



Fair-Value Accounting for Federal Credit Programs

The federal government supports some private activities—such as home ownership, postsecondary education, and certain commercial ventures—through credit assistance offered to individuals and businesses. Some of that assistance is in the form of direct federal loans, and some is through federal guarantees of loans made by private financial institutions. At the end of fiscal year 2011, about \$2.7 trillion was outstanding in such federal direct loans and loan guarantees.¹ The cost of providing credit assistance is an important consideration for policymakers as they allocate spending among programs and choose between credit assistance and other forms of aid such as federal grants—but assessing cost is not a simple matter. Indeed, it is more difficult to measure the cost of credit assistance than to assess the costs of other forms of aid because the measurement of the cost of credit assistance must account for future cash flows of uncertain amounts that can continue for many years.

According to the rules for budgetary accounting prescribed in the Federal Credit Reform Act of 1990 (FCRA, incorporated as title V of the Congressional Budget Act of 1974), the estimated lifetime cost of a new loan or loan guarantee is recorded in the budget in the year in which the loan is disbursed.² That lifetime cost is generally described as the subsidy provided by the loan or loan

guarantee. It is measured by discounting all of the expected future cash flows associated with the loan or loan guarantee—including the amounts disbursed, principal repaid, interest received, fees charged, and net losses that accrue from defaults—to a present value at the date the loan is disbursed. A present value is a single number that expresses a flow of current and future income, or payments, in terms of a lump sum received, or paid, today; the present value depends on the rate of interest, known as the discount rate, that is used to translate future cash flows into current dollars.³

FCRA-based cost estimates, however, do not provide a comprehensive measure of what federal credit programs actually cost the government and, by extension, taxpayers. Under FCRA's rules, the present value of expected future cash flows is calculated by discounting them using the rates on U.S. Treasury securities with similar terms to maturity. Because that procedure does not fully account for the cost of the risk the government takes on when issuing loans or loan guarantees, it makes the reported cost of federal direct loans and loan guarantees in the federal budget lower than the cost that private institutions would assign to similar credit assistance based on market prices. Specifically, private institutions would generally calculate the present value of expected future cash flows by discounting those flows using the rates of return on private loans (or securities) with similar risks and maturities. Because the rates of return on private loans exceed Treasury rates, the discounted value of expected loan repayments is smaller under this alternative approach, which implies a larger cost of issuing a loan. (Similar reasoning implies that the private cost of a loan guarantee would be higher than its cost as estimated under FCRA.)⁴

1. The figures for federal credit outstanding and new lending activity cited in this document exclude the activities of Fannie Mae and Freddie Mac, even though the government placed the two entities into conservatorship in 2008 (as discussed later). The figures also exclude purchases by the Treasury of securities issued by Fannie Mae and Freddie Mac, the financial assets acquired through the Troubled Asset Relief Program, amounts committed to the International Monetary Fund, and certain other transactions that involve credit assistance but that generally are not considered direct federal loans or loan guarantees. Consolidation loans offered by the Department of Education are counted toward credit outstanding but excluded from new lending activity because the Congressional Budget Office considers those loans extensions of the original loans.

2. Section 504(d) of FCRA, 2 U.S.C. § 661c (d) (2006).

3. For example, if an investment that will yield \$100 one year in the future is discounted at 5 percent, its value today is \$95.

4. See Congressional Budget Office, *Federal Loan Guarantees for the Construction of Nuclear Power Plants*, Appendix C (August 2011).

FCRA and market-based cost estimates alike take into account expected losses from defaults by borrowers. However, because FCRA estimates use Treasury interest rates instead of market-based rates for discounting, FCRA estimates do not incorporate the cost of the market risk associated with the loans. Market risk is the component of financial risk that remains even after investors have diversified their portfolios as much as possible; 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.

Some observers argue that using market-based rates for discounting loan repayments to the federal government would be inappropriate because the government can fund its loans by issuing Treasury debt and thus does not seem to pay a price for market risk. However, Treasury rates are lower than those market-based rates primarily because Treasury debt holders are protected against default risk. If payments from borrowers fall short of what is owed to the federal government, the shortfall must be made up eventually either by raising taxes or by cutting other spending. (Issuing additional Treasury debt can postpone but not avert the need to raise taxes or cut spending.) Therefore, a more comprehensive approach to measuring the cost of federal credit programs would recognize market risk as a cost to the government and would calculate present values using market-based discount rates. Under such an approach, the federal budget would reflect the market values of loans and loan guarantees.

Accounting for a credit program's budgetary costs using FCRA procedures instead of market values has important consequences for the way policymakers might perceive the cost of credit assistance:

- The costs reported in the budget are generally lower than the costs to even the most efficient private financial institutions for providing credit on the same terms;
- The budgetary costs of federal credit programs are almost always lower than those of other federal spending that imposes equivalent true costs on taxpayers; and

- Purchases of loans at market prices appear to make money for the government and, conversely, sales of loans at market prices appear to result in losses.

What is termed the fair-value approach to budgeting for federal credit programs would measure those programs' costs at market prices or at some approximation of market prices when directly comparable market prices are unavailable. A fair-value approach generally entails applying the discount rates on expected future cash flows that private financial institutions would apply.⁵ In the view of the Congressional Budget Office (CBO), adopting a fair-value approach would provide a more comprehensive way to measure the costs of federal credit programs and would permit more level comparisons between those costs and the costs of other forms of federal assistance.

Several other considerations would be relevant in judging whether to adopt a fair-value approach to federal budgeting. In addition to the practical matters of how to implement and apply a fair-value approach, there are others:

- Government agencies would incur additional expense, for instance, for training staff members in fair-value estimating and for developing new valuation models.
- Fair-value cost estimates would be somewhat more volatile over time because of changes in market conditions—although factors that also affect FCRA estimates would continue to be the main cause of volatility.
- Fair-value estimates require analysts to make judgments about discount rates for each program, which could be an additional source of inconsistency in the estimates of costs from program to program.
- Fair-value estimates also are considered by some observers to be less transparent than FCRA estimates are, and they could be more difficult to communicate to policymakers and the public.

Those final two sets of concerns in particular could be mitigated by relying on expert advice from private-sector accounting firms with significant experience in fair-value accounting or by establishing federal guidelines for estimation procedures.

5. In some cases fair values are calculated by using risk-adjusted discount rates, but in other cases fair values are more accurately estimated using other standard techniques, such as options-pricing models.

The government already uses fair-value estimates in budgeting for a few types of programs or transactions, including commitments of resources for some International Monetary Fund lending facilities and the Troubled Asset Relief Program.⁶ In addition, CBO uses a fair-value approach to incorporate the budgetary costs of Fannie Mae and Freddie Mac into its budget projections, and the agency has provided supplementary information to the Congress about fair-value estimates for the costs of other federal credit programs (including student loan programs, loan guarantees for nuclear power plant construction, and single-family mortgage guarantees).

In some cases, fair-value estimates of budgetary costs as a percentage of loan amounts are considerably higher than FCRA estimates: CBO has estimated that the average subsidy for direct student loans made between 2010 and 2020 would be a *negative* 9 percent under FCRA accounting but a *positive* 12 percent on a fair-value basis. (A negative subsidy indicates that, for budgetary purposes, the transactions are recorded as generating net income for the government.) Subsequent changes in CBO's interest rate projections would affect both estimates of the amounts of those subsidies, but the large gap between them would remain. In other cases, however, the difference is more modest: For example, CBO has estimated that the cost of the Federal Housing Administration's (FHA's) guarantees of single-family home mortgages to be extended in 2012 would be -1.9 percent on a FCRA basis and 1.5 percent on a fair-value basis.

The federal budget is designed to account for costs to taxpayers but not for the value of government programs to participants or to society more broadly. Credit assistance, like other federal spending, can increase public well-being by supporting activities that, although beneficial to society, are unlikely to be economically viable without government support. Credit assistance also can have unintended negative consequences, such as encouraging high household debt or creating incentives for overinvestment in certain activities. Although the broader benefits and costs of programs should be considered along with their budgetary costs, the focus in this document is on the best way to measure the costs that appear in the budget.⁷

6. On February 7, 2012, the House of Representatives passed the Budget and Accounting Transparency Act of 2012 (H.R. 3581, 112th Cong., 2nd Sess.), which would expand the use of fair-value accounting in the budget.

Federal Credit Programs

Credit assistance is provided by the federal government in the form of direct loans to borrowers and guarantees of loans made by others. With direct loans, the government collects scheduled interest and repayments of principal (net of amounts not paid when there is a default), and in some cases the government also charges borrowers fees. With guaranteed loans, the government may collect fees at origination and annually from the financial institution or the borrower; in return, the government agrees to cover all or a portion of losses if the borrower defaults.

The largest share of federal credit assistance (holding aside that provided by Fannie Mae and Freddie Mac) has come through a few programs. FHA's mortgage guarantees and the Department of Education's student loan programs together accounted for more than two-thirds of federally backed credit outstanding at the end of fiscal year 2011. Other major programs include the Department of Veterans Affairs' mortgage guarantee programs, the Department of Agriculture's credit programs (primarily for rural utilities), and the Small Business Administration's loan and loan guarantee programs. In addition, more than 150 smaller credit programs provide assistance for a variety of activities, including international trade and investments in new technology.

From 1992 to 2011, the amount of federal direct loans and federally guaranteed loans outstanding in programs that are recorded in the budget as specified in FCRA grew from \$860 billion to about \$2.7 trillion (see Table 1). The average growth rate of about 6 percent per year is similar to that for overall federal spending during the period. Guaranteed loans made up about three-quarters of the loans outstanding in 2011, and direct loans accounted for the rest. In the aftermath of the financial

7. Some analysts have argued that it may be appropriate to include the full costs of risk to taxpayers in cost-benefit analyses but not in budget estimates because the costs of risk do not represent an actual government cost (see, for example, Jim Horney, Richard Kogan, and Paul Van de Water, *House Bill Would Artificially Inflate Cost of Federal Credit Programs* [Washington, D.C.: Center on Budget and Policy Priorities], January 2012). For the reasons laid out in this document, CBO's view is that the cost of risk is a real cost to the government that is relevant for budgeting as well as for cost-benefit analyses. (For a detailed response to Horney and others, see Marvin Phaup, "Fair Market Values and the Budgetary Treatment of Federal Credit: Comment on CBPP's Release on H.R. 3581," manuscript, George Washington University, www.tspppa.gwu.edu/docs/Fair%20Market%20Values%20and%20the%20Budgetary%20Treatment%20of%20Federal%20Credit%20MP013012Final1.pdf.)

Table 1.**Loans and Loan Guarantees in Major Federal Credit Programs**

	Billions of Dollars of Credit Outstanding		Annual Percentage Change,	Percentage of Credit Outstanding	
	1992	2011	1992–2011	1992	2011
Federal Housing Administration Programs	387	1,181	6	45	44
Student Loans	79	706	12	9	26
Veterans' Home Loans	176	258	2	20	10
Department of Agriculture Credit Programs	88	99	1	10	4
Small Business Administration Programs	17	82	9	2	3
Other ^a	113	339	6	13	13
Total	860	2,665	6	100	100

Source: Congressional Budget Office based on data compiled by the Office of Management and Budget.

- a. Excludes the activities of Fannie Mae and Freddie Mac, purchases by the Treasury of securities issued by Fannie Mae and Freddie Mac, the financial assets acquired through the Troubled Asset Relief Program, and certain other transactions that involve credit assistance but that are generally not considered direct federal loans or loan guarantees.

crisis of 2007, reliance on federal credit programs accelerated sharply as the supply of private financing contracted and its cost escalated for many borrowers; originations of new federally backed loans spiked above \$600 billion in 2009 (see Figure 1). The amount has since declined from that peak, but in 2011 it was still more than double that before the crisis.

An important form of federal credit assistance that is not included in those figures is that of the mortgage guarantees issued by Fannie Mae and Freddie Mac; through those institutions, the federal government now backs roughly half of the \$11 trillion in mortgages outstanding in the United States. In 2008, the federal government took control of the two entities, and it now operates them to fulfill the public purpose of supporting the residential housing and mortgage markets. Both entities rely on federal backing to maintain their low-cost access to financial markets. Although they are not legally government agencies, and their employees are not civil servants, CBO believes that they are effectively part of the government, so the agency includes the financial transactions of the two entities alongside all other federal activities in its budget projections. In contrast, the Office of Management and Budget (OMB) treats the entities as nongovernmental and therefore generally reflects only the cash transactions between the Treasury and Fannie Mae and Freddie Mac in the budget. Including the 21 percent of new home loans insured by federal agencies such as FHA and the 63 percent of new home loans insured by Fannie Mae and Freddie Mac, about 84 percent of new mortgages in 2011 carried a federal guarantee.

Budget Procedures Prescribed by FCRA

FCRA specifies that the subsidy cost of credit is to be calculated and recorded on an accrual basis—unlike most items in the federal budget, which are shown on a cash basis. The main distinction between the two forms of accounting is that under cash accounting, expenditures are recorded in the years that cash payments are made; accrual accounting allows the estimated lifetime cost of a direct loan or loan guarantee to be recognized in the year that the loan is made and, thus, when resources are firmly committed. (A system of supporting accounts is used to reconcile FCRA accruals with the cash flows associated with credit programs.)⁸

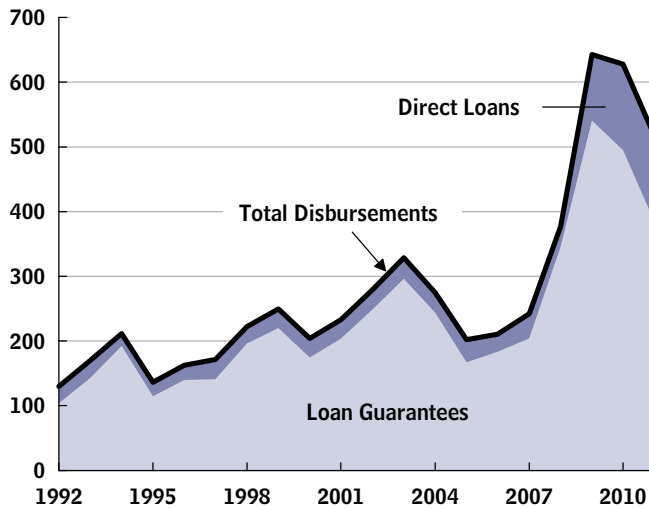
One advantage of accounting for credit programs on an accrual basis is that it eliminates the incentive that would exist under cash accounting to favor loan guarantees over economically equivalent direct loans. On a cash basis, a loan guarantee often would appear to be much less expensive than a direct loan with the same default risk because fees are collected when the loan is originated but defaults often occur much later in the life of the loan. In contrast, the initial outlay of principal for a direct loan occurs in the current year, whereas the return of that principal and many of the interest payments may not occur until many years later.

8. See Office of Management and Budget, *Circular A-11* (2011), Part 5: Federal Credit, www.whitehouse.gov/omb/circulars_a11_current_year_a11_toc.

Figure 1.

New Federal Direct Loans and Loan Guarantees

(Billions of dollars)



Source: Congressional Budget Office based on data compiled by the Office of Management and Budget.

Note: Excludes the activities of Fannie Mae and Freddie Mac, purchases by the Treasury of securities issued by Fannie Mae and Freddie Mac, the financial assets acquired through the Troubled Asset Relief Program, amounts committed to the International Monetary Fund, the consolidation loans offered by the Department of Education, and certain other transactions that involve credit assistance but that generally are not considered federal direct loans or loan guarantees.

Under FCRA, the subsidy cost of a direct loan or loan guarantee is calculated as a present value of expected net cash flows over the life of the loan; that present value depends on the discount rate that is used to translate future cash flows into current dollars. FCRA subsidy costs are estimated by discounting expected net cash flows to the time of loan disbursement using interest rates on Treasury securities of comparable maturities. For example, cash flows a year after disbursement are discounted using the rate on Treasury securities with one year to maturity, and those five years out are discounted using the five-year Treasury rate. For loan guarantees, expected cash flows include expected payments by the government to cover default or delinquency, offset by any expected payments to the government, including origination or other fees, penalties, and recoveries on defaulted loans. For direct government loans, expected cash flows include loan disbursements and expected repayments of interest and principal (that is, interest and principal payments after defaults, recoveries, and prepayments), fees, and penalties.

The initial estimates of the cost of federal loan guarantee and direct loan programs in each year have historically amounted to a small fraction of the volume of loans disbursed. Subsidy costs averaged \$3.1 billion annually for federally backed loans made from 1998 to 2008, for example, representing an average subsidy rate (the subsidy cost divided by the amount disbursed) of 3.3 percent. In 2009 and 2010, total subsidy costs recorded in the budget fell to -\$19 billion and -\$20 billion, respectively; that is, government credit assistance reduced the budget deficit reported in those years. In 2011, total subsidy costs were even lower, at -\$42 billion. The reduced cost is largely attributable to economic, legislative, and administrative changes to student loan and FHA programs. In particular, the reduction in costs (leading to subsidy estimates that are more negative) reflects the widening gap between the rate charged on new federal student loans and Treasury interest rates, legislation that replaced the guaranteed student loan program with direct student loans (for newly originated loans), and increases in fees charged to borrowers by FHA.

Causes and Consequences of Understating the Cost of Federal Credit Programs

FCRA cost estimates understate the cost of federal credit programs to the government because of the requirement that Treasury rates be used for discounting. Using comprehensive cost measures for budgeting, and accounting for credit on a basis that is equivalent to that for other federal programs—stated objectives of FCRA—would be better accomplished if the cost of extending federal credit was assessed at market prices rather than on a FCRA basis.

The budgetary cost of any program accounted for on an accrual basis—including the credit programs under FCRA—depends not only on expected future cash flows but also on the discount rates chosen to convert those cash flows into present values. For that reason, the budgetary cost of a credit program does not correspond to the actual cash flows associated with the program; rather, the budgetary cost recorded upon the disbursement of a new loan measures the up-front value of federal resources committed to new loans or loan guarantees. Because FCRA accounting uses Treasury rates to discount all expected future cash flows, regardless of risk, the budgetary costs of federal loans and loan guarantees are disconnected from market prices. In particular, FCRA estimates of the subsidy costs of direct loans and loan

guarantees generally are lower than the present-value cost that private financial institutions would assign to the same projected future cash flows.

Economists attribute most of the difference between FCRA and market valuations of loans and loan guarantees to investors' requiring compensation—a market risk premium—for the risk associated with such loans and loan guarantees. Macroeconomic conditions affect the value of most assets and liabilities, although to varying degrees. Most investments are more likely to have low returns when the economy as a whole is weak and resources are especially scarce and highly valued and to have high returns in times of relative plenty when resources are less valuable. Such investments are exposed to market risk, and investors require compensation for bearing that risk; the greater the correlation between the returns on the investment and the state of the overall economy, the greater the amount of the risk, and the greater the required compensation. By contrast, investors do not expect to earn a risk premium on investments whose risk can be neutralized if they are held as part of a diversified portfolio.

In effect, the discount rate that investors apply to cash flows for a risky loan is higher than the rate on Treasury securities by the amount of a market risk premium—and the more market risk associated with the loan, the higher the premium. If taxpayers were to finance such a loan as private investors, they would use discount rates that include a market risk premium to estimate the value of the loan, which would have the effect of assigning a higher cost to potential losses than under FCRA accounting.

Because FCRA accounting requires the use of Treasury rates for discounting, it implicitly treats the market risk associated with federal credit programs as having no cost to the government. As a result, the subsidy provided by the government is understated under FCRA accounting. Moreover, the higher the market risk that is associated with a credit obligation, the greater is that understatement. (The costs of risk to the federal government and how they compare with such costs to the private sector are discussed further in Box 1.)

Using Treasury discount rates also reduces the comparability of the estimated budgetary cost of credit and the budgetary cost of most of the government's other

activities, which is calculated on the basis of market prices. For example, grants or monetary transfers are recorded in the budget at their cash value, and recipients use those funds to purchase goods and services at market prices. Government purchases from the private sector, such as for military hardware, the labor of the federal workforce, buildings, computers, and electricity, also must cover the private cost of providing those resources, including the cost of the capital used to produce them.

One consequence of using Treasury rates to calculate the cost of federal credit assistance is that some large credit programs, such as FHA's mortgage guarantees and the federal direct student loan programs, appear in some years to make money for taxpayers. That appearance creates a budgetary incentive to expand the programs beyond the scale that would be chosen if the budget reflected their costs at market value. If, instead, the discount rates used in calculating the present values of cash flows for those loans included a market risk premium, estimates for those programs might show a net cost for taxpayers.

In the case of certain other credit programs, the federal government sets interest rates and fees to eliminate the budgetary cost. Because the cost of market risk is not considered in FCRA-based estimates, the government offers credit to borrowers on terms that are generally more favorable than would be offered by even the most efficient and competitive private financial institutions. When the government is not truly more efficient than the private sector at providing credit, those more favorable terms constitute an unrecognized subsidy to borrowers and a hidden cost to the government.

Even when a credit program has a budgetary cost under FCRA, neglecting the market price of risk lowers the reported cost relative to that of a grant or benefit payment with the same market cost, thus skewing the information that policymakers receive. For example, the government could provide assistance to low-income homebuyers through grants that cover down payments or through loan guarantees that subsidize their borrowing. FCRA accounting makes a loan program appear less costly than a grant program with the same cost measured at market value.

The information supplied by FCRA accounting also could mislead policymakers about the merits of buying,

Box 1.**What Market Risk Costs the Federal Government and Taxpayers**

Loans and loan guarantees generally have significant exposure to so-called market risk because borrowers default on their debt obligations more frequently and with greater severity (meaning that recoveries from the borrowers are lower) when the economy as a whole is weak. Investors require compensation for bearing such risk because losses that occur when the economy is weak are occurring when resources are more highly valued.

Some analysts argue that market risk associated with loans and loan guarantees is much less costly for the federal government than for private investors because of several inherent advantages of the government in extending credit. Specifically, some analysts contend that the federal government is better able to accommodate risk because it can spread risk more widely and because it can borrow money at the Treasury Department's interest rates, which are lower than those in the private sector. In addition, some analysts note that the federal government's costs of extending credit may be lower than the private sector's costs because the government has no obligation to earn a profit on its activities.

In the view of the Congressional Budget Office, those characteristics of the federal government do not alter the basic conclusion that the assumption of market risk represents a cost to the government: When the government extends credit, the associated market risk of those obligations is effectively passed along to citizens who, as investors, would view that risk as costly.

If the federal government is able to spread certain risks more widely than the private sector can, the government may be a relatively efficient provider of certain types of insurance. That is, a private provider of such insurance might charge higher fees if it is unable to transfer the risk to a wide group of investors. However, even if the federal government can spread risks widely, it cannot eliminate the component of risk that is associated with fluctuations in the aggregate economy—market risk—and which investors require compensation to bear.

The federal government's ability to borrow at Treasury rates also does not reduce the cost to taxpayers of

the market risk associated with federal credit programs. Treasury rates are relatively low because the securities are backed by the government's ability to raise taxes. When the government finances a risky loan or loan guarantee by selling a Treasury security, it is effectively shifting risk to members of the public. If such a loan is repaid as expected, the interest and principal payments cover the government's obligation to the holder of the Treasury security, but if the borrower defaults, the obligation to the security holder must be paid for either by raising taxes or by cutting other spending to be able to repay the Treasury debt. (Issuing additional Treasury debt can postpone but not avert the need to raise taxes or cut spending.) Thus, the risk is effectively borne by taxpayers (or by beneficiaries of government programs); like investors, taxpayers and government beneficiaries generally value resources more highly when the economy is performing poorly.

The view that the federal government is a low-cost provider of credit because it does not need to make a profit rests on the notion that the market risk premium represents a type of profit rather than a normal compensation for risk. However, economists view "economic profits" as arising only when the return on private investment exceeds what investors in a competitive market would require. That is, an economic profit is earned when the expected return more than compensates investors for the fact that money in hand now is worth more than the same amount received in the future and for bearing market risk. So, for instance, when a business has a monopoly over a product, it can set prices above costs to earn an economic profit. In competitive financial markets, the presence of many buyers and sellers of financial assets tends to eliminate economic profits, and the risk premium that remains is normal compensation for bearing the risk.

Thus, none of the differences between the federal government and private investors changes the fact that investments with returns that are correlated with the performance of the economy as a whole are risky in a way that other investments are not. Federal credit programs expose taxpayers to that market risk.

selling, or holding loans. Under FCRA, selling a loan at a competitive price in the open market would produce an estimated budgetary loss because the proceeds of the sale would be less than the value the government assigns to carrying the loan, even though the transaction would entail no economic gain or loss (apart from possible indirect effects that would occur as a result of the sale). Conversely, the purchase of a loan at a market price would show a budgetary gain. For example, OMB reported a budgetary gain of almost \$6 billion in 2009 for the Treasury's purchases at market prices of mortgage-backed securities issued by Fannie Mae and Freddie Mac.⁹

The Alternative of Fair-Value Accounting

Fair-value accounting is an alternative to FCRA accounting that more fully incorporates the cost to the government (and, by extension, taxpayers) of the risks inherent in federal credit transactions. The fair-value approach produces estimates of the cost of providing credit that either correspond to or approximate the market price of that credit. Thus, moving to fair-value accounting would provide policymakers, program administrators, and the public with a more complete picture of program costs, and it would tend to make purchases and sales of loans at market prices by federal agencies budget-neutral. It also would put credit on a more level playing field with most other federal expenditures. However, the Congress and federal agencies would confront several challenges in adopting fair-value accounting, including the expense of implementing a new system and the need to cope with the greater difficulty—especially initially—of estimating, verifying, and communicating program costs.¹⁰

Fair-Value Accounting

The fair value of a loan is the price that would be received if the loan were sold in what is known as an orderly

transaction—one that occurs under competitive market conditions between willing participants and that does not involve forced liquidation or a distressed sale.¹¹ Similarly, the fair value of a loan guarantee is the price that would have to be paid to induce a private financial institution to assume the guarantee commitment. FCRA-based and fair-value estimates alike incorporate the same projections of future cash flows. But instead of using Treasury rates to discount those cash flows, fair-value estimates employ discounting methods that are consistent with the risk of the loan or loan guarantee. (See Box 2 for a numerical example of subsidy cost calculations under FCRA and fair-value accounting.)

One consequence of switching to fair-value accounting is that the reported budgetary costs of most direct loan and loan guarantee programs would be higher than they appear under FCRA accounting: Credit programs that show modest budgetary savings or that have a subsidy cost of zero under FCRA would tend to show a positive subsidy with fair-value accounting, and programs that have positive subsidies now would see that subsidy rate increase. For instance, a program that offers loans to borrowers at or just slightly above Treasury rates and that has a low average default rate would show a positive fair-value subsidy cost because of the market risk that those loans entail.

Concerns About Implementation

Fair values for government loans and loan guarantees can be estimated by reference to the market prices of similar products offered by private companies (for example, the interest rates charged on private-sector loans to students can be combined with other information to infer a risk premium for federal student loans) or by employing standard financial valuation techniques (such as discounting expected cash flows with risk-adjusted discount rates, or using an options-pricing model—a type of model that many private-sector practitioners use to evaluate guarantees). CBO has applied each of those methods in various analyses of credit programs; the choice of methodology has depended on which approach was expected to produce the most reliable estimates given the characteristics

9. See *Budget of the United States Government, Fiscal Year 2010, Analytical Perspectives*, p. 76, Table 7-9, www.gpo.gov/fdsys/pkg/BUDGET-2010-PER/content-detail.html. Loan purchases and sales by Fannie Mae and Freddie Mac do not have a direct effect on the federal budget, which generally only reflects cash transactions between the Treasury and those entities. However, the Treasury's purchases of mortgage-backed securities were accounted for on a FCRA basis, a departure from cash treatment.

10. See "Special Topics," *Budget of the United States Government, Fiscal Year 2013, Analytical Perspectives*, pp. 373–379, www.whitehouse.gov/omb/budget/Analytical_Perspectives.

11. See Financial Accounting Standards Board, *Original Pronouncements, as Amended. Statement of Financial Accounting Standards No. 157: Fair Value Measurements* (Norwalk, Conn.: Financial Accounting Foundation, 2010), www.fasb.org/pdf/aop_FAS157.pdf.

Box 2.

Comparison of Methods: FCRA and Fair-Value Accounting

FCRA and Fair-Value Treatments of a Three-Year Direct Loan for \$100 Million at 3 Percent Interest

(Millions of dollars)

	Year				Subsidy ^a
	0	1	2	3	
Cash Flows					
Disbursement	100	0	0	0	n.a.
Scheduled Interest Payments	0	-3	-2	-1	n.a.
Scheduled Principal Payments	0	-33	-33	-34	n.a.
Default Losses	0	1	1	1	n.a.
Net Cash Outflow from the Federal Government	100	-35	-34	-34	n.a.
FCRA Treatment					
Treasury Discount Rate (Percent per annum)	0	0.25	0.50	1.00	n.a.
FCRA Present-Value Factor ^b	1	0.998	0.990	0.971	n.a.
FCRA Discounted Net Cash Outflow from the Federal Government ^c	100	-34.9	-33.7	-33.0	-1.6
Fair-Value Treatment					
Fair-Value Discount Rate (Percent per annum)	0	1.75	2.00	2.50	n.a.
Fair-Value Present-Value Factor ^b	1	0.983	0.961	0.929	n.a.
Fair-Value Discounted Net Cash Outflow from the Federal Government ^c	100	-34.4	-32.7	-31.6	1.3

Source: Congressional Budget Office.

Note: FCRA = Federal Credit Reform Act of 1990; n.a. = not applicable.

- a. Sum of the discounted net cash outflow.
- b. One divided by (one plus the discount rate) raised to the power of the number of years until the payment is made or received. For example, $1/(1 + 0.5/100)^2 = 0.990$.
- c. The net cash outflow multiplied by the present-value factor.

Consider a \$100 million portfolio of federal direct loans with 3-year terms and an annual interest rate of 3 percent. Net federal cash flows each year include disbursements, the scheduled payments of principal and interest, and default losses (see the table). Note that the net interest and principal payments that the government will receive are the scheduled payments of principal and interest minus the amounts that are expected not to be paid by or recovered from the borrowers because of default.

According to the rules for budgetary accounting prescribed in the Federal Credit Reform Act of 1990 (FCRA, incorporated as title V of the Congressional Budget Act of 1974), the net cash flow in each future year is discounted at a compounded annual rate equal to the yield on Treasury securities with the same term to maturity—up to three years, in the current example.¹ The FCRA subsidy of -\$1.6 million (that is, a net reduction in the budget deficit) is the sum across all

years of the net cash outflow from the government in each year discounted on a FCRA basis (that is, the annual net cash outflow multiplied by the corresponding present-value factor).

Suppose that, on the basis of observed pricing for a privately held portfolio that is comparable to the federal loan portfolio, the implied fair-value discount rate for the cash flows in each period is 1.5 percentage points higher than the corresponding Treasury rate. The fair-value subsidy is computed in the same way as the FCRA subsidy, using the same net cash outflows, but the present-value factor is computed from the Treasury rate plus the market risk premium of 1.5 percentage points. Accounting for market risk in this example changes the estimated subsidy to a positive subsidy of \$1.3 million, which implies a cost to the government.

1. Section 502(5)(E) of FCRA, 2 U.S.C. §661a (5)(E) (2006).

of the obligations being evaluated and the information available.¹²

In private-sector applications (such as in financial reporting by large financial institutions), fair values are based on actual market prices whenever reliable prices are available. However, when comparable credit products are not publicly traded—or during a financial crisis, when the few transactions that occur are likely to be at distressed prices—fair values must be approximated. Because most public-sector credit programs have no exact analogue in the private sector, estimating their fair value usually involves approximation. In addition, adjustments may be needed to account for true cost differences between the government and the private sector; for instance, the private sector generally spends more than the government does on marketing. Private lenders would set interest rates and fees to recover those higher costs, and if the difference was not accounted for, the cost of the federal program would be overstated.

Implementing fair-value accounting for federal credit programs would entail additional effort and expense for government agencies, particularly OMB, which oversees the process of estimating the costs of such programs. Start-up expenses of the fair-value approach would include funding for additional training and possible expansion of staff, redesign of procedures and account structures, and development of models and approaches for producing the estimates. Even over the long term, some additional resources would probably be needed because of the estimates' greater complexity. Failure to provide the necessary funding, both for start-up costs and for the continuing costs of a switch to fair-value accounting, could leave the government and policymakers with insufficient information for making choices about future federal credit assistance.

Incorporating the cost of market risk into budgetary cost estimates for credit programs also would tend to increase those estimates' volatility over time because the cost of market risk is not constant. However, the additional volatility introduced would probably be less than the considerable volatility of FCRA estimates that is attributable to fluctuating Treasury rates, swings in projected losses

resulting from defaults, and administrative changes in fees and other terms of loans. For example, the fair-value estimates of costs for the Troubled Asset Relief Program have changed considerably over time, but those changes are primarily the result of changes in the components of the estimates that also would have been used in FCRA estimates, such as projections of participation rates in government programs and projections of the repayment rates of loans.

Another concern is that fair-value estimates might be less transparent than FCRA estimates and thus more dependent on the judgment of agencies and analysts responsible for the programs, creating inconsistencies among programs and making estimates more difficult to communicate to policymakers or the public. FCRA and fair-value estimates alike depend on analysts' projections of such variables as prepayment patterns, default rates, and the amounts recoverable after a default. The models that agencies use to project cash flows generally are not made public now, so the transparency of current FCRA estimates is limited. However, fair-value estimates would be even more dependent on analysts' judgment because they would depend on choices about market risk premiums in addition to estimates of cash flows.

Such concerns could be addressed in various ways—for example, through the use of accounting practices similar to those used to audit fair-value estimates produced by private financial institutions. Guidelines also could be established by OMB or through legislation to ensure that the choices of discount rates and other assumptions that are used in the models followed systematic procedures and could be adequately verified. Briefing sessions for the staff of the Congress and federal agencies as well as development of materials that explained how the estimates were derived would facilitate communication about the estimates.

Accounting for Administrative Costs

FCRA accounting separates the administrative expenses of federal credit programs from the programs' subsidy costs, and it accounts for administrative expenses on a cash basis. The consequent mix of cash and accrual accounting, and the use of multiple accounts, makes assessing the total costs of a program difficult. It also complicates cost comparisons from one program to another.

Comprehensive fair-value estimates of subsidies for credit programs would incorporate certain administrative

12. For additional information on alternative approaches to calculating the fair value of federal credit programs, see Deborah Lucas and Marvin Phaup, "The Cost of Risk to the Government and Its Implications for Federal Budgeting," in Deborah Lucas, ed., *Measuring and Managing Federal Financial Risk* (University of Chicago Press, 2010), pp. 29–54.

expenses, such as servicing and collection costs, that are essential to preserving the value of the government's claims (rather than accounting separately for those costs on a cash basis). Those essential preservation expenses can differ significantly among credit programs, and including them in subsidy cost estimates would make comparing various subsidy costs easier. However, doing so could erode Congressional control over program expenditures because, under FCRA, all increases in estimated costs after a loan or loan guarantee is initiated (including those arising from increased expenditures on servicing or loan collection) are automatically appropriated.¹³ Another concern is that implementing a switch from cash to accrual accounting for essential preservation expenses would be administratively complicated.

Moreover, although including administrative costs in subsidy estimates would improve comparability between different credit programs, in some instances it might hinder the ability to compare credit assistance and grant programs. Grant programs also incur administrative costs, and those costs are not readily linked to the funds disbursed in any one year. Including all administrative costs in credit programs but not in grant programs could reduce comparability between the two. However, if the adjustment was just for essential preservation expenses in credit programs, comparability with grant costs could be improved because grant recipients generally do not need to repay the government in future years and hence there are few preservation expenses associated with most grants.

Comparing FCRA and Fair-Value Costs for Selected Federal Credit Programs

In a few cases, the law has required the use of fair-value accounting in the federal budget process: The law that created the Troubled Asset Relief Program, for example, specifies the use of a fair-value approach.¹⁴ A different law requires that funds committed to certain International Monetary Fund lending facilities receive fair-value treatment.¹⁵ In addition, CBO has used a fair-value approach

to incorporate the costs of Fannie Mae and Freddie Mac into its baseline budget projections since those companies were placed into federal conservatorship.¹⁶

CBO also has provided supplementary information to the Congress about the fair-value costs of certain federal credit and insurance programs and how those costs compare with FCRA-based costs. Several years ago, for example, the agency provided fair-value estimates for the Small Business Administration's 7(a) program and for activities of the Pension Benefit Guaranty Corporation, among others.¹⁷ Most recently, CBO has prepared fair-value estimates for the federal direct and guaranteed student loan programs, the Department of Energy's program to guarantee loans for the construction of nuclear power plants, and the Federal Housing Administration's single-family mortgage insurance program.

Student Loans

In 2011, the total amount outstanding for federal direct and guaranteed student loans exceeded \$700 billion. Federal student loans expose the government to losses from defaults, and they involve significant administrative expenses for origination, servicing, and collection on defaults; at the same time, the government collects fees and interest from borrowers. As with other types of credit, student loans are exposed to market risk, meaning that default rates tend to be higher, and recoveries smaller, when the economy is weak and the losses are most costly.

CBO compared the cost of the federal student loan programs on a FCRA versus a fair-value basis in a 2010 study.¹⁸ CBO calculated that, on average over the 2010–2020 period, a representative loan issued in the direct student loan program would have a negative subsidy rate of 9 percent under FCRA (thereby reducing the deficit) but a positive subsidy rate of 12 percent on a fair-value basis.

13. Section 504(f) of FCRA, 2 U.S.C. §661c (f) (2006).

14. In particular, the legislation stated that the estimated cost of the program's obligations must be recorded in the budget on a FCRA basis rather than a cash basis but that the discount rate must be adjusted for the market cost of risk. (See section 123 of the Emergency Economic Stabilization Act of 2008, Division A of Public Law 110-343, 122 Stat. 3765, 3790.)

15. Title XIV of the Supplemental Appropriations Act, 2009, P.L. 111-32, 123 Stat. 1859, 1916.

16. See Congressional Budget Office, *CBO's Budgetary Treatment of Fannie Mae and Freddie Mac*, Background Paper (January 2010).

17. See Congressional Budget Office, *Federal Financial Guarantees Under the Small Business Administration's 7(a) Program* (October 2007); *The Risk Exposure of the Pension Benefit Guaranty Corporation* (September 2005); and *Estimating the Value of Subsidies for Federal Loans and Loan Guarantees* (August 2004).

18. See Congressional Budget Office, *Costs and Policy Options for Federal Student Loan Programs* (March 2010); and the letter to the Honorable Judd Gregg about the budgetary impact of the President's proposal to alter federal student loan programs (March 15, 2010).

Loan Guarantees for Nuclear Power Plant Construction

The Energy Policy Act of 2005 established incentives to encourage private investment in new technology, including advanced nuclear energy facilities.¹⁹ In return for a loan guarantee, the Department of Energy can charge project sponsors a fee to recoup the guarantee's estimated budgetary cost, which, on a FCRA basis, is likely to be well below the fair-value cost. To date no loans have been guaranteed under the program, although there are several active applications.

CBO has estimated the costs of guarantees for nuclear power plant construction using projects' credit ratings to derive expected default rates and risk-adjusted discount rates.²⁰ In all cases, the estimated subsidy rate was significantly higher on a fair-value basis than on a FCRA basis, but the difference between the subsidy rates varied widely with a project's credit rating and the amounts expected to be recovered in the event of a default. If the risk associated with a guaranteed loan for plant construction was in the range of risks posed by bonds rated A (less risky) and bonds rated BB (riskier), then CBO's estimate of the budgetary cost on a FCRA basis ranged from 1 percent to 6 percent of the loan's principal amount. In contrast, under the same circumstances, CBO's estimate of the budgetary cost on a fair-value basis ranged from 9 percent to 21 percent of the loan's principal.

FHA's Single-Family Mortgage Guarantees

FHA's single-family mortgage insurance program is aimed at extending access to home ownership to people who lack the savings, credit history, or income to qualify for a conventional mortgage. Under FHA's program, the government insures 15- and 30-year fixed- and adjustable-rate mortgages for home purchases or for refinancing; in exchange, the borrower pays an origination fee and annual premiums on the insurance policy. In

2011, the outstanding stock of single-family mortgage guarantees insured by FHA totaled almost \$1.2 trillion.

CBO has compared the FCRA and fair-value costs projected for FHA's single-family program in 2012, which CBO estimated would guarantee \$233 billion in mortgages. To compute the fair value of the guarantees, CBO relied primarily on the market pricing of private mortgage insurance and on estimates of the fair value of the mortgage guarantees made by Fannie Mae and Freddie Mac.²¹ Under FCRA accounting, CBO estimated a negative subsidy rate for FHA single-family home loan guarantees of 1.9 percent, producing budgetary savings of \$4.4 billion in 2012. On a fair-value basis, however, CBO estimated that those guarantees would have a positive subsidy rate of 1.5 percent, and the program would have a cost of \$3.5 billion.

21. In the market for private mortgage insurance (PMI), competing private insurers publicly quote prices for guarantees of mortgages that are comparable (after some adjustments) with those guaranteed by FHA. FHA absorbs all of the losses on the mortgages it insures, whereas on mortgages covered by PMI, the mortgage insurers cover losses up to some maximum and the remaining losses are covered by Fannie Mae and Freddie Mac. Therefore, the fair value of FHA insurance can be inferred from the sum of the value of the PMI premiums and the fair value of premiums charged by Fannie Mae and Freddie Mac. See Congressional Budget Office, "Accounting for FHA's Single-Family Mortgage Insurance Program on a Fair-Value Basis," attachment to a letter to the Honorable Paul Ryan (May 18, 2011).

19. Title XVII of the Energy Policy Act of 2005, 42 U.S.C. §16511–16516 (2006 & Supp.).

20. See Congressional Budget Office, *Federal Loan Guarantees for the Construction of Nuclear Power Plants*. CBO did not analyze any specific projects. As of April 2011, the Department of Energy, which administers the program, had received 19 applications for loan guarantees on \$188 billion of debt for the construction of 14 nuclear power plants. Of that number, only one application has been reported to be close to completion.

Deborah Lucas, formerly of CBO's Financial Analysis Division and currently a consultant to the agency, and Mark Hadley, CBO's general counsel, prepared the report under the supervision of Damien Moore. Comments were provided by Michael Deich of the Gates Foundation, Christian Leuz of the University of Chicago Booth School of Business, and George Pennacchi of the University of Illinois. The assistance of external reviewers implies no responsibility for the final product, which rests solely with CBO. This report and other CBO publications are available on the agency's Web site (www.cbo.gov).

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