate an adjustment for market risk are used in the Congressional budget process but not by the executive branch to

account for the costs of Fannie Mae and Freddie Mac.⁶¹ One implication is that the Congress and OMB use different measures for at least some enforcement purposes. (CBO reports the current-year effects of those entities' operations on a cash basis in order to align its estimate of the budget deficit with that of OMB). Using different measures contributes to the confusion as to whether the activities of Fannie Mae and Freddie Mac generate money for the government or are costly.

Providing Supplemental Estimates. Forward-looking accrual measures could be made available on a supplemental basis to highlight differences from cash estimates. For example, CBO has provided accrual estimates on a fair-value basis for federal pension insurance.⁶² Because such supplemental measures would not directly affect budget totals or the use of budget enforcement mechanisms, they might not affect budget and policy decisions to the same extent that the other approaches might. However, policymakers would have more information, and they could judge its usefulness.

Supplemental information could also be provided in the form of cash estimates that extend beyond the traditional 10-year budget window. When analyzing long-term changes in spending, revenues, deficits, and debt, CBO usually measures those amounts relative to economic output. That approach automatically incorporates inflation and the growth in population, output, and income, providing context for understanding the size of the government's activities at different points in time and their effects on the sustainability of the budget.

The Congress could request that some cash estimates cover periods beyond 10 years for major policy changes that have lags in the timing of their cash flows. CBO already prepares long-term projections that express spending as a percentage of GDP under current law for

59. See Government Accountability Office, *Budget Issues: Accrual Budgeting Useful in Certain Areas but Does Not Provide Sufficient Information for Reporting on Our Nation's Longer-Term Fiscal Challenge*, GAO-08-206 (December 2007), www.gao.gov/products/GAO-08-206.

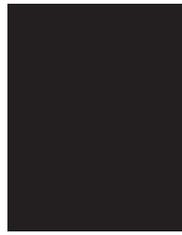
60. See Marvin Phaup, *Budgeting for Mandatory Spending* (paper prepared for presentation at the 2016 meeting of the Southern Economic Association, Washington, D.C., November 20, 2016); and Howell Jackson, "Accounting for Social Security and Its Reform," *Harvard Journal of Legislation*, vol. 41, no. 1 (2004), pp. 59–159.

61. Because only OMB provides reestimates of subsidy costs of credit programs, its cash accounting of the entities' activities means no such reestimates are needed.

62. See Congressional Budget Office, *Options to Improve the Financial Condition of the Pension Benefit Guaranty Corporation's Multiemployer Program* (August 2016), www.cbo.gov/publication/51536; and *The Risk Exposure of the Pension Benefit Guaranty Corporation* (September 2005), www.cbo.gov/publication/17160. Also see Wendy Kiska, Jason Levine, and Damien Moore, *Modeling the Costs of the Pension Benefit Guaranty Corporation's Multiemployer Program*, Working Paper 2017-04 (Congressional Budget Office, June 2017), www.cbo.gov/publication/52749.

major components of the federal budget—particularly social insurance programs. Such projections cover time spans of 30 years and, while subject to considerable uncertainty, provide information about the overall direction, magnitude, and timing of receipts and spending. Those estimates reveal a growing imbalance in the federal

budget beyond the next 10 years and significant increases in federal debt under current law. However, long-term estimates are particularly uncertain and can require significantly more time and resources to prepare. Including such information in cost estimates for legislation may be feasible only in limited circumstances.



About This Document

This report was prepared at the request of the Chairman of the House Committee on the Budget. In keeping with the Congressional Budget Office's mandate to provide objective, impartial analysis, the report makes no recommendations.

Megan Carroll and David Torregrosa wrote the report with guidance from Sebastien Gay and Damien Moore (formerly of CBO) and contributions from Justin Humphrey. Kim Cawley, Michael Falkenheim, Kathleen Gramp, Theresa Gullo, Nadia Karamcheva, Joseph Kile, Wendy Kiska, Jason Levine (formerly of CBO), Sam Papenfuss, Jeffrey Perry, Dawn Sauter Regan, Mitchell Remy, John Skeen, Rebecca Verreau, and Christopher Williams provided useful comments on various drafts of the report.

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