A Better Way to Budget for Federal Lending Programs

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Lending programs create special challenges for federal budgeting. So special, in fact, that the Congressional Budget Office (2014) estimates their budget effects two different ways. According to one method, the government will earn $135 billion by issuing student loans over the next decade. According to the other, the government will lose $88 billion by issuing the same loans. Similar discrepancies exist for the Federal Housing Administration's mortgage guarantees (a $63 billion gain versus a $30 billion loss) and the Export-Import Bank (a $14 billion gain versus a $2 billion loss).

Policymakers and citizens are left wondering whether these programs will make more than $200 billion or lose more than $100 billion and whether the government is subsidizing borrowers or profiting at their expense.

In a new report (Marron 2014), I propose a budgeting approach that can eliminate this confusion. This approach, which I call *expected returns*, uses the expected financial returns from loans and guarantees to track the fiscal effects of federal lending over time. It also provides a natural framework for identifying any subsidies given to borrowers. Expected returns would better inform citizens and policymakers about the fiscal consequences of federal lending.

This brief describes the expected-returns approach, illustrates its implications, and compares it with other approaches while focusing on three questions:

1. How much does the government gain or lose on loans and guarantees over their lifetimes?
2. How are those fiscal effects spread over time?
3. How much of a subsidy do borrowers receive?

Expected returns provides accurate, useful answers to each of these questions, while other approaches fall short on one, two, or all three.

Budgeting for a Simple Loan

The clearest way to compare budgeting approaches is to see how each would handle an example loan. Let's begin with a case in which the federal government lends $1,000 at a 6 percent annual interest rate for four years, with the full principal outstanding until the end of the loan. There is a chance the borrower will default on interest payments; those defaults, net of any recoveries, are expected to average 1 percent of the outstanding principal each year but could be more or less. On average, the government thus expects a 5 percent annual return. To get the money to make the loan, the government has to borrow by issuing $1,000 of Treasury bonds that pay 2.5 percent interest. The government thus anticipates making a 2.5 percent spread on the loan—the 5 percent expected return less the 2.5 percent cost of financing it.

For this initial case, we assume the government is lending on the same terms available in financial markets; competitive private lenders would also ask 6 percent interest and expect a 5 percent return net of defaults. The government usually offers below-market interest rates, so this scenario is not typical, but it sometimes happens and it makes this example as simple as possible.

We exclude any administrative costs of originating and servicing the loan. This is unrealistic, but it is consistent with the way Congress currently budgets for lending programs. Such treatment is problematic and deserves attention, but it is beyond the scope of this brief.

Given this information, it is easy to measure the expected lifetime fiscal effects of making the loan. The government would expect to receive $240 in interest payments ($1,000 × 6 percent × 4 years) less $40 in defaults ($1,000 × 1 percent × 4 years) and to pay $100 in extra borrowing costs ($1,000 × 2.5 percent × 4 years). The government would thus net $100 ($240 - $40 - $100). Since borrowers are paying a competitive market interest rate, the subsidy they receive is exactly zero.

Those calculations answer two of our questions, the lifetime fiscal effect and the subsidy to borrowers. To answer the third—how fiscal effects are spread over time—we need to consider the loan's timing. Congress typically budgets by projecting the effects of policy proposals over a ten-year budget window; for this example, we use a five-year window. Assume the loan is made on the last day of the first fiscal year in the budget window and will be repaid on the last day of the fifth year. The fiscal effect in the first year will then reflect what happens at the moment the loan is originated, and the fiscal effects in years two through five will reflect any returns from holding the loan.

To forecast fiscal effects over time, I propose Congress look at the loan's expected financial returns year by year. To do so, we forecast how making the loan will change the government's net worth each year.

In the first year, the government's expected returns are zero. When it makes the loan, its assets go up $1,000 (the value of the new loan), but its liabilities go up the same amount (the value of the new debt). The government's net worth is unchanged, so there is no immediate financial gain or loss and thus no fiscal effect. In year two, the government expects $60 in interest payments less $10 in defaults and $25 in extra borrowing costs, making the expected return $25. The same is true in years three through five. Under the expected-returns approach, the fiscal effects of the loan would thus be $0 in year one and $25 in each of the next four years (table 1).

This approach should be intuitive. Indeed, it is the approach most individuals, businesses, and organizations use when projecting the effects of loans and other financial investments. It is not, however, the way Congress budgets for lending programs.

TABLE 1

Four Ways of Budgeting for a Loan at Market Rates

Annual budget effects of government lending (dollars)

	Years					
	1	2	3	4	5	Total
Expected returns	0	25	25	25	25	100
FCRA	94	0	0	0	0	94
Fair value	0	0	0	0	0	0
Cash	-1,000	25	25	25	1,025	100

Note: The government borrows $1,000 at 2.5 percent and lends expecting a 5 percent market return.

The current approach, established by the Federal Credit Reform Act (FCRA) of 1990, expresses the loan's fiscal effect as a single lump sum at the moment it is made. That amount is calculated as the net present value of the loan's expected cash flows, discounted using Treasury borrowing rates. FCRA looks at the cash flows over the life of the loan and converts them into equivalent dollar amounts at origination. Because Treasury borrows at 2.5 percent, a dollar in the second year is worth about 97.5 cents, a dollar in the third year is worth about 95 cents, and so on. Using that approach, the net present value of the loan is $1,094 at origination. Making the loan costs $1,000 in new Treasury borrowing, so the net fiscal gain is $94. FCRA reports that $94 as a budget gain in year one and nothing thereafter.

The Congressional Budget Office and other analysts are concerned this approach does not fully reflect the burden taxpayers bear from the financial risks of lending. FCRA correctly accounts for expected losses (in this case 1 percent each year), but it does not consider the riskiness of those losses. If the economy is weak, for example, those losses could be much larger. People do not like bearing such risks and require compensation for doing so. That is why stocks return more than bonds, on average, and corporate bonds return more than Treasuries. To take account of the cost of risk, the Congressional Budget Office estimates the budget effects a second way, known as *fair value*. Fair value calculates a net present value just like FCRA, but it uses market rates rather than Treasury rates to discount the expected cash flows.

In this example, the market discount rate is 5 percent, the expected return on the loan. That rate is higher than the 2.5 percent rate on Treasuries, so the net present value of the loan's cash flows is lower. A dollar in year two, for example, is worth about 95 cents rather than the 97.5 cents under FCRA. Because the discount rate equals the expected return, the net present value of the loan turns out to be exactly $1,000. Fair value takes that amount, subtracts the $1,000 cost of the loan, and reports a $0 budget effect in year one and nothing thereafter.

Before FCRA, Congress budgeted for these programs using a cash method similar to what it uses for other programs. The idea was to track the cash inflows and outflows of loans as they happen. Under that approach, budget projections reflect principal disbursement and repayment, interest received, and expected defaults, but not any interest paid on the Treasury debt used to finance the loan. Under that approach (not listed in the table), the example loan would appear to bring in $200 over its lifetime.

That old approach is highly flawed. By including all loan payments but excluding the government's financing costs, it makes almost any loan appear profitable. All that is necessary is for interest payments to exceed defaults. If defaults are low enough, the government could appear to make money by lending at rates lower than its borrowing rate.

For that reason, the old cash method is not a useful benchmark for thinking about budgeting for lending programs. An improvement to this method would include the government's financing costs and thus report the net fiscal effects of lending. This version, which I will simply call *cash budgeting*, shows a $1,000 outflow when the loan is originated, a $25 cash inflow in each of years two through four from net interest less expected defaults, and a $1,025 inflow in year five when the loan is repaid, with a total fiscal gain of $100.

Comparing the Approaches

These four approaches provide strikingly different budget projections. Both cash budgeting and expected returns correctly report the government would net $100 by making this loan. Fair value, however, reports no lifetime fiscal gain. The government expects to come out $100 ahead, but by discounting at the market rate, fair value makes those gains disappear. This *missing-money* problem happens because fair value is not measuring the loan's fiscal effects. Instead, it is measuring the subsidy at origination (i.e., the amount taxpayers are giving to borrowers). That value is zero for this loan, as fair value correctly reports.

Because of the way it handles the time value of money, FCRA also understates lifetime fiscal gains, reporting only $94. That amount is the present value equivalent of $25 annually in years two through five. Although relatively small, the FCRA understatement of lifetime fiscal gains is undesirable because it means FCRA measures the fiscal effects of federal lending programs with a different yardstick than used for other programs. A tax increase of $25 in years two through five, for example, would have the same fiscal effects as the loan, but it would be scored as raising $100, more than the $94 FCRA reports.

A much bigger concern is that FCRA reports the $94 gain at origination—its *magic-money-machine* problem. FCRA makes it appear the government gets an instant profit on the loan before the ink is even dry. But taxpayers have not earned anything at that point. The value of the loan is exactly offset by the value of new Treasury debt. The government expects gains in the future if it holds onto the loan. Like any lender or investor, however, it must be patient to receive those returns. It must hold the loan and bear the associated financial risk. The government could sell the loan before maturity and give up any later returns, so gains should not be attributed to the moment of origination. Such front-loading distorts the budget process by making the gains from lending appear more rapidly than they would from other comparable policies; it is as though a spending cut of $25 annually in years two through five were reported instead as a $94 spending cut in year one.

Cash budgeting accurately measures how making the loan would affect the government's borrowing needs, with a large cash drain at origination and a large inflow at repayment. This method is essential for debt management but is problematic for budgeting. A loan's effects over a budget window may differ greatly from its lifetime effects. If policymakers use a three-year budget window, for example, this loan would appear to cost $950 even though it makes $100 over its lifetime. A loan's up-front cash cost can also distort comparisons with other policy options, such as loan guarantees (which typically have cash gains up front and losses later) or direct grants (which have costs in a single year). Those problems are what inspired Congress to adopt the FCRA approach in 1990.

Expected returns provides more accurate and useful projections than FCRA, fair value, and cash budgeting. Expected returns correctly reports that the government expects to net $100; FCRA misses $6 of this gain, and fair value misses it entirely. Expected returns correctly reports that the government does not immediately gain by issuing this loan; FCRA reports gains years before they might happen. Expected returns correctly reports fiscal effects over any budget window. If Congress uses a three-year window, for example, expected returns correctly shows a budget gain of $50, reflecting the net returns the government expects during those years.

Expected returns accurately tracks the loan's fiscal effects over time and thus presents them in way directly comparable with other policies. For this loan, expected returns provides much better information about the fiscal effects of lending than do FCRA, fair value, and cash budgeting.

Budgeting for a Below-Market Loan

Those comparisons suggest expected returns is a better way to budget for federal lending. To confirm this, let's now consider a more typical loan made at below-market rates. This loan is identical to the first example except the government charges 5 percent interest rather than 6 percent. The government's expected return is then 4 percent, higher than its cost of borrowing (2.5 percent) but lower than the market return (5 percent).

If the government holds this loan to maturity, it expects to net $15 each year ($1,000 × the 1.5 percent spread) for a total of $60. The $100 return to the government from the original, unsubsidized

loan has fallen to $60 because the borrower receives a $40 subsidy ($10 each year = $1,000 × 1 percent lower rate).

Under cash budgeting, this loan would appear as you would expect, with a $1,000 outflow at origination, three years of $15 in net interest less defaults, and a final year inflow of $1,015, for a total fiscal gain of $60 (table 2). Under FCRA, the present value at origination will be positive, since the expected return is above the government's borrowing rate, but less than before. FCRA values this loan at $1,056. After subtracting $1,000 in new borrowing, the up-front fiscal gain is $56. Under fair value, the loan is worth only $965, less than the $1,000 cost of making it, because the expected return is less than the market return. Fair value thus reports an up-front loss of $35.

These figures again demonstrate that FCRA and fair value are measuring different things. FCRA measures the lifetime fiscal effects of the loan, falling just short ($56 versus $60) because of the way the present value calculation handles the time value of money. Fair value, however, measures the subsidy to borrowers, again falling just short ($35 versus $40) because of the present value calculation.

Now for the tricky part. Based on the first loan, you might think expected returns would project a $15 gain annually over the life of the loan. But reality is more complex. That *smoothed-returns* approach would correctly report the lifetime fiscal gains from the loan but not the loan's yearly pattern. Smoothed returns has some intuitive appeal and would be an improvement over FCRA, but it misses the fact that taxpayers start off behind when the government makes a below-market loan. At origination, this loan is worth only $965, less than the $1,000 in debt used to finance it. If the government chooses to sell the loan, it would realize a loss of $35, not break even as smoothed returns suggests.

TABLE 2

Five Ways of Budgeting for a Loan at Below-Market Rates

Annual budget effects of government lending (dollars)

	Years					
	1	2	3	4	5	Total
Expected returns	-35	23	24	24	25	60
Smoothed returns	0	15	15	15	15	60
FCRA	56	0	0	0	0	56
Fair value	-35	0	0	0	0	-35
Cash	-1,000	15	15	15	1,015	60

Notes: The government borrows $1,000 at 2.5 percent and lends expecting a 4 percent return, below the 5 percent market return. Figures may not sum because of rounding.

Making a below-market loan sets taxpayers back immediately because the subsidy commitment occurs the minute the loan is made. The loan is a binding contractual obligation that cannot be broken or avoided by selling. A loan subsidy is thus different from ones provided by tax credits or direct spending. Tax and spending subsidies can be, and often are, reversed by future Congresses and should be treated

as spread across time. When the government lends at below-market rates, however, it creates an irrevocable commitment.

Fair value calculates the value of that subsidy, in this case $35, and rightly reports it as the loan's cost at origination. But that is not the whole fiscal story. The value of the loan is expected to increase each year, reaching the full $1,000 needed to pay off the debt at the end of year five.

To implement expected returns, we track the value of the loan over time, including the initial subsidy, net interest less defaults, and gains from the loan's value recovering. To do this, we apply the fair-value approach to each year of the loan's life, not just the first year. The loan is worth $965 at origination, calculated as the net present value of expected cash flows using the 5 percent expected market return. Using the same approach, we find the loan will be worth $973 at the end of year two. The government thus expects a capital gain of $8 ($973 - $965) from the increasing value of the loan. Similar gains accrue in the following years as the value of the loan rises to $981 (year three), $990 (year four), and $1,000 (just before repayment in year five).

The government expects to make money from the $15 in net interest less defaults each year and from an annual stream of capital gains that offsets the initial subsidy cost. It expects to lose $35 when the loan is originated, but then make $23 to $25 in each of the next four years, with a lifetime total of $60.

Expected returns again proves more accurate than other approaches in measuring the fiscal effects of this below-market loan. By including future gains as well as the initial subsidy, expected returns avoids fair value's missing-money problem. By reporting those gains as they are expected to occur, rather than claiming them the moment the loan is made, it avoids FCRA's magic-money-machine problem.

These advantages exist for any loan and for any loan guarantee, not just the two examples considered here. Expected returns consistently provides better information about the fiscal effects of federal lending than do FCRA or fair value.

Evaluating Lending Programs over a Budget Window

We now examine how the different budgeting practices portray loan programs that operate over multiple years with returns that stretch beyond the budget window. Specifically, we consider a program that originates a below-market loan in each of the next five years (table 3).

TABLE 3

Five Ways of Budgeting for a Series of Below-Market Loans

Annual budget effects of government lending (dollars)

	Years					
	1	2	3	4	5	Total
Expected returns	-35	-12	11	35	60	59
Smoothed returns	0	15	30	45	60	150
FCRA	56	56	56	56	56	282
Fair value	-35	-35	-35	-35	-35	-175
Cash	-1,000	-985	-970	-955	60	-3,850

Notes: The government borrows $1,000 each year at 2.5 percent and lends expecting a 4 percent return, below the 5 percent market return. Figures may not sum because of rounding.

These projections drive home the differences among the budgeting methods. Under FCRA, the loans generate a consistent series of budget gains because returns expected beyond the five-year budget window are brought forward to when the loans are made. In fact, the loan made just before the budget window ends appears to bring in as much as the first loan, which is fully paid off by the end of the window. Fair value shows a persistent series of losses, reflecting the initial subsidy on below-market loans, but omitting any gains those loans may subsequently generate. The first loan, which provides four years of returns, appears to cost as much as the loan made just before the budget window ends. Under cash budgeting, the loan program appears to generate enormous losses since most repayments happen beyond the budget window. Under smoothed returns, the loan program generates a growing series of gains but conceals the initial cost of subsidizing borrowers.

Only expected returns gives an accurate presentation. In its early years, the loan program generates losses as the government issues below-market loans. Starting in year three, however, the subsidy costs of new loans are more than offset by the expected returns on the outstanding portfolio of loans. By year five, the loan program brings in $60 annually, a figure that would continue in later years if lending continued at this pace. Expected returns reports the gains the government makes by lending as they accrue; it neither excludes them (as fair value does) nor claims benefits that happen beyond the budget window (as FCRA does).

Identifying Subsidies

The proper way to measure lending subsidies is to compare the interest rate the government charges to the competitive market rate.[1] If the government charges the same as the competitive rate, as in the first example, there is no subsidy. If the government charges below a competitive rate, as in the second example, there is a subsidy. Both fair value and expected returns report a value for these subsidies—$0 in the first case, $35 in the second—as the cost of the loans at origination.

The benchmark here is a competitive market rate, not necessarily the rate charged by private lenders. As an extreme case, suppose a loan shark manages to stifle competition and charge 20 percent interest on our example loan. If the government offered such a loan at 19 percent interest, we would not describe it as subsidizing borrowers. Instead, we would say the government is a slightly nicer loan shark profiting at borrowers' expense.

In contrast, FCRA uses the government's borrowing rate as the benchmark; a loan subsidizes borrowers only if its expected return is less than the government's borrowing rate. If the return is any higher, as in both our examples, FCRA reports a *negative subsidy*, making it appear that taxpayers are profiting from the loan. Under FCRA, the first example loan has a negative subsidy of $94, and the second loan has a negative subsidy of $56.

FCRA's approach creates confusion about the government's role as a lender. The government offers borrowers below-market loans, unambiguously subsidizing them, yet FCRA makes it appear as though the government is profiting at borrowers' expense. This confusion arises because FCRA is not calculating subsidies. Instead, it measures the returns the government expects on the loan, including both the fiscal gain from lending at competitive market rates and the costs of any subsidies.

To make subsidies as transparent as possible, Congress could adopt a budget presentation that clearly distinguishes between the financial returns to bearing risk and the cost of any subsidies. Such a presentation would make clear that extending federal credit involves two decisions, not just one. The government must decide

1. whether to offer loans and guarantees and thus take on more financial risk, and
2. whether and how much to subsidize potential borrowers.

The federal government could decide to make loans at market rates (e.g., by buying corporate bonds on the open market) as a way to invest in risky assets and, if things go well, increase future fiscal resources. That would increase taxpayer exposure to financial risk, but it would not create subsidies. On the other hand, the government could offer subsidies without providing new credit, as it already does through the tax exemption for state and local bonds and the mortgage interest deduction.

Extending credit and subsidizing credit are separate activities. Policy debates should therefore clearly distinguish them. Table 4 offers a natural way to do so under expected returns, for the below-market loan analyzed earlier.

TABLE 4

Distinguishing between Subsidies and Compensation for Bearing Risk

Annual budget effects of government lending under expected returns (dollars)

	Years					
	1	**2**	**3**	**4**	**5**	**Total**
Compensation for bearing risk	0	25	25	25	25	100
Subsidy to borrowers	-35	-2	-1	-1	0	-40
Expected returns	-35	23	24	24	25	60

Notes: The government borrows $1,000 at 2.5 percent and lends expecting a 4 percent return, below the 5 percent market return. Figures may not sum because of rounding.

The first row shows the compensation the government would expect if it made a comparable loan at fair market rates; in other words, it shows the expected returns on an unsubsidized loan. The third row shows the expected returns on the below-market loan, our measure of its fiscal effects. The second row, which shows the subsidy to borrowers, is just the difference between the first and third rows (the small amounts in years two through five bridge the gap from the $35 present value recorded at origination and the $40 lifetime subsidy).

This presentation makes clear that the government could have made $100 by lending at market rates, but it gave up $40 of that potential and expects to net only $60. It also makes clear that the government is not profiting at the expense of borrowers. Borrowers come out $40 ahead because they get to pay below-market interest rates, while taxpayers come out $40 behind what they could have earned by lending at market rates.

Budgeting for Financial Risks and Returns

Expected returns resolves the question of how to measure the fiscal effects of federal lending (or, more generally, investing in financial assets). By itself, it does not and cannot resolve a related question of budget process: should lawmakers be able to use the expected gains from lending and investing to offset the budget costs of new spending programs or tax cuts?

The argument in favor is simple. From a fiscal perspective, all dollars are created equal, whether they come from lending returns, investment returns, revenues, or spending reductions. Lending and investment returns come with risk, to be sure, but the same is true of many federal programs—from food stamps to capital gains taxes. It would be peculiar for policymakers to treat financial risks differently from those in other programs. As long as policymakers respect the timing of potential returns, rather than claiming instant FCRA profits, returns to lending could be fair game in budget policymaking.

On the other hand, there is widespread concern legislators may misuse this opportunity. Some worry policymakers may expand lending programs too far. Others worry policymakers may attempt to

resolve Social Security's long-term imbalance by investing in stocks and other financial assets. For these and other reasons, many analysts believe that the fiscal effects of purely financial transactions, such as earning fair market returns on loans and financial investments, should be separated from the regular budget process.

Such concerns deserve attention but are not measurement issues. Congress should measure the fiscal effects of lending and investing as accurately as possible and then use the budget process to guide how those effects are used. One option would be to apply different rules to the gains from taking financial risk and the subsidies given to borrowers. Compensation for bearing financial risk could be off-budget and not available to pay for other policies, for example, while borrower subsidies could be on-budget and subject to usual budget requirements. Such process choices can guide how Congress uses budget figures without distorting projections of expected fiscal effects.

Conclusion

Congress adopted FCRA with the best of intentions. The cash approach it replaced distorted the budget process, making loan guarantees look artificially more attractive than direct loans and making loans appear as costly as direct grants. FCRA largely eliminated those flaws, but it also introduced new ones. By expressing fiscal effects in a single present value at the time of origination, FCRA makes federal lending appear to be a magic money machine that generates instant fiscal gains whenever expected returns exceed Treasury borrowing rates. That present value takes credit for fiscal gains that will not occur until after the budget window. And by labeling its estimates as subsidies, FCRA makes it appear as though the government is profiting at borrowers' expense on any loan returning more than Treasury rates, even if borrowers are paying lower rates than they would in a competitive lending market.

Fair value corrects the final problem by using fair market rates as a benchmark for identifying subsidies. This is useful for calculating the costs of federal lending programs, comparing them with other policy options, and measuring how much taxpayers are helping borrowers. By making this adjustment within FCRA's single present value structure, however, fair value loses any information about lifetime fiscal effects; this is its missing-money problem. A single number cannot accurately measure both the fiscal effects of a loan and the subsidies it provides.

Expected returns solves these problems by focusing on financial returns over a loan's lifetime and by providing a clear way to distinguish the returns to financial activity from subsidies to borrowers. Expected returns thus gives policymakers and the public better information on which to make decisions about federal lending programs.

Note

1. Comparing interest rates is the proper method when the government and the private sector have the same administrative costs and the same loan performance, as we are assuming here (with administrative costs excluded entirely). If administrative costs or loan performance differ, we should identify subsidies by comparing expected returns.

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