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## **A Summary of Selected CBO Reports on Cash and Accrual Budgeting**

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To enhance the transparency of the work of the Congressional Budget Office and to encourage external review of that work, CBO's working paper series includes papers that provide technical descriptions of official CBO analyses as well as papers that represent independent research by CBO analysts. Papers in this series are available at <http://go.usa.gov/xUzd7>.

This working paper summarizes the findings of three Congressional Budget Office reports: *Accounting for Federal Retirement and Veterans' Benefits: Cash and Accrual Measures* (September 2019), [www.cbo.gov/publication/55499](http://www.cbo.gov/publication/55499); *Measuring the Costs of Federal Insurance Programs: Cash or Accrual?* (December 2018), [www.cbo.gov/publication/53921](http://www.cbo.gov/publication/53921); and *Cash and Accrual Measures in Federal Budgeting* (January 2018), [www.cbo.gov/publication/53461](http://www.cbo.gov/publication/53461).

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## **Abstract**

Federal retirement programs and some federal insurance programs have long-term effects on the budget. But the federal budget process typically uses cash-based accounting measures that cover a 10-year period, which may be too short to accurately report those programs' net budgetary effects over the long term. In contrast, using accrual accounting for such programs would accelerate the recognition of long-term costs and would display the expected costs of new commitments when they were incurred and thus were most controllable. However, such estimates are less transparent and verifiable than cash-based estimates, involve more uncertainty, and can complicate budget reporting.

*Keywords:* accrual accounting, federal budgeting, federal insurance, federal retirement

*JEL Classification:* G00, H50, H60, H61, H81, H83, J32, J45

## **Note**

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

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## Introduction

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 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. In contrast, accrual measures record the estimated value of expenses and related receipts when a commitment is first made rather than when subsequent cash transactions occur. Accrual measures summarize—as a single number in net-present-value terms—a program’s anticipated cash flows over many years by adjusting (discounting) future payments and income for the time value of money to make that stream of transactions comparable to an equivalent lump sum at a specific time.<sup>1</sup> Currently, most federal activities are recorded in the budget on a cash basis; the major exception is federal credit programs, which are recorded on an accrual basis.<sup>2</sup>

Recognizing the full cost of decisions up front is a key pillar of budgeting. Whether programs are accounted for on a cash or accrual basis can, in some cases, significantly affect the size and timing of their estimated budgetary effects, measures of which are used by policymakers to allocate limited federal resources. Factors for assessing whether accrual measures offer helpful information include whether they provide a complete and relevant picture of a program’s budgetary effects, are practical and accurate enough to use in the budget process, and are appropriate for the various types of federal commitments.

The federal budget process primarily uses cash-based measures of budgetary effects over the next 10 years, but that period may not be long enough to capture the full extent of some effects. Accrual-based estimates that consider long-term effects provide more complete information about programs that involve longer time frames, such as some federal insurance programs and federal civilian and military retirement programs. Those estimates make it easier to compare the costs of programs that differ in the timing of their cash flows; however, accrual estimates are less transparent and verifiable than cash-based estimates, involve more uncertainty, and can make the budget process more complex.

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<sup>1</sup> Calculating such a present value depends on the rate of interest (known as the discount rate) used to translate future cash flows into current dollars. For example, if \$100 is invested on January 1 at an annual interest rate of 5 percent, it will grow to \$105 by January 1 of the next year. Hence, with a discount rate of 5 percent, \$105 payable a year from today has a present value of \$100.

<sup>2</sup> 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 Treasury’s debt issues.

# How Accrual Accounting Currently Works in the Federal Budget

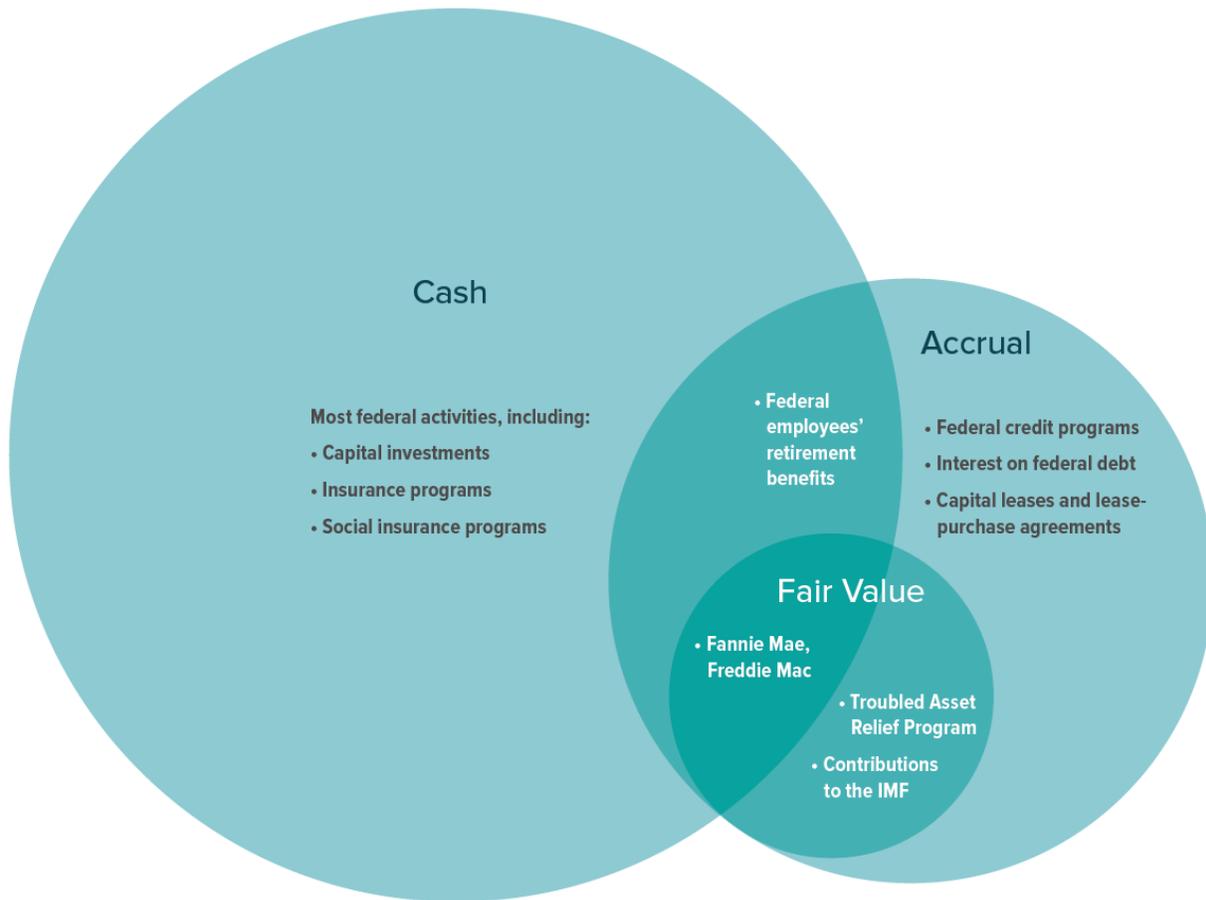
Accrual measures are used in the federal budget for a few activities—mainly federal credit programs (such as student loans and mortgage guarantees), interest on the debt, and capital leases (see Figure 1). Those measures help policymakers compare the net costs of programs despite differences in the timing of their cash flows (CBO 2018a). The largest differences between accrual measures and cash measures occur in federal credit programs.

Figure 1.

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## Current Budgetary Treatment of Selected Federal Programs

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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.

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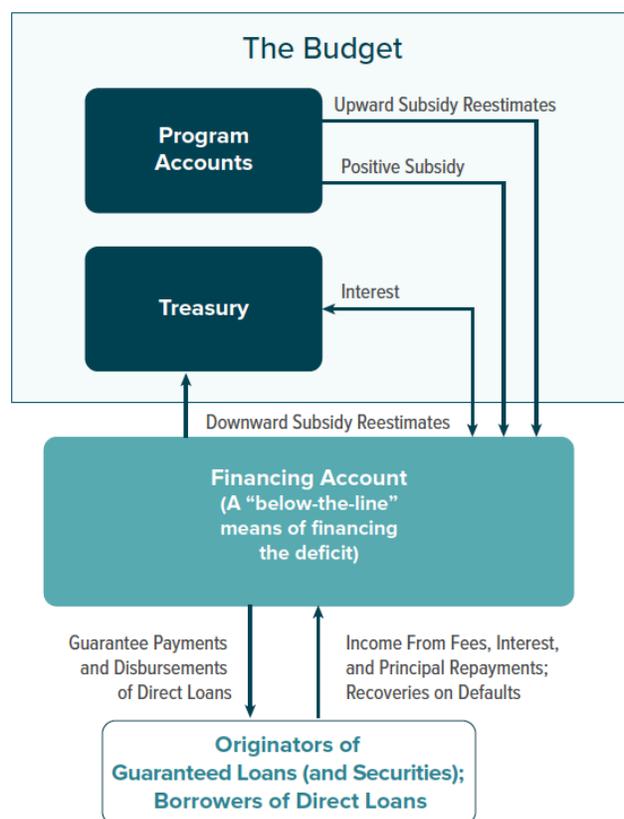
## FCRA-Based Budgetary Treatment

The Federal Credit Reform Act of 1990 (FCRA) specifies that the budget reflect the anticipated net cost (or savings) of a loan or loan guarantee—known as the subsidy cost—on an accrual basis when the loan is disbursed (Phaup 1996). Policymakers made the switch from cash to accrual accounting to more accurately measure the full net cost of credit programs over the long term, to facilitate comparisons of the net cost of direct loans, loan guarantees, grants, and other programs, and to improve the allocation of budgetary resources.

For each credit program, the FCRA approach requires two accounts: an on-budget *program* account and a nonbudgetary *financing* account (see Figure 2). The program account shows (on an accrual basis) the net subsidy costs over the life of the program’s loans, and the financing account reflects (on a cash basis) cash flows between the government and nonfederal entities, such as originators or borrowers of federal loans. (FCRA specifies that the administrative costs of those programs be recorded separately and accounted for in the program account and the budget on a cash basis.) Whereas the transactions of program accounts are included in measures of the deficit; cash flows to and from financing accounts are excluded. (In technical terms, those cash flows are considered a means of financing the deficit.) If the program has a positive subsidy (that is, anticipated net costs over the life of the loans), the program account makes an accrual-based payment to the financing account to cover the net present value of expected costs for each credit cohort (all the loans or loan guarantees that the program

Figure 2.

## Current 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.)

Reestimates 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.

obligates in a given year); that payment is recorded as an outlay in the budget. If the program has a negative subsidy, the financing account makes an accrual-based payment to an on-budget receipt account in the Treasury; that receipt counts as a negative outlay in the budget.

Under FCRA, agencies prepare accrual-based reestimates of the subsidy costs for existing credit cohorts each year, reflecting the most recent information about the program. Like the original estimates of subsidy costs, 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 receipt account. Interest transactions—which can flow in either direction between the financing account and the Treasury—take into account the time value of money (the fact that a dollar today is worth more than a dollar at some future date because it can earn interest in the interim). Over time, as credit subsidy reestimates are made to align initial estimates with the cash flows that actually result and the net budgetary effects of the program are fully reflected in the program account, the inflows or outflows of the program’s financing account should net to zero.

### **Fair-Value Budgetary Treatment**

In addition to the accounting approach taken under FCRA, a related approach, known as fair value, can be used to provide a more comprehensive measure of the costs of federal credit programs and other types of financial assistance (CBO 2018b, CBO 2019a). FCRA measures do not fully account for the cost of the risk the government takes on 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 on the basis of 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.<sup>3</sup>

The difference between the two approaches lies in their treatment of the cost of that market risk, which is the component of financial risk that remains even after investors have diversified their portfolios as much as possible.<sup>4</sup> Market risk 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

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<sup>3</sup> That approach is used in CBO’s baseline projections and legislative cost estimates related to Fannie Mae and Freddie Mac, two government-sponsored enterprises now in federal conservatorship. The Office of Management and Budget, however, does not treat those entities as governmental.

<sup>4</sup> For example, individuals can diversify their investments in stocks through mutual funds and stock index funds, such as those tracking the Standard & Poor’s 500—an index of 500 of the largest U.S. firms. Those investments minimize the idiosyncratic risk of any single company but still expose investors to overall declines in the stock market.

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 uses market prices to measure the cost to the public of federal loans and loan guarantees; that process generally entails using the discount rates on expected future cash flows that private financial institutions would use. In contrast, the FCRA approach uses the interest rates on Treasury securities to discount future cash flows. Those market-based discount rates are higher than Treasury rates; the difference effectively reflects the market risk inherent in the underlying cash flows.<sup>5</sup>

## **Advantages and Disadvantages of Cash and Accrual Measures**

In the budget, cash and accrual measures have advantages and disadvantages (Redburn 1993, Khan 2013, Warren 2015).

- Cash measures are transparent and verifiable, and they largely track changes in debt held by the public, which is a key measure of the government’s fiscal condition (Schick 2007). 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 with longer timing lags; for those programs, a significant portion of cash flows stemming from near-term commitments occur after the 10-year budget period (GAO 2019).
- 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 (Irwin 2012).
- 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 (Phaup 2019).

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<sup>5</sup> The fair value of an asset is defined as the price that would be received if that asset was 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.

- Accrual estimates, however, are methodologically complex, sensitive to technical assumptions, subject to the uncertainties of projecting program activity far into the future, and more volatile than cash measures.
- Accrual measures are harder to explain and understand than cash measures, particularly if they incorporate market risk.
- Increasing the use of accrual measures in the budget would pose implementation and transition issues (Khan and Mayes 2009). Formally adopting accrual-based budgetary treatment would require new account structures and reestimates to reconcile present-value estimates with actual cash flows.

In the context of federal budgeting, accrual measures offer mixed incentives. They strengthen lawmakers' incentives to consider the long-run budgetary effects of legislation by providing a way for proposals that would affect the budget after the 10-year period to be credited with long-term savings (or charged with long-term costs). But broader use of accrual measures might also let lawmakers use expected savings from potentially unsustainable legislative changes—such as significant cuts to federal retirement benefits in the long term—to finance near-term spending increases or tax cuts. In the future, lawmakers might feel it necessary to reduce or reverse the scheduled cuts to benefits. But because the short-term steps that raised spending or lowered revenues would have already occurred, undoing the scheduled cuts would add to the pressures on the federal budget.

Moreover, adding more accrual measures to a largely cash budget could create situations in which activities that might be similar would have different budgetary treatments, giving a program's advocates an incentive to seek to categorize their program in whichever manner would result in the preferred treatment.

## **Using Accrual Measures of Federal Insurance Programs in the Budget Process**

To make well-informed choices about federal insurance programs, policymakers need accurate measures of the extent to which a program's income is expected to cover the costs stemming from the risk assumed by the government. But the 10-year cash estimates used in the federal budget process may not span a period long enough to cover the full budgetary effects attributable to some insurance programs, particularly when long lags occur between commitments and resulting cash flows. That problem may be exacerbated for programs in which the timing of cash inflows and outflows do not coincide closely. In such cases, accrual measures that summarize anticipated cash flows over many years in net-present-value terms might help to highlight potential fiscal imbalances and options for addressing them (CBO 2018c, Phaup and Torregrosa 1999, GAO 1997, GAO 2007).

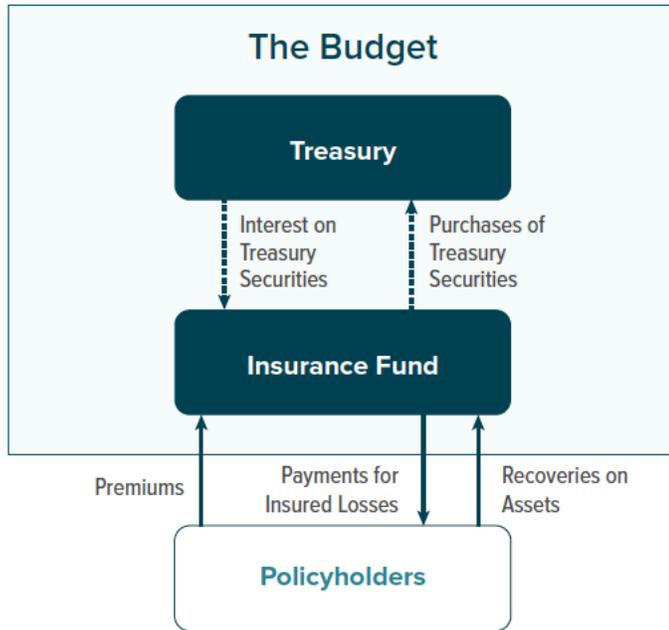
### Creating a New Account Structure for Federal Insurance Programs

Budgeting for insurance programs on an accrual basis would require a new account structure, which could be modeled on FCRA budgeting for credit programs. The key step would be to create an insurance fund (which would function like a financing account for a credit program) that would serve as a nonbudgetary accounting mechanism for tracking a program's cash flows. For programs such as deposit and flood insurance, the existing accounting mechanisms used to track cash flows would serve that purpose. Premiums and other income would be credited to the insurance fund, which would disburse payments for claims and other expenses. Under current budgetary accounting, the transactions of such funds are shown in the budget (see Figure 3). With accrual accounting, those cash flows would not be recorded in the budget. Instead, an on-budget accounting mechanism (similar to a program account under FCRA) would record the estimated subsidy cost of each year's cohort of insurance commitments (see Figure 4). That cost would be the net present value of all future cash flows expected to stem from insurance commitments included in that cohort. If the FCRA model was followed, analysts would need to make periodic reestimates to reconcile the accrual estimates with actual cash flows for each insurance cohort.

In the transition to an accrual budgetary treatment, policymakers would need to create a clear onetime separation between costs related to past commitments in existence at the time of the transition and costs related to new commitments. Following the approach used when FCRA was adopted, lawmakers could create liquidating accounts to report the cash flows of existing insurance policies and claims. That separation would be particularly important for pension insurance because payouts related to past commitments (for single-employer plans that have

Figure 3.

### Current Budgetary Treatment of Federal Insurance Programs



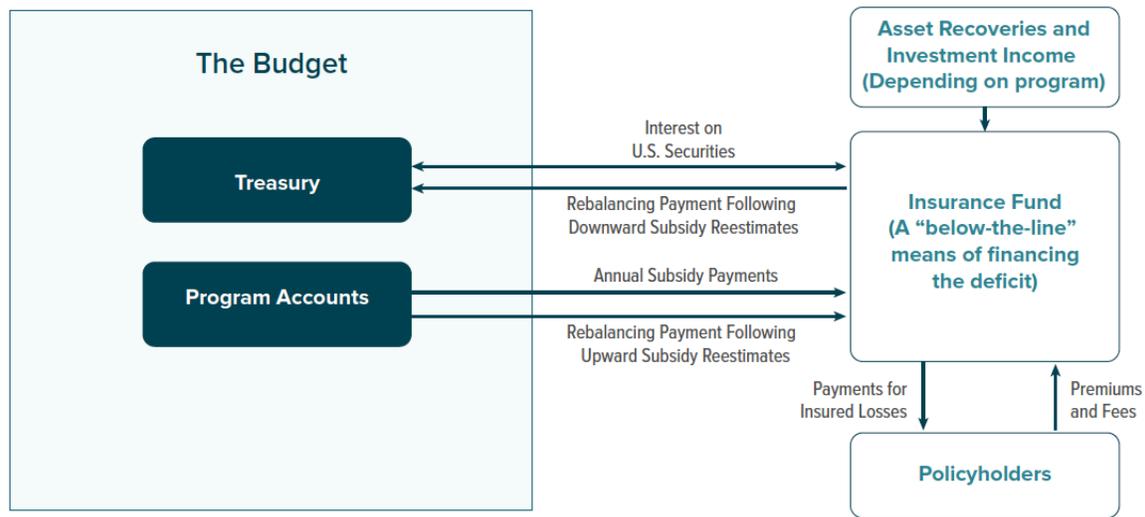
Source: Congressional Budget Office.

Dashed lines indicate intragovernmental transactions (amounts paid by one part of the government to another). Administrative costs are not shown.

Annual interest payments between the Treasury and the insurance fund could flow in either direction. If the insurance fund had been a net borrower, it would pay interest to the Treasury. Alternatively, if the insurance fund held government securities, the Treasury would pay interest to it.

Figure 4.

### An Accrual Approach to Budgeting for Federal Insurance Programs With Positive Subsidy Costs



Source: Congressional Budget Office.

Administrative costs are not shown.

The cash flows between policyholders and the insurance fund, as well as asset recoveries and any investment income on private securities, would be a means of financing the deficit and would be excluded from calculations of the deficit. (In other words, the insurance fund would be a "below-the-line" account.) That treatment matches how financing accounts for credit programs are treated under credit reform accounting.

If an insurance program is estimated to have a net cost, the program account would make a single payment to the insurance fund for each insurance cohort, as shown in the figure. Alternatively, if an insurance program is expected to result in net savings, the insurance fund would make a payment to a receipt account in the Treasury.

Subsidy reestimates would be made periodically. (For credit programs, subsidy reestimates are generally prepared on an annual basis for each cohort.) A positive (or upward) reestimate would result in a payment from the program account to the insurance fund. A negative (or downward) reestimate would result in a payment from the insurance fund to the receipt account in the Treasury.

Annual interest payments between the Treasury and the insurance fund could flow in either direction. If the insurance fund had been a net borrower, it would pay interest to the Treasury. Alternatively, if the insurance fund held government securities, the Treasury would pay interest to it.

already been taken over and multiemployer plans that are currently insolvent) could continue for decades.

Policymakers also would need to decide whether accrual measures for insurance programs should incorporate market risk. Federal insurance programs expose the government to market risk if their claims are likely to be higher (or their income lower) than usual when the economy as a whole is performing poorly. For programs that face a significant amount of market risk, such as pension and deposit insurance, accounting for that risk would result in more comprehensive estimates of federal costs (CBO 2005). However, including market risk might involve considerable analytical judgment and would cause those estimates to be more difficult to understand.

## **Usefulness of Accrual Measures for Certain Federal Insurance Programs**

Relative to 10-year cash estimates, accrual measures may be particularly useful for some insurance programs.

- For the Federal Deposit Insurance Corporation’s resolutions of troubled financial firms, carried out through the Orderly Liquidation Fund (OLF) and the Deposit Insurance Fund (DIF), annual cash flows may not be a good indicator of the net costs of a given year’s transactions—especially during or after a financial crisis, when losses are large. For any particular year or 10-year period, a snapshot of cash flows may not capture all of the up-front costs of resolving troubled institutions (if those resolutions occurred before the projection period) or all of the offsetting income from fees assessed on the financial industry (particularly if those receipts are expected to occur after the projection period). Accrual measures would largely eliminate timing-related distortions for resolution activities and, if calculated on a fair-value basis, would provide a fuller estimate of expected costs. Alternatively, some of the drawbacks of using cash measures for the OLF and the DIF could be lessened by keeping the cash budgetary treatment of losses and income but excluding transactions that involve working capital from estimates of the budget deficit.<sup>6</sup>
- For federal flood insurance, 10-year cash estimates may be dominated (particularly in the near term) by costs that stem from past events. By focusing instead on expected losses and income related to the insurance commitments made during a given period, accrual measures might help to highlight the program’s structural imbalances.
- For the Pension Benefit Guaranty Corporation (PBGC), 10-year cash measures fail to convey the size of the imbalance between the agency’s resources and its liabilities for future claims. Because of the long timing lags that typically occur between inflows and outflows in PBGC’s pension insurance programs, cash-based projections currently show net savings from those programs. Accrual measures would present a more accurate measure of PBGC’s long-term commitments.

### **An Example: Estimating the Cost of Federal Pension Insurance**

The rules that govern how pension plans are funded expose the Pension Benefit Guaranty Corporation to the risk of large losses—losses that far exceed PBGC’s ability to absorb them. In particular, the rules that specify how plans’ assets and liabilities are valued for purposes of determining the minimum amount of funding that employers must provide to pension plans create an incentive for plans’ managers to invest in risky securities, such as common stocks. The value of those assets can fluctuate considerably over time, whereas the benefits promised by plans remain fairly fixed. Thus, a drop in the value of those assets can lead to major

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<sup>6</sup> Working capital refers to the portion of up-front spending used to acquire assets of insolvent institutions that is expected to be offset in future years by receipts from the sale of those assets.

underfunding of plans, which makes their insolvency more likely. The fact that most pension plans use risky investment portfolios to fund their benefit liabilities exposes PBGC's insurance to a great deal of market risk—in that PBGC is vulnerable to the risk that many plans will become significantly underfunded when returns on those investments are low, particularly when economic conditions are weak.

To illustrate the magnitude of the differences between alternative measures of the cost of pension insurance, CBO prepared three estimates in May 2019 based on the net claims that PBGC's multiemployer program is projected to face from insolvencies over the next 21 years (CBO 2016; Kiska, Levine, and Moore 2017):<sup>7</sup>

- On a cash basis, CBO projected that claims for financial assistance from multiemployer plans would total \$58 billion over the 2019–2039 period. But the multiemployer program's projected resources during that period (\$8 billion in premiums and interest) would limit the amount of claims that could be paid to \$8 billion, resulting in unpaid claims of \$49 billion.<sup>8</sup>
- Using the FCRA approach, CBO estimated that total projected lifetime claims from multiemployer plans expected to become insolvent during the 2019–2039 period have a present value of \$64 billion. The multiemployer program's projected income from premiums and interest over that period has a present value of \$6 billion, resulting in a net-present-value cost of \$58 billion.<sup>9</sup>
- On a fair-value basis, CBO estimated that total projected lifetime claims from multiemployer plans expected to become insolvent during the 2019–2039 period have a present value of \$73 billion. That figure is larger than the FCRA-based estimate because of the significant amount of market risk that the multiemployer program is exposed to. The net present value of income from premiums and interest is the same, \$6 billion, resulting in a net-present-value cost of \$67 billion. That fair-value estimate approximates the amount that a private insurer would need to be paid to assume PBGC's obligations to pay all claims from multiemployer plans expected to face insolvency over the next 21 years.

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<sup>7</sup> PBGC's multiemployer program insures benefits for about 10 million participants in plans offered by groups of employers, typically in a unionized industry as part of a collective bargaining agreement.

<sup>8</sup> CBO estimated that PBGC's multiemployer revolving fund, which holds only Treasury securities, will earn less than \$500 million in interest over the entire period. Under current law, PBGC is allowed to pay claims for financial assistance only to the extent that its accumulated assets (premium payments and interest income on its investments) permit. CBO projects that the multiemployer program will be insolvent in 2025. The amount of financial assistance paid, not the total amount of claims, is recorded in the federal budget as the multiemployer program's outlays.

<sup>9</sup> Accrual estimates of premiums implicitly account for any interest that would be earned on the multiemployer program's revolving fund. Thus, CBO does not distinguish between premium income and interest income in its accrual projections.

## Using Accrual Measures of Federal Retirement Programs in the Budget Process

Federal budget totals reflect the cost of almost all benefit programs for federal retirees on a cash basis, as the benefits are paid.<sup>10</sup> Thus, the effect of those programs on the budget deficit is the difference between cash outflows for benefits and related cash inflows (mainly from federal workers’ contributions toward their future pensions) in a given year (see Figure 5). In many cases, however, individual agencies record those benefits differently. Most agencies’ annual budgets are charged for some of the costs of future retirement

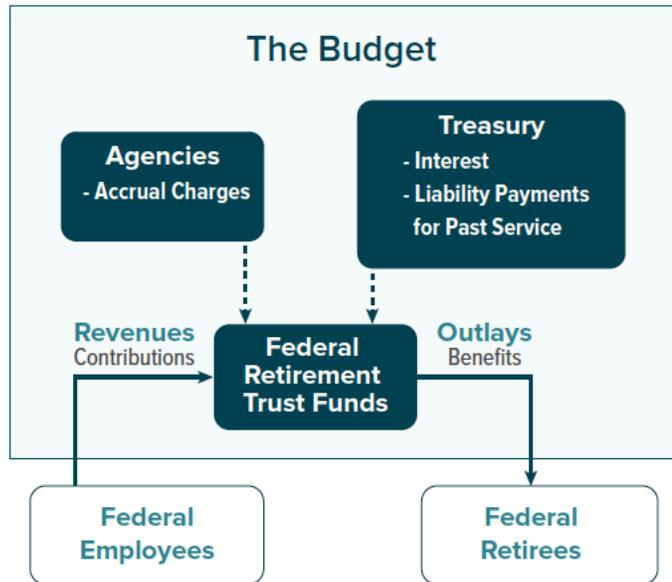
benefits that their employees earn in the current year. Those charges are calculated on an accrual basis and are credited to the federal retirement funds that will pay the benefits when they become due. Although accrual charges attribute the long-term costs of those benefits to agencies’ current budgets, they are recorded as intragovernmental payments (transfers from one part of the government to another) and have no net effect on the deficit. In contrast, agencies’ contributions to the Thrift Savings Plan (TSP), a defined contribution pension plan similar to 401(k) plans used in the private sector, are immediately reported as budget outlays.

### Creating a New Account Structure for Federal Retirement Benefits

Following the FCRA approach, if retirement programs were recorded in the budget on an accrual basis, the retirement trust funds used to track cash flows between federal agencies, retirees, and current workers would become nonbudgetary (“below the line”) accounts for tracking programs’ cash flows—similar to financing accounts for credit programs (CBO 2019b). New accounts would have to be set up for retirement benefits that are currently paid from the Treasury’s

Figure 5.

### Current Budgetary Treatment of Federal Retirement Costs



Source: Congressional Budget Office.

Dashed lines indicate intragovernmental transactions (amounts paid by one part of the government to another).

<sup>10</sup> The federal government also faces separate long-term commitments to pay benefits to eligible veterans. Almost all of those benefits are reported on a cash basis. Switching to accrual measures for veterans’ benefits would involve a number of budgetary challenges (CBO 2019b).

general fund rather than from retirement trust funds. All of those nonbudgetary accounts would be excluded from calculations of the deficit.

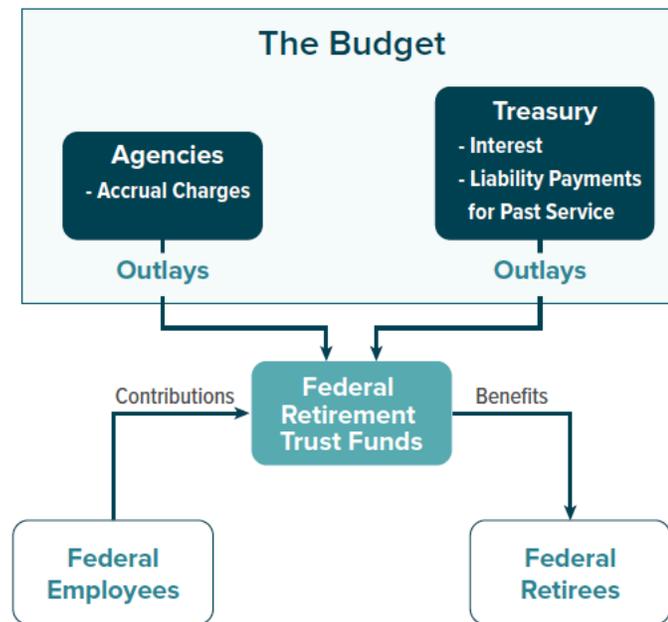
The budget would record the following transactions with those nonbudgetary accounts as outlays (see Figure 6):

- Agencies’ annual accrual charges, which would measure the budgetary resources being conveyed to the nonbudgetary accounts used to track programs’ cash flows;
- The Treasury’s net positive or negative outlays for any reestimates considered necessary, over time, to reconcile the balances of the nonbudgetary accounts with plans’ liabilities and for payments to gradually fund the cost of benefits earned by past employees before agencies began making accrual payments;<sup>11</sup> and
- Annual interest payments from the Treasury to those accounts on their holdings of Treasury securities.

Under an accrual budgetary treatment, those federal payments to nonbudgetary accounts would factor into measures of the deficit, which could improve the budget’s usefulness in identifying how government spending for federal retirement benefits might affect the economy. Transactions between those nonbudgetary accounts and individuals—such as contributions from current workers and spending for benefits to current retirees—would be recorded on a cash basis in the

Figure 6.

### An Accrual Approach to Budgeting for Federal Retirement Costs



Source: Congressional Budget Office.

<sup>11</sup> Such payments to or from the Treasury might be needed to adjust the accounts’ balances for changes in actuarial assumptions and experience. Reestimates would probably be made at the program level rather than for every cohort, which would simplify the process and reduce the administrative burden. For pension plans operated by the private sector or by state and local governments, the standard funding practice is for a plan’s sponsor to make not only normal-cost payments but also amortization payments (including for liabilities for past service) to align the pension fund’s balance with the plan’s liabilities. The Treasury currently makes a series of amortization payments to the largest federal retirement trust funds.

accounts and have no direct effect on the deficit. In the current system, by contrast, those transactions are recorded on a cash basis in the budget.

A more limited approach for increasing the use of accrual measures in accounting for federal retirement benefits in the budget would require agencies to expand the scope of benefits for which they incur annual accrual charges. Agencies already pay most of the accrued normal cost of pension benefits (a measure of the additional liability to pay benefits that a retirement plan accrues during a year because of work performed in that year) for civilian employees to the government's retirement trust funds. However, no federal civilian agency makes accrual payments for retirees' health care benefits; those costs are charged (on a cash basis) to the Office of Personnel Management rather than to the employing agencies. The Department of Defense's (DoD's) budget already reflects accrual costs for pension benefits and for the supplemental cost of health care for military retirees who qualify for Medicare. But DoD's budget does not cover accrual costs for other health care benefits for its retirees.

Expanding the scope of accrual charges would significantly affect agencies' budgets.<sup>12</sup> Unless an agency received a funding increase to cover the cost of new accrual charges, that change would require the agency to devote more of its annual budget to personnel-related costs, potentially constraining program spending.

### **Advantages and Disadvantages of Accrual Measures for Federal Retirement Programs**

Although cash-based measures are transparent and readily verifiable, accrual measures can improve decisionmaking and give a clearer picture of the annual change in the long-term sustainability of the government's retirement programs, for several reasons.

- The cash-based estimates used in the budget to account for federal retirement benefits can provide incomplete and potentially misleading information—mainly because of the sizable time difference between when commitments to provide benefits are incurred and when those benefits are paid, coupled with the truncation caused by the 10-year budget period. The fact that some retirees' benefits may be paid over many decades also contributes to the shortcomings of 10-year cash-based measures. That situation may contribute to a tendency to weight the government's mix of current and deferred compensation more heavily toward deferred compensation (Leonard 1986).
- Accrual measures would recognize the costs of retirement benefits when they were incurred and thus when they were most controllable by policymakers.

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<sup>12</sup> When the Administration, in its 2003 budget request, proposed accruing retirement costs for federal employees, it also proposed increasing agencies' budget authority to cover the newly recognized expense. Otherwise, agencies would need to cut spending for other discretionary expenses or reduce employment to pay the increased accrual charges (CBO 2002).

- By measuring all forms of current and deferred compensation on a consistent basis, accrual estimates might enable more meaningful comparisons between alternative compensation structures. For example, accrual measures would highlight budgetary trade-offs between current and deferred compensation or between traditional defined benefit pensions and defined contribution TSP accounts (CBO 2017).
- By summarizing long-term budgetary effects up front, accrual measures would give policymakers a more accurate sense of whether and how much proposed changes to deferred compensation would increase or decrease the deficit over the long term. That perspective is especially important when considering changes to defined benefit pensions, which involve commitments over long periods of time.
- Accrual measures would make it harder for lawmakers to engineer more favorable budgetary outcomes by shifting the timing of a program's cash flows (such as by delaying the payment date for monthly pension benefits to the next fiscal year to reduce the reported deficit in the current year).

Using accrual measures for federal retirement programs would have some drawbacks, however, compared with cash-based measures.

- Accrual measures are more methodologically complex and potentially harder to understand. For example, accrual measures for pension plans are based on actuarial estimates that incorporate forecasts of future interest rates, wages, length of employees' service, and mortality rates.
- Accrual estimates generally have a wider range of uncertainty because of their longer time horizons and their reliance on the technical assumptions used to discount the value of future cash flows. Thus, accrual estimates are typically subject to larger revisions than cash-based estimates. In particular, small changes in discount rates could lead to large reestimates of accrual measures. Such updates could cause swings in the deficit, as reestimates for federal credit programs do, but the swings attributable to reestimates for retirement benefits might be larger.
- Transitioning to accrual measures and implementing those changes would pose challenges. For example, policymakers would need to determine how to report the cost of \$5 trillion of existing federal liabilities for retirement benefits.<sup>13</sup> In addition, new federal accounts would need to be established to reconcile accrual estimates with actual cash flows.

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<sup>13</sup> Actuaries estimate that as of September 30, 2018, those liabilities included \$3.7 trillion in pension liabilities for federal civilian employees and military personnel and \$1.2 trillion in liabilities for retirees' health care benefits (Department of the Treasury 2019).

### **An Example: Estimating the Cost of Modifying Federal Retirement Benefits**

In a recent report, CBO analyzed a policy that would replace the defined benefit Federal Employees Retirement System (FERS) for newly hired federal civilian workers with an expansion of the defined contribution TSP (CBO 2017). The option would eliminate the FERS pension, boost the government's automatic TSP contribution to 10 percent of an employee's salary, and eliminate the government's matching contribution.<sup>14</sup>

CBO examined how the option would change federal spending for civilian workers on a cash basis and an accrual basis (under the assumption that appropriations would be adjusted by an amount commensurate with the accrual estimates). On a cash basis, CBO measured federal outlays (for payments of pension benefits and the government's contributions to employees' TSP accounts) and revenues (from employees' contributions toward their future pensions) in nominal terms over the coming 10 years and as a share of the nation's gross domestic product over 75 years. When measuring costs on an accrual basis, by contrast, CBO estimated the percentage of the salaries of all new employees that the government would need to set aside each year to fully fund those workers' pension and TSP benefits.

For illustrative purposes, CBO compared the cash and accrual costs for federal workers who would be hired in 2018. On a cash basis, the option would impose costs in the near term because it would require larger up-front outlays for the government's TSP contributions. But relative to current law, costs would be lower in the future, particularly when employees affected by the option retired. The accrual estimate captures that effect.

Specifically, CBO estimated that the option would have had the following effects:

- It would have *increased* the government's net retirement costs for employees enrolled in FERS by 17 percent over 10 years on a cash basis but would have *reduced* net cash outflows by about 3 percent over 75 years on a present-value basis.
- It would have reduced accrual costs for new employees by 29 percent because the government's contributions to fully fund those workers' benefits would have dropped from 14.2 percent of salary to 10.0 percent.<sup>15</sup>

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<sup>14</sup> Under current law, federal employees hired in 2018 contribute 4.4 percent of their salary to the FERS pension. The government makes an automatic TSP contribution of 1 percent of salary and matches employees' contributions up to an additional 4 percent.

<sup>15</sup> Those estimates do not reflect the Office of Personnel Management's recent revisions to its actuarial assumptions, which increased the normal cost for most employees as of October 1, 2019. (The normal cost is a measure of the additional liability to pay benefits that a retirement plan accrues during the year because of work performed in that year.)

## **International Experience With Accrual Accounting and Budgeting**

The Organisation for Economic Co-operation and Development (OECD) reports that since the early 2000s, several of its member countries have expanded their use of accrual measures for financial accounting and budgeting; others have retained cash-based measures (OECD and IFA 2017, van Helden and Reichard 2018). For OECD countries that use accrual-based budgeting to recognize their commitments, the basis used to allocate resources to pay those commitments also varies (Blöndal 2006). For example, New Zealand and the United Kingdom use accrual-based appropriations that are similar to the subsidy-cost appropriations used for federal credit programs in the United States. In such cases, although laws that provide funding reflect accrual measures, government agencies have access to the full amounts of cash necessary to execute programs. Other countries use cash-based appropriations, perhaps indicating a preference among policymakers to retain control over the amount of cash provided to agencies.

Some of the OECD countries that have more fully embraced accrual-based budgeting have already seen advantages from expanding the use of such measures for government-funded pensions. Pension obligations for public-sector employees usually constitute a country's largest government liability after sovereign debt, and some nations have concluded that simply controlling government borrowing is not sufficient to ensure long-term fiscal sustainability. Using accrual measures may help countries control their long-term obligations. For example, when accrual budgeting in New Zealand and the United Kingdom made the costs of civil servants' pensions more transparent and the size of the existing commitments clearer, policymakers took steps to reduce pension costs for new employees (Irwin 2012, GAO 2000). New Zealand switched from defined benefit plans to defined contribution plans for public-sector workers. To offset growing liabilities for the pensions of its public employees and military personnel, Australia created a sovereign wealth fund in 2006 that it cannot draw on until 2020 (Moretti and Youngberry 2018, Warren 2015, GAO 2007).

## **Conclusions**

Using accrual measures to calculate the costs of some insurance programs and federal retirement programs could improve decisionmaking by providing more complete information about those programs' long-term effects. The costs of new commitments would be reported when they are incurred and thus are most controllable by policymakers. When market risk is present, fair-value estimates would provide a more comprehensive measure of costs and help policymakers more fully understand the trade-offs between certain policies. For insurance programs, the more comprehensive information provided by fair-value estimates would allow for more meaningful comparisons of the costs of competing programs and a greater focus on risk when setting premiums. For federal retirement programs, accrual measures would facilitate direct comparisons between all forms of current and deferred compensation (such as wages and pensions), making the cost of alternatives clearer to policymakers.

Compared with cash-based measures, however, accrual measures have several limitations. Their longer time horizons and their reliance on technical assumptions make them potentially harder to understand, more uncertain, and subject to larger revisions. Furthermore, implementing accrual measures in the budget would require new account structures and decisions about how to address the cost of commitments that have already been made.

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