REFORMING CREDIT REFORM

Deborah Lucas, Northwestern University and NBER and
Marvin Phaup, The George Washington University

ABSTRACT

The Federal Credit Reform Act (FCRA) improved the treatment of credit in the federal budget, but failed to make the budget cost of credit and non-credit programs fully comparable. Inconsistencies and downwardly biased credit costs arise from the restriction under FCRA that cash flows be discounted at Treasury rates, and from the omission of certain administrative costs. We describe the shortcomings of FCRA and policy distortions that may occur, and propose modifications to the Act that would more closely align budget costs of credit and non-credit programs.

_____

INTRODUCTION AND OVERVIEW

The federal budget largely uses a cash-basis of accounting,[1] under which outlays and receipts are recognized in the budget when paid or received.[2] Prior to the Federal Credit Reform Act of 1990 (FCRA), cash basis accounting was used in the budget for direct loans and loan guarantees extended by the government. Under that regime, the budget cost of new credit legislation was its effect on net cash outlays for the budget period. No budget recognition was given to future cash flows until the year they were expected to occur. Though useful as an indicator of the government's borrowing requirement for the period, net cash flow does not measure the value of resources obligated by new extensions of assisted credit.

Cash-basis accounting for credit also produced some significant budget anomalies. New guaranteed loans almost always looked cheaper than economically equivalent direct loans because direct loans were "scored" with the full loan amount at disbursement, while guarantees were credited with upfront fees. In fact, legislation that would increase the projected volume of guarantees and guarantee fees was usually credited with a reduction in outlays (guarantee fees are treated as negative outlays) and the budget deficit. Direct loans with high expected defaults and highly subsidized interest rates appeared no more costly in the year of origination than those made to the best credit risks at interest rates close to market rates. In general, discrepancies between budget year cash cost and expected losses over the life of the credit created a systematic policy bias toward guarantees (with their positive first year cash inflow from fees) and against direct loans.[3]

FCRA put direct and guaranteed loans on a more equivalent basis by recording their cost in the year of loan origination as the net present value of their expected cash flows. This change matched the recognition of cost with the obligation of resources by the government. However,

while FCRA substantially increased the comparability of budget cost across credit programs and between credit and other federal activities, it did not equate budget cost with the full economic cost of credit programs. Instead, it required that the budget cost of credit be calculated according to legislated rules that omit some significant elements of cost. Specifically, FCRA rules exclude a major share of the market cost of capital by stipulating the use of maturity-matched Treasury rates for discounting risky cash flows. The effect of using Treasury rates is to overstate the value of federal direct loans and understate the value of government guarantees, relative to the price that would be observed in competitive financial markets. FCRA, thereby, understates the total cost of both types of credit assistance.

FCRA also omits some administrative expenses that are essential to the lending process, such as certain servicing and collection costs. It also omits general overhead costs borne by the government. This treatment of administrative costs creates inconsistencies across different credit programs, and understates the all-in cost of lending. Expenses which are paid directly by the government to employees or contractors are excluded from the present value measure of credit costs; instead these are recognized on a cash-basis when paid.[4] However, the discounted value of all government payments to guaranteed lenders, even if for administrative expenses, are included in budget outlays when the loan is disbursed. The effect is to lower the budget cost of direct loans relative to some guarantee programs, most notably on student loans. It also lowers FCRA cost estimates relative to fair market value, since market prices reflect expected income net of collection and servicing costs. However, the exclusion of general administrative expenses under FCRA is consistent with the practice for many other federal programs of associating overhead costs with the administering agency but not with specific programs.

A further wedge between market value cost and FCRA cost is introduced in the valuation

of floating rate loans. CBO interprets FCRA as requiring discount rates to be based on a loan's final maturity rather than its effective maturity. On long-term floating rate loans, this tends to understate the value of direct loans, and also the value of payments made to lenders through the guaranteed student loan program.

The extent to which FCRA costs deviate from market cost varies across programs. For credit extended to borrowers whose repayments are not much affected by changes in market conditions and with modest federal administrative costs, the understatement of the subsidy is likely to be minimal. However, the cost of credit that is subject to substantial market risk, such as a guarantee to a distressed firm in a cyclical industry, may be understated under FCRA by a significant portion of the guaranteed amount. For instance, CBO estimated that the market value of the loan guarantee extended to America West Airlines in 2002 exceeded the FCRA estimate by about 20 percent.[5]

With understated costs, programs that collect fees can both deliver subsidies and appear to be costless. Such programs tend to proliferate as "solutions" to budget constraints. For example, the Energy Policy Act of 2005 authorized long-term loan guarantees to support innovative fuel technologies at a budget cost of "zero" by requiring borrowers to pay fees equal to FCRA subsidy costs. That legislation provides a hidden subsidy equal to the value of program cost excluded by FCRA.

In practice, upfront recognition of the cost of risk and administrative costs requires a capacity to identify the relevant risk, and to make forward looking estimates of those costs. Accounting for the cost of risk is further complicated by the fact that it is an opportunity cost that involves no actual cash flows. It also requires an accounting procedure for recognizing the bearing or "financing" of risk by taxpayers over the life of the credit cohort. A variety of

methods for approximating the market value of risk and administrative costs have been developed and described elsewhere.[6] They are briefly summarized here. Recognition of risk-bearing by taxpayers can be accomplished by using existing budget accounts for credit to record payments of the risk premium to the general fund of the Treasury. In short, there are few technical barriers to adding currently omitted costs to the subsidy costs specified in FCRA.

BUDGET COST, ACCOUNTING, AND CONTROL UNDER FCRA

Following a series of studies and reports by OMB, GAO, and CBO, the Congress enacted FCRA in 1990. The Act's objectives are to: measure the cost of federal credit programs more accurately; place the cost of credit programs on a budgetary basis equivalent to other federal spending; encourage the delivery of benefits in the form most appropriate to the needs of beneficiaries; and improve the allocation of resources among credit programs and between credit and other spending. [7]

To move toward those goals, FCRA adopted an accrual (non-cash) basis of accounting that recognizes the present value of expected lifetime cash flows from new credit activity in the budget period. Reconciling credit accruals with the underlying cash flows requires a multiple account structure, in which payments of estimated subsidy costs are made at loan origination from an on-budget account to a non-budgetary account. Such transfers are included in budget outlays. The account receiving the subsidy also records all cash-flows whose expected net present value is the subsidy cost. As the repository of both the subsidy and the cash flows with the public from the transaction, the non-budgetary account has a balanced book of assets and liabilities.

Estimates of Subsidy Costs

FCRA defines the budget or subsidy cost of credit as "the estimated long-term cost to government of a direct loan or loan guarantee or modification thereof, calculated on a net present value basis, excluding administrative costs and any incidental effects on government receipts or outlays."[8] This measure is supported by the concept that budget costs should be recognized at "the point of final commitment."[9] To estimate the cost of a loan or guarantee when credit is extended, analysts project the expected cash flows from the transaction and discount them to present values using the interest rate on marketable Treasury securities of matched maturity to the cash flows.[10] The net present values of the individual cash flows are then summed to arrive at the government's estimated cost (or gain) on the transaction. Those calculations are illustrated for a direct and a guaranteed loan in Appendix I.

Estimates of the subsidy cost of new loan obligations and guarantee commitments for 2007 are shown in Table 1. One program—guaranteed student loans--accounts for most of the estimated cost of federal credit activity. Other relatively costly loan programs include: college housing and academic facilities loans, SBA disaster loans, and farm ownership and operating credits. A handful of programs also account for most federal credit activity measured by loan volume. (Table 2). Some of the largest programs by volume, including FHA and VA mortgage guarantees, direct student loans, and Rural Electrification and Telecommunications direct loans, and SBA business loans do not appear on the most costly list because they report negative or zero subsidies; that is, they appear to either produce a net gain or cost nothing.[11] In fact the net subsidy cost of "all other" guarantee programs, meaning those not explicitly listed, in the lower panel of Table 1 is negative $1.1 billion.

<TABLES 1 & 2 HERE>

Re-estimates

Expected subsidy costs change over time as economic conditions change and cash flows deviate from expectations. For that reason, FCRA provides for re-estimates, or annual revisions in subsidy cost estimates based on loan performance and other new information.[12] A re-estimate that raises expected cost triggers a payment from the on-budget account to the non-budgetary account and thus increases budget outlays in the budget year of the re-estimate, and conversely for downward re-estimates.[13] The re-estimates thereby affect the budget surplus or deficit, but not the level of funded program activity.

Modifications in loan terms through administrative action or new legislation that change subsidy cost have the same effect on budget outlays and the deficit as re-estimates. However, such changes require appropriation of additional budget authority.[14] The difference in treatment reflects that re-estimates are of (sunk) costs that have already been incurred, whereas modifications are changes in costs resulting from decisions made in the current period.

FCRA re-estimates deviate from market valuation by excluding from re-estimates the effect of changes in market interest rates after loans have been disbursed. For floating rate loans, interest rate changes have little effect on value, so re-estimates would be unaffected by accounting for rate changes. The value of fixed rate loans, however, varies considerably with interest rates. Hence, the re-estimation process excludes one of the largest and most easily measured factors affecting long-term direct loan value.

Budget Accounting

The government's actual cash outflows in each period are unchanged by FCRA, and

hence it does not affect borrowing from the public. However, FCRA changes the reported budget surplus or deficit by the difference between the accrual and cash measures of cost.[15] It therefore changes the correspondence between the deficit and net borrowing. Although FCRA affects the gap between the budget deficit and federal borrowing from the public, the direction of change is ambiguous because of the potentially offsetting effects of the treatment of direct and guaranteed loans.[16] Moving to credit reform accounting reduced the effect of direct loan disbursements on outlays by replacing loan disbursements with its (lower) subsidy cost, but increased the effect of new guarantees (and often changed the sign) by replacing initial year collections from guarantee fees with estimated subsidy costs.[17]

Effect on Budgetary Control

Passage of FCRA changed the focus for credit decisions from single-period cash flow to estimated cost over the life of a loan. As a consequence, the budget's tilt favoring guarantees was largely eliminated. Some observers have suggested that adoption of FCRA was a necessary condition for the enactment of the direct student loan program.[18] Direct student lending had been proposed on several occasions, most notably by President Carter, but its high cost in pre-FCRA accounting was a significant obstacle. The program was enacted in 1993 shortly after FCRA went into effect.

The Act also aligned Congressional control of credit programs more closely with that of non-credit programs. For discretionary programs, the level of new credit activity is now limited to levels whose estimated subsidy costs do not exceed sums provided in annual appropriation acts.[19] Mandatory programs, credit and non-credit, are subject to Congressional control only through changes to the relevant authorizing statutes. But FCRA provided Congress with a

subsidy cost metric for mandatory credit programs that is more directly comparable with the net outlays measure for non-credit programs.[20]

FCRA'S OMITTED COSTS

Ordinarily, the government transacts at market prices and the budget records those expenditures. FCRA departs from that practice for credit by substituting legislated valuation rules for market prices. As a consequence, FCRA omits some potentially large components of the cost of federal credit programs.

In a well-functioning market economy, market prices are usually the best available measure of the economic cost to society of devoting resources to a particular activity. That is, the amount that must be paid to owners of resources to attract them from other uses is their value, and hence the cost of the budgeted use. The use of cash-basis accounting, which values a federal expenditure for goods and services as the amount of cash disbursed plus contemporaneous administrative expenses, is consistent with the use of market values in the budget because that is its market price. The objective of accounting for credit on a basis equivalent to other federal programs suggests that the cost of credit assistance should also be assessed at market prices. It is also consistent with the objective of using comprehensive cost measures in the budget. However, FCRA values differ from market values with respect to the cost of capital; administrative costs; and floating rate loans.

Market Cost of Capital

In credit markets, the cost of capital is reflected in the interest spread that borrowers pay in excess of Treasury rates, the "credit spread." Conceptually, that spread can be divided into

compensation for expected losses, for the market risk associated with those losses, and for differences in liquidity and taxes. Federal loans and loan guarantees carry market risk because both the frequency and severity of defaults tend to increase during periods of weak economic activity when the market value of all financial assets is low. The losses associated with default have a higher economic cost at such times than when the economy is strong, and that cost difference is captured in the credit spread. The spread varies across different types of loans, since some are more sensitive to the performance of the economy than are others. Investors also demand higher returns on risky loans because those loans lack the liquidity of the Treasury market, and because income from those loans is subject to state and local taxes.[21, 22]

For direct loans, the effect of fully accounting for the cost of capital is to reduce the present value of expected future payments below the value found by discounting at Treasury rates. Thus, the use of Treasury rates for discounting, as required under credit reform, overstates the value of expected direct loan repayments and thereby understates the cost of direct lending.

For loan guarantees, the effect of a higher market cost of capital is to increase the cost to the government of guarantee payments above their estimated value using Treasury rates. Market risk increases the value of guarantees because guarantee payments are most likely to be made when the economy is depressed and resources scarce. To approximate this higher cost requires the use of discount rates that are effectively lower than risk-free rates. Accordingly, the use of risk-free rates for discounting understates the cost of expected payments for default and understates the value of guarantees. Appendix II provides a numerical illustration of the relation between expected credit losses, the risk-free Treasury rate, and the cost of market risk both for direct loans and for loan guarantees.

Including the price of market risk in the subsidy cost of federal loans and guarantees to

commercial enterprises varies in the effect on the estimated cost of credit assistance.[23] For example, the estimated cost of the $380 million loan guarantee to America West Airlines in 2002 changes from a gain to the government of 12.5 percent of the guaranteed amount under FCRA to a cost of 6.9 percent using market value. The cost of PBGC pension insurance approximately doubles with market valuation, reflecting the extensive market risk in that insurance program.[24] By contrast, the Small Business Administration's 7(a) loan guarantee program has a market value subsidy rate that is only one to two percentage points higher than the estimated subsidy of close to zero using FCRA methodology under the unusually benign economic conditions of 2006.[25]

Some observers have suggested that market risk is not a cost to the government because the government can borrow at Treasury rates. The problem with this reasoning is that even though the government raises funds to finance risky loans and guarantees by selling safe Treasury securities, the risk from the credit provided is shifted onto taxpayers and other federal stake holders. A full accounting would reflect this cost.

Assume, for instance, that the government finances a loan by borrowing from the public through the sale of Treasury securities.[26] Even if the interest rate and fees charged on the loan are sufficient to cover expected default losses, taxpayers are liable for repayment of the Treasury debt for all amounts in excess of repayments recovered from the borrower. (Taxpayers would of course also benefit if default losses turn out to be less than expected.) If taxpayers accepted the same risk (upside and down) in a private financial transactions, they could anticipate compensation for doing so equal to the market risk premium for that loan. When a loan is made through the government, the risk transferred is the same, but under FCRA rules the budget does not recognize the cost of that risk.

Administrative Costs

Lending and guaranteeing loans necessarily involves administrative expenses. Setting aside general overhead costs that often do not vary with a single year's new credit activity, incremental increases in labor and other expenses are required for loan origination, servicing, and collection on defaulted loans. Loan guarantees often generate smaller administrative costs than on direct loans because the costs of origination and servicing, and some collection costs, are incurred by the lender. Nonetheless, for both direct and guaranteed loans, administrative costs can significantly affect the total and relative cost of the activity.[27]

FCRA specifies that funding for federal administration of direct and guaranteed loans is to be appropriated to the program accounts and shown separately from the appropriation for subsidies.[28] Administrative costs are then recognized in budget outlays on a cash-basis as paid. This contrasts with the accrual treatment of subsidy cost, which is recognized as a present value when the loan is disbursed.

The market value of a loan or guarantee is always net of the costs of ongoing administrative expenses. A comprehensive measure of government cost would similarly recognize the cost of collecting income as a factor that reduces the value of the income stream. Or, seen from a government appropriations perspective, the act of originating a direct loan or guarantee commits government to a level of servicing and collection effort sufficient to limit its expected losses to the average value assumed at origination. That is, the subsidy cost of a loan or guarantee implicitly assumes some level of servicing and collection effort that is obligated when the government extends credit. These considerations suggest that, all else equal, the government's own incremental administrative costs of new credit activity ought to be included in

12

the subsidy estimate and recognized when the loan is disbursed.

In framing FCRA, the Congress explicitly decided against including future administrative outlays in capitalized subsidy costs because of fears that doing so would weaken Congressional control of the credit agencies. The Appropriations Committees were especially wary of giving agencies control of future outlays for salaries and expenses by drawing on past appropriations and the authority to re-estimate these costs. However, the amount of funds at issue is relatively small, and the scope of what they are to be used for can be narrowly defined. To capture incremental administrative expenses, appropriations at origination need only provide amounts sufficient to collect outstanding credits, which would be necessary even in the event of a decision to terminate the program.

If Congress were to adopt a consistent policy for booking administrative costs, recognizing the incremental cost of new credits would increase the comparability of budget costs across programs. Currently, the treatment of administrative costs lacks uniformity. Some but not all credit and non-credit programs receive an annual appropriation for administrative expenses. For many, if not most, non-credit activities, administrative costs are paid from an agency's general salaries and expenses account rather than allocated to specific programs. FCRA's mandate for administrative costs to be appropriated to the program accounts appears to have been interpreted as a recommendation rather than a requirement. Accordingly, some credit program accounts receive no appropriation for administrative expenses, while others receive funding intended to cover the costs of administering two or more programs.

This variation can be illustrated for credit programs shown in Tables 1 and 2. No administrative costs are identified for Rural Community Advancement loans and guarantees -- those costs are paid from the salaries and expense account for all rural development activity. For

student loans, VA housing loans, and SBA business loans, federal administrative expenses for both guaranteed and direct loans are appropriated and charged to a single program account. The FHA appropriation for administrative expenses funds payments to contractors and is a fixed sum plus an automatic upward adjustment per million dollars of new guarantees above a specified threshold and subject to an annual cap.

Private administrative costs, however, are included in federal subsidy costs for the guaranteed student loan program. In that case, the federal government makes supplementary allowance payments to private lenders to cover the lender's administrative and other expenses in excess of the amounts collected from borrowers. Those payments continue for the life of the guaranteed student loans and hence are capitalized and included in subsidy costs. This treatment makes comparisons of costs for the guaranteed and direct student loan programs difficult.[29]

Some reviewers have suggested that it might not be feasible or cost-effective to identify administrative costs at the program level for either credit or non-credit programs. In part, this is a consequence of the multiple tasks and activities carried on by a single agency, bureau or, for that matter, employee. Where staff or contractors are engaged in servicing multiple cohorts of loans and guarantees, costs allocated to specific groups of loans can be no more than rough approximations. The unanswered questions are whether rough approximations would be useful and if not, whether the accuracy of those allocations could be improved if decisions were made on the basis of those estimates. Experience with FCRA suggests that the decision to control credit programs through appropriations of subsidy costs substantially increased the ability of credit agencies to estimate the cost of new credit activity.

Variable Rate Loans

An additional shortcoming of FCRA is that it does not supply an economic definition of maturity for variable rate loans. The FCRA requires that "in estimating net present values, the discount rate shall be the average interest rate on marketable Treasury securities of similar maturity to the cash flows of the direct loan or loan guarantee for which the estimate is being made" [Sec.502(5)E]. For variable rate loans, this has been interpreted by CBO (but not OMB) as requiring budget analysts to use the same discount rate for variable rate loans as for fixed rate loans of the same final maturity. For example, the projected cash flow five years hence from both variable and fixed rate loans are discounted using the interest rate on a zero coupon Treasury security with five years to maturity.

In fact, floating rate loans are economically similar to a sequence of short-term loans, and discounting at long-term rates causes mis-valuation relative to market prices. In financial markets, variable rate loans are priced relative to short-term interest rates, and the "effective maturity" is the time until the interest rate.[30]

Under FCRA rules, floating rate loans may be under- or over-valued depending on interest rate conditions, but under-valuation is more common. Thus, variable rate loans can be sold to realize an accounting gain. For example, the undervaluation of direct student loans under credit reform prompted the Department of Education to propose a sale of direct loans in 2003. Their reasoning was that since the loans had a higher market value than credit reform value, the government could sell the loans, and apply some of the proceeds to paying off Treasury debt used to finance the loans, and the remaining net gain from the sale could provide additional assistance to students. In fact, such a sale would have entailed additional administrative costs without generating any real net gain.

Consequences of Understated Costs

A consequence of understating budget costs is that the budget does not reflect the opportunity cost of resources committed. Another is that subsidy costs for credit are not equivalent to a cash grant of the same value. This reduces the comparability of budget cost for cash and credit programs. Moreover, the effects of the legislated rules on cost estimates vary across credit programs, adding another source of incomparability to budget costs. In most cases, the net effect is to reduce the budget cost of federal credit assistance relative to its cash or market value.

The omission of some components of total cost from the budget encourages policy makers to choose credit assistance over more fully priced spending programs. One reason for this is that credit programs can be structured to provide a subsidy equal to the value of omitted costs but at a budget score of zero (or to a negative value), if the government's fee exceeds the value of omitted costs.

A number of the government's credit programs--including Federal Housing Administration (FHA) and Veterans' Affairs (VA) mortgage insurance, small business guarantees, and some student and rural utilities loans have had budget costs of zero or a "negative" value in recent years.[31] Including the market cost of capital and relevant administrative costs changes the sign of net cost for many of those programs.[32]

The Energy Policy Act of 2005 is an example of a recently-enacted credit program whose budget cost is zero even though it would be positive if costs were comprehensively estimated.[33] That legislation authorizes the Department of Energy (DOE) to guarantee up to 100 percent of loans for 80 percent of the cost of energy projects that reduce greenhouse gas emissions or employ innovative technologies.[34] Eligible projects include those using renewable energy, such

as biomass and geothermal, nuclear facilities, and coal gasification plants.[35] The government's fees for providing the guarantees are to be set by DOE to reduce the FCRA estimate of the subsidy cost of the guarantees to zero. Through such legislation, government can provide subsidies to borrowers equal to the credit spread that private lenders would charge, without recognizing a budget cost.

GETTING TO CASH EQUIVALENCE

Ideally, the budget cost of credit assistance would be aligned with the full economic or social cost of such activities. To accomplish this would require adopting new methods of cost estimation, and enacting legislation to modify FCRA.

Calculating Cost

In the absence of significant external costs, a reasonable approximation of comprehensive cost is the compensation that an efficient, competitive private producer would require to perform the service – the cash equivalent. Several approaches have been used by analysts to estimate such cash equivalent costs. For most credit programs, these involve separately estimating the market cost of capital and omitted administrative costs and combining these elements with the other cash flows estimated under FCRA.

Market cost of capital. At least three related approaches are available to estimate the market cost of capital for pricing loans and loan guarantees: comparable market prices, risk-adjusted discount rates, and options pricing. Correctly applied, all methods provide similar answers about the market cost of credit and would bring cost estimates closer to cash equivalence. As a practical

matter, the best approach varies across programs and products, and private financial institutions use a combination of these techniques to value credit commitments.

The most straightforward estimate of market cost is obtained where comparable products are offered by competitive private financial institutions. For instance, FHA and VA mortgages are similar in terms of size and borrower credit risk to some segments of the private mortgage insurance market, where prices are readily observable. Using the premium rates offered by private mortgage insurers, the subsidy cost for the Federal Housing Administration's Mutual Mortgage Insurance (MMI) is between 2 and 5 percent. By contrast, the estimate under FCRA rules is -0.37 percent.[36] This approach may also be applicable to single-family mortgage insurance provided by VA, and to the loans of the Rural Housing Insurance Fund.

Even when comparable market prices are available, however, care must be taken to adjust for differences between government and private products and borrowers, and for the administrative costs that are embedded in market rates. For instance, for the MMI program, CBO adjusted down its estimate of federal cost to account for the higher marketing expenses incurred by private insurers.

The cost of capital can also be approximated using risk-adjusted interest rates, which can be obtained by adding a spread to rates on Treasury securities of the same maturity.[37] A spread can be gleaned from market data on the spreads on securities of comparable risk and maturity. This approach has recently been used to evaluate the market value cost of the federal direct and guaranteed student loan programs.[38]

Options or derivative pricing methods are often the best alternative for valuing loan guarantees, which are a type of option. CBO has used options pricing models to assess and compare the market and FCRA cost of several programs: individual corporate guarantees (to

America West Airlines and Chrysler), the value of pension guarantees provided by the PBGC, the student loan consolidation option and SBA 7(a) guarantees.[39] This experience suggests that while the cost of developing those models is significant, the resources required to update and maintain them are similar to those required by models applying the FCRA rules.[40]

Administrative costs. Including the government's servicing and collection costs in subsidy estimates requires tracking those costs at the program level. The financial and cost accounting systems currently in use provide a natural data base for projecting administrative costs for credit cohorts. Alternatively, the cost of private provision for similar activities (contract loan servicing and collection is a large, competitive industry) could be used as an approximation of the government's cost when more precise information is unavailable. Annual estimates from either source could be capitalized and recognized at origination as a component of total subsidy cost. The annualized costs could then be paid annually to the program accounts as a source of financing for budgeted salaries and expenses. Consistent with continued Congressional control over agency operating costs, those transfers would be identified in the budget accounts.

Effecting Change. The task of estimating a comprehensive measure of credit cost is made more feasible by the relatively few programs that provide most assisted credit. The concentration of activity in a few programs suggests that a similar concentration of analytical effort could improve the budget accounting for most credit activity. Both OMB and CBO have begun to develop models to determine the market value of a variety of federal credit programs. Many of these models share a common analytical core that can be modified to accommodate a variety of borrowers and credit characteristics. Those models could be standardized further and distributed

to the relevant credit agencies as was done in the early 1990s with OMB's FCRA "subsidy model." Alternatively, OMB might estimate and distribute reference risk adjustment schedules for each credit program. Agencies would apply those rates to their own projections of cash flows, including administrative costs.

Modifying FCRA

We propose changing the language of FCRA to accommodate three major goals: (1) use a market cost of capital for valuing future cash flows; (2) include the federal cost of loan servicing and collection in subsidy values; and (3) clarify that the effective maturity of a floating rate cash flow is the time until the next interest rate reset date.

All of these goals could be accommodated by a general statement that the basis for valuing federal credit transactions is to use the best available estimate of fair market value. That is because market prices are based on risk-adjusted discounting, distinguish adjustable and fixed rate loans for valuation purposes, and take into account the variation in on-going administrative costs across loans.

An alternative to a general statement of the intent would be to specify the elements of cost to be included, and methods to be used in estimation. This would be consistent with the current definition of cost, which specifies the components of how present values are to be calculated, and elements to be excluded. An advantage of legislating explicit directives is that it reduces the risk that the use of different methods will lead to estimates that are not comparable, and that are difficult to understand and evaluate. On the other hand, a less prescriptive approach allows methods to evolve as new programs are introduced, and new valuation methods are developed in the private market. The less prescriptive approach has the further advantage that it

is likely to be harder to game.

ACCOUNTING FOR THE RISK PREMIUM

To affect decisions, the cost of risk needs to be included at the program level where budget tradeoffs are made. Nonetheless, including a risk premium in subsidy cost produces a cost estimate that, on average, exceeds outlays for realized losses. That discrepancy between cash flows and subsidy costs must be reconciled in the budget, so that over the life of a credit cohort, actual cash flows match budget costs in expectation. This re-balancing of budget costs and outlays needs also to reflect that the cost of risk is borne by taxpayers over the life of a cohort.

Consider a loan with a one-year maturity disbursed at the beginning of the fiscal year. The loan has an estimated subsidy cost of $100 under FCRA, but a cost of $120 if the risk premium is included. Under current law, at disbursement $100 would be transferred from the program account to the non-budgetary financing account and unified budget outlays and the deficit would be increased by $100. At the end of the year when the loan comes due, if realized losses are as anticipated, the financing account would have a zero balance after losses are paid. That accounting omits the cost of risk imposed on taxpayers.

If the subsidy cost of the loan includes a $20 market risk premium, the program account would transfer $120 to the financing account, increasing the budget outlays and the deficit by $120. At the end of the year, however, expected losses would be less than the balance in the financing account by the amount of the risk premium. Thus, the financing account would end the year with an "excess" positive balance. To rebalance the account and recognize the cost borne by taxpayers on this loan over the year, the risk premium could be paid to a *revenue*

account in the general fund of the Treasury. This payment would leave outlays unchanged, but would increase revenues by $20 and reduce the deficit by $20. The net effect on the budget aggregates in this case is to raise outlays and revenues by $20, leaving the deficit unchanged. Of course, the offset effect on the deficit would be complete only in those cases where the loan was both originated and repaid in the same fiscal year. In most cases, with longer term loans, the risk premium could be amortized over the life of the loan and the budget year offset would be substantially less than the full amount of the increase in outlays.[41]

CONCLUSION

In this paper, we have argued that reforming credit reform to more closely align budget estimates for credit with the full economic cost of those activities is feasible, and would improve accountability and transparency. In addition to modifying FCRA rules for measuring subsidy cost, the Congress might also clarify, and thereby extend, the coverage of credit reform accounting to closely related financial transactions of the federal government, such as investment in risky private securities and, public-private partnerships. The Congress might also wish to address in legislation the more general question of the budgetary control of the risk premium earned on federal financial investments. Finally, the degree of transparency in federal accounting under credit reform has fallen short of expectations. At present, budget analysts cannot confirm default and recovery rates reported by many agencies. Oversight could be improved by further measures to improve transparency, including the grant of broader access by analysts and researchers to files containing detailed performance data for direct and guaranteed loans.

The President's Budget Proposal for FY 2009 includes plans to initiate discussions with the Congress and Congressional support agencies to address some of these credit reform issues.[42]

Specifically, the Budget documents raise the possibility of extending the scope of credit reform to include federal guarantees that are currently treated as public-private partnerships and other forms of unguaranteed "third-party financing." The Administration's plan also refers to improving subsidy cost estimates by including in subsidy cost the administrative expenses necessary to maintain the value of the credit portfolio while the loans are outstanding; the cost of market risk; and more accurate values for variable rate loans.

The imperative to address these issues is heightened by the federal government's recent assumption of Fannie Mae and Freddie Mac, who together bear the credit risk on about $5 trillion of residential mortgages. To date the budget treatment of these entities has not been decided, but one option is to include in the budget, as calculated under FCRA, the value of mortgages they purchase or guarantee. Going forward this would have a significantly positive effect on the budget surplus each year, and the riskier their book of new business, the greater would be the savings. We hope that this stunning example of the perverse effects of the current accounting treatment of credit risk will serve as an impetus for change.

Table 1:		
Subsidy Cost of New Federal Direct Loans and Guarantees, Largest Programs by Subsidy Budget Authority 2007 (millions of dollars of budget authority and subsidy rate)		

Direct Loans:

Program	Subsidy Cost ($ mils)	Subsidy Rate (%)
College Housing & Academic Facilities	304	65.22
SBA Disaster	267	17.73
Rural Housing	181	47.82
Rural Community Advancement	132	9.09
Agricultural Credit Insurance	92	9.32
All Other*	138	n/a
Total*	1,114	n/a

Guaranteed Loans

Program	Subsidy Cost ($ mils.)	Subsidy Rate (%)
Federal Family Education (Student)*	4,098	6.29
Agricultural Credit	56	2.58
Rural Housing	51	1.37
Rural Community Advancement	45	4.09
Commodity Credit Corporation (Export)	39	2.92
Other#	-1,106	n/a
Total*#	3,183	n/a

Subsidy rate = subsidy cost/new loan volume
* Excludes subsidy cost for consolidation loans
#Excludes Subsidies for GNMA Secondary Guarantees

Source: OMB, Analytical Perspectives, FY 2009, pp.97-98, and Budget Appendix 2009, pp. 361, 367

Table 2
New Federal Direct and Guaranteed Loans, 2007
Largest Programs by New Loan Volume
(millions of dollars and percent of total new direct or guaranteed loans)
Direct Loans

Program	2007 New Loan Levels ($ millions.)	Percent of Total New Loans
Student Loans*	14,357	53.75
Rural Electrification and Telecommunications	4,267	15.97
SBA Disaster Loans	1,506	5.64
Rural Community Advancement	1,451	5.43
Rural Housing Insurance	1,354	5.07
All Other	3,777	14.13
Total Direct*	26,710	100.00

Guaranteed Loans:

Program	2007 New Loan Levels ($ millions.)	Percent of Total New Loans
Federal Family Education (Student)*		27.88
FHA Mutual Mortgage Insurance	56,519	25.90
FHA General and Special Risk	32,927	15.09
VA Housing	24,186	11.08
SBA Business	20,506	9.40
Other#	23,251	10.65
Total*#	218,241	100.00

* Excludes Student consolidation loans
# Excludes GNMA secondary guarantees

Source: OMB, Analytical Perspectives, FY 2009, pp.97-98 and Budget Appendix 2009, pp. 361, 367.

Footnotes

[1] Exceptions include the treatment of interest on Treasury debt which is recognized as it accrues, and the treatment of projected payments under lease-purchases which are recognized as if the asset were purchased outright.

[2] Given the role of the budget as a planning document, expected rather than actual cash flows are recorded for the budget year. The budget documents also report "actual" or realized values for prior years.

[3] For a more detailed description of the weaknesses of cash-basis budgetary accounting for credit, see U.S. Congressional Budget Office, *New Approaches to the Budgetary Treatment of Federal Credit Assistance*, March 1984; *Credit Reform: Comparable Budget Costs for Cash and Credit,* December 1989, and "The Cost of Risk to the Federal Government and Its Implications for Budgeting," Deborah Lucas and Marvin Phaup, in *Measuring and Managing Federal Financial Risk*, University of Chicago Press, forthcoming..

[4] The rationale for excluding government's own future administrative costs from current period cost was to avoid advance appropriations of federal salaries and expenses, which it was feared would weaken Congressional control of agencies.

[5] Congressional Budget Office, *Estimating the Value of Subsidies for Federal Loans and Loan Guarantees*, August 2004, p.15.

[6] See "The Cost of Risk to the Federal Government and Its Implications for Budgeting," Deborah Lucas and Marvin Phaup, in *Measuring and Managing Federal Financial Risk*, University of Chicago Press, forthcoming, and references therein. .

[7] Sec. 591 [2 U.S.C. 661].

[8] Sec 502(5)a also includes in cost the effect of "modifications," changes in loan terms from legislation or administrative action, but excludes administrative costs and incidental effects on governmental receipts or outlays.

[9] *Report* of the President's Commission on Budget Concepts (October 1967) p. 38.

[10] See Section 502(5), Congressional Budget Act of 1974, as amended [2 U.S.C. 661]. The Office of Management and Budget, Circular A-11 further specifies the use of rates on zero coupon Treasury securities with the same maturity from the date of loan disbursement as the cash flow. The yield curve on Treasury securities compiled by OMB for use in discounting is sometimes referred in budget documents as a "basket of zeros" (or BOZ).

[11] Direct student loans have a negative subsidy (budget authority) for 2007 excluding the cost of consolidation loans. Consolidation loans are excluded from our tabulations because they are re-finances of outstanding student loans under terms specified in the original loan agreements.

[12] CBO, *Credit Subsidy Reestimates, 1993-1999*, September 2000.

[13] Re-estimates that lower expected losses result in a correcting reduction in the balance of a financing account and a receipt by the program account (in the case of mandatory programs) or by a Treasury receipt account (for discretionary programs). Thus, both upward and downward re-estimates are included in budget outlays, as a positive or negative, in the budget year that the re-estimate occurs.

[14] Sec.504(e).

[15] Thus, credit reform accounting changes budget balance and provides an offsetting change in the means of financing the deficit. FCRA does so by adding the net cash flows of the credit financing accounts to the elements that finance the budget deficit—below the deficit line (see Appendix I).

[16] Other forms of financing other than borrowing from the public include changes in outstanding federal checks and seigniorage on coins.

[17] In 1992, its first effective year, credit reform reduced the deficit by $18.8 billion. This net effect was the result of substituting $0.7 billion in direct loan subsidy costs for $23.7 billion in loan disbursements (reducing the deficit by $23 billion) and of substituting a guarantee cost of $1.5 billion for approximately $3.4 billion in guarantee collections (increasing the deficit by $4.9 billion). Office of Management and Budget, *The Budget for Fiscal Year 1992*, Part 2—pp. 222, 287.

[18] Steven Waldman, *The Bill*, Viking, New York, 1995, pp. 74-75.

[19] In addition, appropriations acts specify volume limits on direct loan obligations and guarantee commitments for discretionary programs. In the case of programs with positive subsidies, subsidy costs are usually the binding constraint. However, for programs with subsidies that are estimated to be zero or negative subsidies using FCRA rules, the appropriated limits on loan volume provide the only budgetary limit on activity. See Section 504(b) (2) of the Congressional Budget Act.

[20] The classification of programs as discretionary or mandatory is set out in the Budget Enforcement Act of 1990.

Only five major credit programs are mandatory: student loans (direct and guaranteed), farm storage facility direct loans, Commodity Credit Corporation export guarantees, and Veterans' mortgage insurance. Two small (less than $35 million) direct loan programs for economic development and sugar storage in the Department of Agriculture are also mandatory. See OMB, Federal Credit Supplement, Budget of the U.S. Government, Fiscal Year 2009, Tables 1 and 2.

[21] The liquidity premium compensates investors for holding an asset that may be more difficult to sell quickly than are Treasury securities of a corresponding maturity.

[22] The exemption from state and local taxes gives the federal government a cost advantage in raising capital over private lenders, but at the expense of state and local governments. As a practical matter, the effect of state and local taxes on interest rate spreads is thought to be small and difficult to measure.

[23] Congressional Budget Office, *Estimating the Value of Subsidies for Federal Loans and Loan Guarantees*, August 2004 and *The Risk Exposure of the Pension Benefit Guaranty Corporation*, September 2005.

[24]Insurance programs are not covered by FCRA, and the finances of the PBGC are largely off-budget, but the program provides a further example of the importance of market risk for cost in a major government program.

[25] Congressional Budget Office, *Federal Financial Guarantees Under the Small Business Administration's 7(a) Program*, October 2007.

[26]The point holds even if the government is running a surplus and finances the loan from the excess of revenues. In that case the government finances the loan by not repaying an equal amount of public debt or by foregoing other uses of the funds.

[27] For federal student loans, it has been estimated that "including the administrative costs of the direct loan program would raise its subsidy rate by approximately 1.5 percentage points." CBO, *Subsidy Estimates for Guaranteed and Direct Student Loans*, November 2005, p.15

[28] Sec. 502(5)B. Credit reform increased the extent to which administrative costs are identified by program source and allocated to specific programs. It did so largely, by removing non-credit activities from the credit accounts and by providing separate budget accounts for direct loans and guarantees.

[29] Accounting for administrative costs more fully than in the budget reveals that administrative costs in the direct

student loan program are significantly lower than in the guaranteed program, but by less than indicated in budget estimates. *Guaranteed vs. Direct Lending: The Case of Student Loans*, Deborah Lucas and Damien Moore, in Measuring and Managing Federal Financial Risk, University of Chicago Press, forthcoming.

[30] See, e.g., Bruce Tuckman, Fixed Income Securities, 2nd Edition, 2002, Wiley, page 376.

[31] These programs recorded negative subsidy rates in 2005-7. Subsidy estimates vary over time,, and may be negative in some years and positive in others.

[32] "The government does not really 'make money' providing [direct] student loans—the subsidy calculations under the Credit Reform Act are not designed to fully capture the economic costs to the government of the assistance that the student loan programs provide, nor do they capture all of the effects of the programs on federal spending and revenues." Congressional Budget Office, *Subsidy Estimates for Guaranteed and Direct Student Loans*, November 2005, p. vii.

[33] CBO, cost estimate for S.10, Energy Policy Act of 2005, June 9, 2005. Available at www.cbo.gov.

[34] P.L.109-58, Sec.1702 (c).

[35] U.S. Department of Energy, Office of Public Affairs, "Secretary Bodman Announces $2 Billion Federal Loan Guarantee Program as Part of First Anniversary Celebration of Energy Policy Act," August 7, 2006. At www.energy.gov.

[36] Congressional Budget Office, *Assessing the Government's Costs for Mortgage Insurance Provided by the Federal Housing Administration*, attachment to letter to Congressman Jeb Hensarling, July 19, 2006.

[37] For an example of the cost differential using an adjusted discount rate approach, see CBO, *Federal Subsidies and the Housing GSEs*, May 2001.

[38] *Guaranteed vs. Direct Lending:The Case of Student Loans*, Deborah Lucas and Damien Moore, in Measuring and Managing Federal Financial Risk, University of Chicago Press, forthcoming.

[39] *The Risk Exposure of the Pension Benefit Guaranty Corporation*, September 2005, *Valuing the Student Loan Consolidation Option*, September 2006, and *Federal Financial Guarantees Under the Small Business Administration 7(a) Program*, October 2007. Also see Soren Hansen, Michael Dothan, and Fred Thompson, "Appraising Commitments and Guarantees with Option Prices," *Public Budgeting & Finance*, 27,4 (Winter2007),

pp. 99-112.

[40] For an explanation of the equivalence of a loan guarantee and a put option, see *Estimating the Value of Subsidies for Federal Loans and Loan Guarantees*, August 2004, pp. 10-11.

[41] Incorporating the cost of risk in this way would not require any change in re-estimates. If re-estimates are extended to reflect changes in interest rates after loan disbursement, however, changes in risk would be reflected to a first approximation in the change in rates and included in the re-estimate. Expanding subsidy cost to include administrative costs would require re-estimates of those expenses to adjust balances in the financing accounts.

[42] Office of Management and Budget, Budget of the U.S. Government, Fiscal Year 2009, *Analytical Perspectives*, pp 223-4. The Administration also proposes a technical adjustment to simplify the calculation of subsidy cost by discounting future cash flows to a single point for loans that are disbursed over several years.

Appendix I: Eample of Subsidy Estimates under FCRA

Consider a direct loan for $100 with a maturity of 3 years and a fixed interest rate of 5.7 percent per annum, which for simplicity is also assumed to be the interest on government debt of one-, two-, and three year maturities. The entire principal amount comes due at maturity. Based on experience with similar loans, full interest payments are expected in the first two years, but there is a 30 percent chance that only 70 percent of the amount due will be recovered at the end of the third year. This implies an expected final payment of .7($105.70) +.3(.7 [105.70]) = $96.19, so that the government will come up short by an expected amount of $9.51. Pricing the loan requires turning this information into expected cash flows in each future year, and discounting each cash flow at the maturity-matched Treasury rates, or—as referred to by OMB— the "basket of zeros" or BOZ rates. The calculation of subsidy cost is shown in Table 1.

<TABLE A1 HERE>

Now consider a fully guaranteed loan on the same terms. The subsidy is the present value of the guarantee payments, as shown in Table 2. The estimated subsidy and subsidy rates are the same, even though the transactions are very different.

<TABLE A2 HERE>

In practice, the loan might have other features that affect its value, such as an interest rate above or below the corresponding Treasury rate, fees, prepayment options, or an option to defer payments. These complications increase the difficulty of estimating subsidy cost and can create a discrepancy between the value of the direct loan and that of a pure credit guarantee on the same loan. Differences between the subsidy cost of a direct loan and guarantee may also arise when administrative costs are accounted for differently.

Appendix II: How the Cost of Risk Affects the Value of Direct Loans and Guarantees

In competitive markets, the values of a credit guarantee and the underlying risky loan are related as follows:[42]

Value of a Risky Loan + Value of a 100% Guarantee on Risky Loan = Value of Risk-Free Loan

This relation has to hold because the future cash flows from a portfolio consisting of a risky loan and a guarantee on that loan are identical to those on a portfolio including only a risk-free loan.

Consider a risky, one-year loan for $100 with an interest rate of 10 percent. The loan

agreement calls for a single payment of $110 to be made in one year. However, based on previous experience, the lender expects to receive only $107 in one year. That is, the lender might get the full $110 but with some probability, nothing at all. The expected value of future cash flows to the lender is $107. The market value of the borrower's promise (the risky loan) is $100 because that is the amount the lender advanced in exchange for the loan agreement.

If a third party agrees to guarantee 100 percent of the contract payment, the guarantor may have to pay as much as $110, but expects to pay only $3 ($110 - $107) at the end of a year.

Suppose the risk-free rate of interest is 5 percent. The expected rate of return on the risky loan is 7 percent (that is [$107 - $100]/$100). The 2 percent difference is the "market risk premium."

The market value of a risk-free promise to pay $110 in one year is $110/1.05 = $104.76. Thus,

Value of risky loan + Value of Guarantee = $100 + Value of Guarantee = $104.76

The value of the guarantee is $4.76. However, the expected cash payment by the guarantor is only $3. The market value of a risky guarantee is always greater than the discounted (at risk-free rate) value of the expected guarantee payment, in this case $3/1.05 = $2.86. The difference between the guarantee value and the present value of guarantee payments, $1.90, is the cost of market risk. Notice that it is equal to the cost of market risk for the direct loan: the investor expects to receive $2 in compensation for risk at the end of the year ($107-$105), which discounted at 5 percent, is also $1.90.

Table A1: Estimating the subsidy rate for a direct loan			
Borrower rate	5.7%		
Loan amount	$100		
Year	1	2	3
Begin year balance	$100	$100	$100
Principal payment	$0	$0	$100
Treasury discount (BOZ) rates	5.7%	5.7%	5.7%
Total scheduled cash flow	$5.7	$5.7	$105.7
Annual PV scheduled cash flow	5.3926	5.1018	89.5056
Total PV scheduled cash flow	$100		
Total expected cash flow to government	$5.7	$5.7	$96.187
PV expected cash flow	$5.3926	$5.1018	$81.4501
TOTAL PV	$91.9445		
SUBSIDY RATE	8.0555 %		

Table A2: Estimating the subsidy rate for a loan guarantee			
Total expected cash flow from government	$0	$0	($105.7-$96.187) = $9.513
Treasury BOZ rate	5.7%	5.7%	5.7%
PV expected government cash flow	$0	$0	$8.0555
TOTAL PV	$8.0555		
SUBSIDY RATE	8.0555%		