



Estimates of the Cost of Federal Credit Programs in 2022

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Summary

The federal government supports some private activities by offering credit assistance to individuals and businesses. That assistance is provided through direct loans and guarantees of loans made by private financial institutions. In this report, the Congressional Budget Office estimates the lifetime costs of new loans and loan guarantees that are projected to be issued in 2022. The report shows two kinds of estimates: those currently used in the federal budget, which are made by following the procedures prescribed by the Federal Credit Reform Act of 1990 (FCRA), and those referred to as fair-value estimates, which measure the market value of the government's obligations. Most of the FCRA estimates were produced by other federal agencies; the FCRA estimates for the largest federal credit programs and all of the fair-value estimates were produced by CBO.

Using FCRA procedures, CBO estimates that new loans and loan guarantees issued in 2022 would result in *savings* of \$40.4 billion. But using the fair-value approach, CBO estimates that those loans and guarantees would have a lifetime *cost* of \$58.6 billion. About three-quarters of the difference between those amounts is attributable to three sources:

- *The guarantees that Fannie Mae and Freddie Mac are projected to make in 2022*, which analyzed on a FCRA basis would save the federal government \$29.8 billion, but which under fair-value accounting would cost \$5.5 billion;
- *The Department of Housing and Urban Development's (HUD's) loan and loan guarantee programs*, which are projected to save \$12.0 billion on a FCRA basis but to cost \$11.9 billion on a fair-value basis; and

- *The Department of Education's student loan programs*, which are projected to save \$1.7 billion on a FCRA basis but to cost \$12.6 billion on a fair-value basis.

Federal Credit Programs

For this report, CBO analyzed the 112 programs through which the federal government provides credit assistance. The total amount of federal credit assistance projected for 2022 is \$2.2 trillion, consisting of new direct loans that total \$158 billion and new loan guarantees that cover \$2.0 trillion in loans. Just a few programs—namely, those offering mortgage guarantees and student loans—are projected to provide over 90 percent of total federal credit assistance. The largest federal credit programs by far are the guarantees of mortgage-backed securities provided by the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac.¹ Together, the two GSEs are projected to provide \$1.3 trillion in new guarantees in 2022.

Discretionary programs, which are funded through annual appropriation acts, account for 96 of the 112 programs analyzed and 23 percent of the projected dollar value of loans and guarantees. The largest discretionary programs are the mortgage programs administered by the Federal Housing Administration (FHA, which is part of HUD) and the Department of Agriculture's Rural Housing Service (RHS), the small-business loans provided by the Small Business Administration (SBA), and the transportation and infrastructure loans provided by the Department of Transportation through the Highway Trust Fund.

1. CBO considers Fannie Mae and Freddie Mac, which have been in federal conservatorship since September 2008, to be federally owned and controlled.

The other 16 programs are mandatory; that is, lawmakers determine spending for them by setting eligibility rules and other criteria in authorizing legislation rather than by appropriating specific amounts each year. The largest of the mandatory programs analyzed are Fannie Mae's and Freddie Mac's guarantees of mortgage-backed securities, the Department of Education's student loan programs, and the mortgage guarantee program administered by the Department of Veterans Affairs (VA).

To compute the estimates in this analysis, CBO used its own projections of the volume of loans and cash flows for the largest credit programs. Specifically, the agency used its own estimates for Fannie Mae and Freddie Mac, the FHA's single-family mortgage and reverse mortgage guarantee programs, VA's mortgage guarantee program, and the Department of Education's student loan programs. Making those projections is a routine part of preparing CBO's baseline budget projections because they have the potential to have a significant impact on the federal budget.²

For smaller federal credit programs, CBO relied on other federal agencies' projections of the volume of loans and cash flows to compute the estimates for this analysis.³ (CBO usually takes that same approach when preparing its baseline budget projections, analyzing the President's budget proposals, or analyzing other spending proposals.)

The projected volume of loans and cash flows may change each year because of policy changes, the availability of more recent data, new estimation methods, changes in economic conditions, or changing characteristics of participants in programs. Because of such factors, CBO and the agencies that produce FCRA estimates have changed many of their projections for 2021 since CBO last published its estimates of the costs of federal

credit programs in April 2020.⁴ Those revisions have influenced cash flow estimates for new loans and guarantees in 2022.

The FCRA and Fair-Value Approaches

In the analysis underlying this report, CBO estimated the lifetime cost of federal credit programs using two approaches. The first follows the procedures prescribed by FCRA, which the Office of Management and Budget currently uses for most credit programs in the federal budget. The second, called the fair-value approach, estimates the market value of the government's obligations by accounting for market risk. 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.⁵ For taking on market risk, investors demand greater compensation than they would expect to receive from investing in Treasury securities, which are regarded as risk free. The additional compensation—the difference between the expected return on the investment with market risk and the expected return on Treasury securities—is called the risk premium.

One common method for estimating the fair value of a direct loan or loan guarantee is to use market-based discount rates to calculate its present value. (CBO uses that method for all housing and real estate programs in this report.) The present value is a single number that expresses the flows of current and projected future income or payments in terms of an equivalent lump sum received or paid at a specified time. That number depends on the discount rate, or rate of interest, that is used to translate future cash flows into current dollars. For FCRA estimates, the projected interest rates on Treasury securities with corresponding terms to maturity are used as the discount rates. By contrast, fair-value estimates are calculated using discounting methods that are consistent with the way the loan or loan guarantee would be priced in a competitive market. The difference between the FCRA and fair-value discount rates can be

2. Those baseline projections, which CBO usually issues several times each year, reflect the assumption that current laws generally remain unchanged. In accordance with section 257 of the Balanced Budget and Emergency Deficit Control Act of 1985 (Public Law 99-177), CBO bases its projections of discretionary spending for individual accounts on the most recent funding and applies the appropriate inflation rate to project funding for future years.
3. For discretionary programs, the projections of cash flows prepared by other agencies reflect the Administration's proposed funding for 2022.

4. See Congressional Budget Office, *Estimates of the Cost of Federal Credit Programs in 2021* (April 2020), www.cbo.gov/publication/56285.

5. For further discussion, see Congressional Budget Office, *How CBO Produces Fair-Value Estimates of the Cost of Federal Credit Programs: A Primer* (July 2018), www.cbo.gov/publication/53886.

interpreted as a risk premium. In general, the cost of a direct loan or a loan guarantee reported in the federal budget under FCRA procedures is lower than the fair-value cost that private institutions would assign to similar credit assistance on the basis of market prices.

An alternative method to obtain fair-value subsidy costs that is consistent with that first method is to adjust projected cash flows and then discount them using the interest rates on Treasury securities.⁶ Under the alternative method, the projected default and recovery amounts are multiplied by a factor called a loss multiple to directly incorporate the market risk into the cash flows. The multiple is equal to the ratio of the risk premium of a loan to the loss rate of the loan (calculated as the default rate times one minus the recovery rate, where the recovery rate is equal to the percentage of defaults that are subsequently recovered). The loss multiple is an alternative measure of the compensation that investors require to take on market risk. CBO uses that method for all student, commercial, and consumer loan programs in this report.

Both the FCRA method and the fair-value method are examples of accrual accounting. In contrast to cash accounting, under accrual accounting, the estimated present value of credit programs' expenses and related receipts are recorded when the legal obligation is first made rather than when subsequent cash transactions occur.⁷ In CBO's view, fair-value estimates are a more comprehensive measure than FCRA estimates of the costs of federal credit programs, and thus they help lawmakers better understand the advantages and drawbacks of various policies.

For comparative purposes, FCRA estimates are included alongside the fair-value estimates in this analysis. The differences between the two sets of estimates—which are based on the same projected cash flows—highlight the

effect of incorporating market risk into analysis of the costs of federal credit programs.

Projected Cost of Federal Credit Programs Under Both Approaches

Using FCRA procedures, CBO estimates that the \$2.2 trillion in new loans and loan guarantees projected to be issued by the federal government in 2022 would generate budgetary *savings* of \$40.4 billion over their lifetime and thus *reduce* the deficit (see Table 1).⁸ Using fair-value procedures, CBO estimates that those loans and guarantees would have a lifetime *cost* of \$58.6 billion and thus *add to* the deficit.

For every program that CBO analyzed, the projected fair-value subsidy rate is higher than the projected FCRA subsidy rate—about 4.5 percentage points higher, on average. (The subsidy rate is the cost divided by the amount disbursed; a positive subsidy rate indicates a government subsidy and therefore a cost to the government, and a negative rate indicates budgetary savings.)⁹ Weighted by the amount of the programs' credit, the average subsidy rate is -1.9 percent on a FCRA basis and 2.7 percent on a fair-value basis.

The difference between the fair-value subsidy rate and FCRA subsidy rate varies considerably by program. The largest difference, about 32 percentage points, is that between the subsidy rates for SBA's disaster assistance

6. For more discussion, see Michael Falkenheim, *Governmental Risk Taking Under Market Imperfections*, Working Paper 2021-07 (Congressional Budget Office, June 2021), www.cbo.gov/publication/57255, and *Fair-Value Cost Estimation and Government Cash Flows*, Working Paper 2021-05 (Congressional Budget Office, April 2021), www.cbo.gov/publication/57062.

7. For further discussion, see Congressional Budget Office, *Cash and Accrual Measures in Federal Budgeting* (January 2018), www.cbo.gov/publication/53461.

8. More than half of that credit assistance would be provided by Fannie Mae and Freddie Mac. Because CBO considers them to be federally owned and controlled, when preparing its baseline budget projections, the agency treats their loan guarantees as federal commitments and accounts for them on a fair-value basis. By contrast, the Office of Management and Budget (OMB) treats those entities as private companies, and in the federal budget, it generally displays only the cash transactions between them and the Treasury. See Congressional Budget Office, *Accounting for Fannie Mae and Freddie Mac in the Federal Budget* (September 2018), www.cbo.gov/publication/54475. For other credit programs analyzed in this report, both CBO and OMB account for budgetary costs using the methods prescribed by FCRA.

9. The budgetary cost is calculated by multiplying the size of the commitment or obligation by the subsidy rate, so programs with high subsidy rates do not necessarily have the largest total budgetary impact. For example, under FCRA, HUD's Green and Resilient Retrofit program has the highest subsidy rate (93.7 percent) but a budgetary cost of only \$50 million. By contrast, VA's mortgage guarantee program has a much smaller subsidy rate (1.1 percent) but is projected to cost \$2.8 billion—more than any other credit program.

Table 1.

Projected Costs of Federal Credit Programs in 2022

	Number of Programs	Obligations or Commitments (Billions of dollars)	Subsidy Rate (Percent) ^a		Subsidy (Billions of dollars)	
			FCRA Estimate	Fair-Value Estimate	FCRA Estimate	Fair-Value Estimate
By Lending Category						
Housing and Real Estate Loans	37	1,949	-2.0	1.5	-39.5	29.1
Commercial Loans	68	144	0.5	11.7	0.8	16.8
Student Loans	5	89	-1.9	14.2	-1.7	12.6
Consumer Loans	2	*	29.3	36.9	*	*
All Lending Categories	112	2,182	-1.9	2.7	-40.4	58.6
By Department or Agency						
Fannie Mae and Freddie Mac	1	1,316	-2.3	0.4	-29.8	5.5
Housing and Urban Development	19	331	-3.6	3.6	-12.0	11.9
Veterans Affairs	5	268	1.1	3.6	2.8	9.7
Education	6	89	-1.8	14.2	-1.6	12.7
Agriculture	40	64	-1.5	4.3	-1.0	2.8
Small Business Administration	7	59	1.8	16.6	1.0	9.8
International Assistance	11	14	1.2	13.8	0.2	2.0
Energy	4	13	3.2	13.4	0.4	1.7
Transportation	2	12	-1.2	12.8	-0.1	1.5
Export-Import Bank	5	10	-3.7	0.9	-0.4	0.1
Other ^b	12	7	1.5	13.8	0.1	1.0
All Departments and Agencies	112	2,182	-1.9	2.7	-40.4	58.6

Data sources: Congressional Budget Office; Office of Management and Budget. See www.cbo.gov/publication/57412#data.

Fair-value estimates differ from FCRA estimates in that they account for market risk—the component of financial risk that remains even with a well-diversified portfolio. Market risk arises from shifts in macroeconomic conditions, such as productivity and employment, and from changes in expectations about future macroeconomic conditions.

For discretionary programs, the projections of cash flows prepared by other agencies reflect the Administration's proposed funding for 2022.

Most of the obligations, commitments, and FCRA estimates shown are from the Office of Management and Budget. The exceptions are student loans, which are administered by the Department of Education, and programs related to single-family mortgages administered by Fannie Mae, Freddie Mac, the Department of Veterans Affairs, and the Federal Housing Administration in the Department of Housing and Urban Development (HUD); those estimates were made by CBO.

The table excludes guarantees provided through Ginnie Mae and secondary market guarantees provided by the Small Business Administration (SBA) from its estimate of total credit assistance, because they are incremental guarantees on loans already included in the totals for loans guaranteed by HUD and the SBA.

The table excludes consolidation loans administered by the Department of Education.

FCRA = Federal Credit Reform Act; * = between zero and \$50 million.

a. The subsidy rate is the cost of a program, calculated on either a FCRA or fair-value basis, divided by the amount disbursed. A positive subsidy rate indicates a cost to the government, and a negative rate indicates budgetary savings.

b. Includes the Departments of Commerce, Defense, Health and Human Services, Homeland Security, State, and the Treasury, as well as the Environmental Protection Agency.

loans; that difference reflects the high degree of market risk in that type of lending. For lending programs subject to less market risk, the difference is much smaller—for instance, the fair-value subsidy rate for housing and real estate loans is just 3.5 percentage points higher than the FCRA subsidy rate.

The broad category of lending with the largest difference between the FCRA subsidy rate and the fair-value subsidy rate is student loans. Under FCRA procedures, those loans generate greater budgetary savings per dollar lent than most other federal credit assistance does; under the fair-value approach, most of those savings become costs.

Although most programs that have a negative subsidy rate under FCRA procedures have a positive subsidy rate under the fair-value approach, some subsidy rates are estimated to be negative under the fair-value approach. That is the case for the Department of Education's PLUS loan program for parents, the Department of Agriculture's farm ownership loans and water and waste disposal loans, and several smaller programs.

In principle, programs with a negative fair-value subsidy rate should be rare, because such a rate should represent a profitable opportunity for a private financial institution to provide credit on the same or better terms. But negative fair-value subsidy rates could arise in situations that private entities might not find attractive—if, for example, there were barriers to entry (such as the need for private lenders to incur large fixed costs to enter a particular credit market) or if the profit opportunity was expected to be short-lived. Furthermore, in some cases, such as for student loans, the federal government has tools to collect from delinquent borrowers that private lenders do not have, giving federal programs an advantage over private-sector competitors. Another possibility is that a fair-value subsidy rate might be estimated to be negative because of an error in one of the factors used to calculate the rate; those factors could include an underestimate of the appropriate risk premium because of a lack of good market proxies or an understatement of the true cost of a program because administrative costs are not included in the calculation.

On a FCRA basis, all discretionary credit programs, considered together, are projected to save \$11.7 billion and all mandatory credit programs \$28.7 billion. On a fair-value basis, the discretionary programs are projected to cost \$30.5 billion and the mandatory programs \$28.1 billion. Of the 96 discretionary credit programs, 53 have a subsidy rate that is estimated to be zero or negative on a FCRA basis in 2022. CBO estimates that on a fair-value basis, 41 of those programs have a positive subsidy rate and thus result in a cost to the federal government.¹⁰ Of the 16 mandatory programs, 11 have a subsidy rate that is estimated to be zero or negative on a FCRA basis in 2022. CBO estimates that on a fair-value basis, 6 of those programs have a positive subsidy rate and thus result in a cost to the federal government.

10. In this analysis, a subsidy rate was deemed to be zero if it fell between -0.1 percent and 0.1 percent. See the spreadsheet posted along with this report at www.cbo.gov/publication/57412.

Projected Costs of Particular Programs Under Both Approaches

For ease of reference, CBO has divided the loans and loans guarantees that it analyzed into four categories: housing and real estate loans, student loans, commercial loans, and consumer loans. In the discussion that follows, CBO presents the current projections for fiscal year 2022 and compares them with the projections for 2021 that it published in April 2020.¹¹ For discretionary programs, the outcomes will depend on the appropriation actions that were taken for 2021 and will be taken for 2022.

Housing and Real Estate Loans

In CBO's projections, most of the federal government's credit assistance in 2022 is provided by Fannie Mae and Freddie Mac (\$1.3 trillion in mortgage guarantees). The two GSEs primarily buy mortgages from lenders and pool the mortgages to create mortgage-backed securities, which they guarantee against default and sell to investors. Because the GSEs are currently in federal conservatorship, CBO regards those loan guarantees as governmental activities; the Administration does not. Other housing and real estate programs include mortgage guarantees provided by HUD (\$330 billion), VA (\$268 billion), and RHS (\$30 billion). Of the \$330 billion of credit assistance provided by HUD, \$280 billion is attributable to guarantees of single-family mortgages provided through the FHA.

All told, the federal government's credit assistance in the form of housing and real estate loans and guarantees is projected to equal \$1.9 trillion in 2022, or 89 percent of the projected \$2.2 trillion in total credit assistance. Even without considering the GSEs, this category accounts for the bulk of federal credit assistance. If the GSEs are excluded, federal credit assistance in this category is projected to equal \$633 billion in 2022, or 73 percent of the smaller total (\$866 billion).

The federal government also provides guarantees through the Government National Mortgage Association (Ginnie Mae, which is part of HUD) for securities that are themselves backed by federally guaranteed mortgages, including mortgages guaranteed by the FHA and VA. In CBO's projections, guarantees provided through Ginnie Mae amount to \$577 billion in 2022. However, CBO

11. See Congressional Budget Office, *Estimates of the Cost of Federal Credit Programs in 2021* (April 2020), www.cbo.gov/publication/56285.

has excluded those guarantees from its estimate of total credit assistance because they are incremental guarantees on loans already included in the totals for loans guaranteed by the FHA, VA, and other federal housing guarantors. CBO estimates that the fair-value subsidy rate for Ginnie Mae is effectively zero.

Projected Subsidies. Calculated on a FCRA basis, the average subsidy rate for housing and real estate programs in 2022 is estimated to be -2.0 percent, and the lifetime budgetary savings are projected to be \$39.5 billion.¹² Subsidy rates vary considerably among the individual housing and real estate programs, from -27.1 percent for VA's Vendee Direct Loans program to 93.7 percent for HUD's Green and Resilient Retrofit program.

Calculated on a fair-value basis, the average subsidy rate for housing and real estate programs in 2022 is estimated to be 1.5 percent, and the lifetime cost is projected to be \$29.1 billion. The difference in budgetary impact between the FCRA and fair-value estimates is thus \$68.6 billion (see Figure 1).¹³

CBO also examined how sensitive those fair-value estimates were to a variation of plus or minus 10 percent in the estimated risk premium.¹⁴ The resulting lifetime cost of the federal credit assistance provided by housing and real estate programs ranged from \$23.4 billion to \$34.9 billion, and the fair-value subsidy rate varied by plus or minus 0.3 percentage points from the central estimate of 1.5 percent.

12. Those estimates include the FCRA estimate of the budgetary costs of loan guarantees made by Fannie Mae and Freddie Mac. Excluding those guarantees, the average subsidy rate for other housing and real estate loans is -1.5 percent, and the lifetime budgetary savings are projected to be \$9.7 billion.

13. About half of that difference is attributable to the loan guarantees made by Fannie Mae and Freddie Mac. When making its baseline projections, CBO estimates the cost of those loan guarantees on a fair-value basis, whereas for other housing and real estate credit programs, CBO follows the procedures prescribed by FCRA. Excluding Fannie Mae and Freddie Mac, the average fair-value subsidy rate for other housing and real estate loans is 3.7 percent, and the estimated cost of housing and real estate credit programs is \$23.7 billion, resulting in a difference in budgetary impact between the FCRA and fair-value estimates of \$33.3 billion.

14. CBO used 10 percent differences partly because most annual shifts in the risk premium for stocks are less than 10 percent; differences amounting to 20 percent would have larger effects than those reported here, although those differences would not necessarily be twice as large.

Comparison With Last Year's Projections. The average subsidy rate for credit assistance for housing and real estate, excluding what is provided through the GSEs, is projected to increase by 0.5 percentage points on both a FCRA and fair-value basis from 2021 to 2022. Including the GSEs' loan guarantees, the subsidy rate is projected to increase by 0.9 percentage points on a FCRA basis and by 0.3 percentage points on a fair-value basis.

The projected budgetary savings in 2022 from the GSEs' mortgage guarantees and the FHA's single-family mortgage guarantee program are \$1.7 billion greater on a FCRA basis than the savings that were projected last year for 2021, mostly because of an increase in the projected amount of credit assistance. The increase in projected savings is partially offset by an increase in the estimated FCRA subsidy rates for the two programs. That subsidy rate increase is the result of changes in CBO's forecast of interest rates, which generated a small decrease in the expected costs of defaults (net of recoveries) but a larger decrease in guarantee fees collected.¹⁵ The projected budgetary savings from Ginnie Mae's guarantee program in 2022 are also greater on a FCRA basis than what was projected for 2021—by \$0.9 billion—because of an increase in the projected amount of credit assistance.

The projected budgetary cost of VA's home loan guarantees in 2022 is \$1.1 billion greater on a FCRA basis than the cost for 2021 that was projected last year. That increase is the result of both a large increase in the projected amount of credit assistance (from \$181 billion in 2021 to \$268 billion in 2022) and a small increase in the estimated FCRA subsidy rate stemming from a decrease in the expected fees collected on those guarantees.¹⁶

Student Loans

The Department of Education's student loan programs provide several types of loans—subsidized Stafford loans (which are available to undergraduate students), unsubsidized Stafford loans (which are available to undergraduate and graduate students), and PLUS loans (which are available to parents and to graduate students). Those

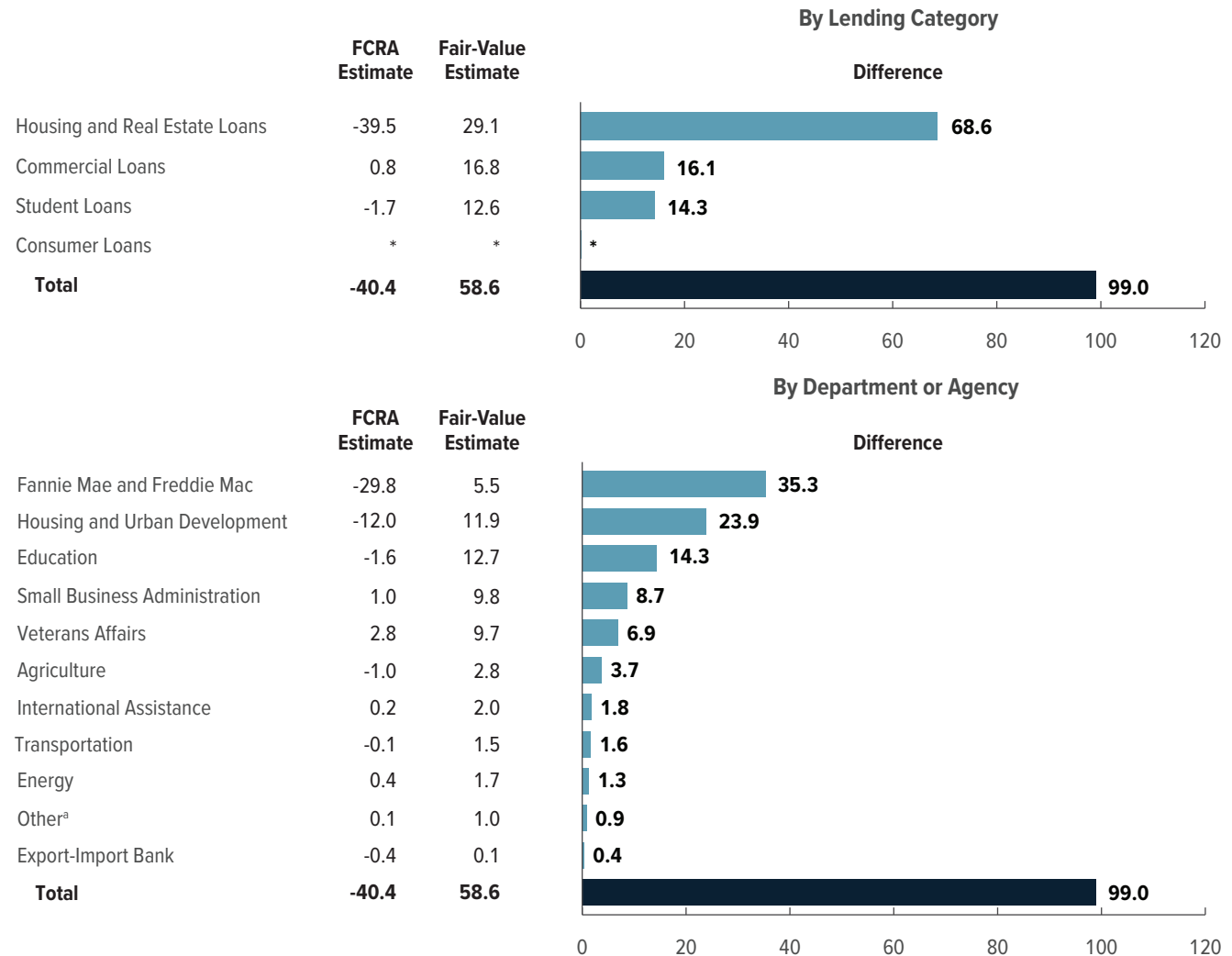
15. The new interest rate forecast increases the volume of mortgages that are expected to be repaid early, which decreases the present value of fees collected on the guarantees offered by the GSEs and the FHA.

16. CBO now estimates obligations in 2021 to be \$478 billion, which is more than both the amount that the agency projected last year for 2021 and the amount that it now projects for 2022.

Figure 1.

Differences Between FCRA and Fair-Value Estimates of Subsidies in 2022

Billions of Dollars



Data sources: Congressional Budget Office; Office of Management and Budget. See www.cbo.gov/publication/57412#data.

Fair-value estimates differ from FCRA estimates in that they account for market risk—the component of financial risk that remains even with a well-diversified portfolio. Market risk arises from shifts in macroeconomic conditions, such as productivity and employment, and from changes in expectations about future macroeconomic conditions.

For discretionary programs, the projections of cash flows prepared by other agencies reflect the Administration’s proposed funding for 2022.

Most of the FCRA estimates shown are from the Office of Management and Budget. The exceptions are student loans, which are administered by the Department of Education, and programs related to single-family mortgages administered by Fannie Mae, Freddie Mac, the Department of Veterans Affairs, and the Federal Housing Administration in the Department of Housing and Urban Development; those estimates were made by CBO.

The figure excludes consolidation loans administered by the Department of Education.

FCRA = Federal Credit Reform Act; * = between zero and \$50 million.

a. Includes the Departments of Commerce, Defense, Health and Human Services, Homeland Security, State, and the Treasury, as well as the Environmental Protection Agency.

programs are projected to account for \$89 billion of federal credit in 2022.

For its projections for 2022, CBO adopted a hybrid approach to separately estimate the fair-value subsidies for the portion of each student loan program with borrowers in income-driven repayment (IDR) and fixed-payment repayment plans. IDR plans tie required payments to borrowers' incomes and provide loan forgiveness after a certain period. Those plans involve more market risk than fixed-payment plans because of the formulas used to calculate required payments and because borrowers may be eligible to have their unpaid balances forgiven. When the economy performs poorly, borrowers' earnings are more likely to decrease, lowering the required payments. Those reduced payments will eventually lead to more loan forgiveness. (That additional risk is partly offset because borrowers in IDR plans are less likely than borrowers in fixed-payment plans to default on their loans.) To develop an adjustment for IDR plans, CBO applied methods from academic studies that estimate the financial value of required payments that are a function of future wages.¹⁷ Those studies developed methods to adjust projections of future wages on the basis of their relationship with stock prices.

This is the first time that CBO has applied a wage adjustment to estimate fair-value subsidies for borrowers in IDR plans; in past years, the agency relied solely on the loss-multiple approach for that analysis. For borrowers in fixed-payment repayment plans, CBO used the

loss-multiple approach to estimate the subsidy rate on a fair-value basis.

Projected Subsidies. Calculated on a FCRA basis, the average subsidy rate for the Department of Education's student loan programs in 2022 is estimated to be -1.9 percent, and the lifetime budgetary savings are projected to be \$1.7 billion. FCRA subsidy rates vary considerably among the individual programs, from -29.5 percent for the PLUS loan program for parents to 11.4 percent for the subsidized Stafford loan program. In CBO's assessment, the difference is explained by four key factors:

- The average interest rate in the subsidized Stafford loan program is 3.8 percent, whereas the average rate in the PLUS loan program for parents is 6.4 percent.
- Subsidized Stafford loans accrue no interest while the borrower is enrolled in school at least half time or during other periods of deferment, whereas the PLUS loans for parents begin to accrue interest immediately after origination.¹⁸
- Borrowers of subsidized Stafford loans are eligible for all income-driven repayment plans, the most generous of which require annual payments of 10 percent of the borrowers' discretionary income and forgive outstanding balances after 20 years. The balances of PLUS loans to parents can be consolidated to make them eligible for repayment through a less generous IDR plan, which requires annual payments of 20 percent of discretionary income and forgives outstanding balances after 25 years.
- The origination fee is 1.1 percent for subsidized Stafford loans but 4.2 percent for PLUS loans for parents.

Calculated on a fair-value basis, the average subsidy rate for the student loan programs in 2022 is estimated to be 14.2 percent, and the lifetime cost is projected to be \$12.6 billion. The difference in budgetary impact between the FCRA and fair-value estimates is thus \$14.3 billion. The fair-value subsidy rates differ substantially among the individual programs, from -9.7 percent for the PLUS loan program for parents to 26.9 percent for the subsidized Stafford loan program.

17. See Congressional Budget Office, "Including Market Risk in Estimates of the Budgetary Effects of Changing the Federal Retirement System for Civilian Workers" (supplemental material for Options for Changing the Retirement System for Federal Civilian Workers, October 2017), www.cbo.gov/publication/53003; Mark Huggett and Greg Kaplan, "How Large Is the Stock Component of Human Capital?" *Review of Economic Dynamics*, vol. 22 (October 2016), pp. 21-51, <https://doi.org/10.1016/j.red.2016.06.002>; John Geanakoplos and Stephen P. Zeldes, "Market Valuation of Accrued Social Security Benefits," in Deborah Lucas, ed., *Measuring and Managing Federal Financial Risk* (University of Chicago Press, 2010), pp. 213-233, <http://papers.nber.org/books/luca07-1>; Luca Benzoni, Pierre Collin-Dufresne, and Robert S. Goldstein, "Portfolio Choice Over the Life-Cycle When the Stock and Labor Markets Are Cointegrated," *Journal of Finance*, vol. 62, no. 5 (October 2007), pp. 2123-2167, <https://doi.org/10.1111/j.1540-6261.2007.01271.x>; and Deborah Lucas and Stephen P. Zeldes, "Valuing and Hedging Defined Benefit Pension Obligations—The Role of Stocks Revisited" (draft, Columbia Business School, September 2006), <https://tinyurl.com/xm4ue6jf>.

18. Under deferment, a borrower may temporarily stop making payments on a student loan, usually without interest accruing on the balance of subsidized loans.

The fair-value subsidy rates remained fairly stable when CBO used loss multiples that were 0.5 higher or lower and wage adjustments of plus or minus 0.5 percentage points. The resulting cost ranged from \$11.0 billion to \$14.4 billion, and the fair-value subsidy rate varied by plus or minus 1.9 percentage points from the central estimate of 14.2 percent.

Comparison With Last Year’s Projections. Calculated on a FCRA basis, the average subsidy rate for student loans is projected to increase by 1.4 percentage points, from -3.3 percent in 2021 to -1.9 percent in 2022, resulting in a decrease in projected budgetary savings of \$1.5 billion. Changes in subsidy rates varied for individual programs, from an increase of 3.3 percentage points (an increase of \$698 million in subsidy costs) for the unsubsidized Stafford loan program for undergraduate students to a decrease of 2.5 percentage points (a decrease of \$316 million in subsidy costs) for the PLUS loan program for graduate students. Calculated on a fair-value basis, the average subsidy rate for student loans is projected to decrease by 3.4 percentage points, from 17.6 percent in 2021 to 14.2 percent in 2022, and the projected cost of those programs in 2022 is \$4.3 billion less than what was projected last year for 2021.

Most of the changes to CBO’s subsidy rates are explained by changes made to projections of the following factors: interest rates (which affect the interest rates paid by borrowers and the rates used to discount cash flows), the volume of loans defaulted and the recovery rate on those defaults, income of borrowers in IDR plans, and participation in the Public Service Loan Forgiveness program.¹⁹ Calculated on a fair-value basis, the average subsidy rate fell, while the average subsidy rate calculated on a FCRA basis rose, reflecting a smaller estimate of the cost of market risk—the difference between the two estimates. The estimated cost of market risk is lower because CBO changed the method it uses to measure the market risk of student loans in IDR plans.

Commercial Loans

The federal government provides assistance to businesses in the form of direct loans and guarantees. That assistance to commercial entities is projected to total

\$144 billion in 2022. Most of it would be provided through the SBA (\$59 billion), the Department of Agriculture (\$29 billion), the Department of Energy (\$13 billion), and the Department of Transportation (\$12 billion). The SBA also guarantees securities that are themselves backed by federally guaranteed loans, but CBO has excluded those guarantees from its estimate of total credit assistance because they are incremental guarantees on loans already included in the totals for loans guaranteed by the SBA. CBO estimates that the fair-value subsidy rate for those guarantees is effectively zero.

Although CBO has often used the risk-adjusted discount rate method to estimate fair-value subsidies for commercial loan programs, for its projections for 2022 it has used the loss-multiple approach to more appropriately reflect the data and characteristics of the programs covered in this report. That approach is a more robust method for federal credit programs because it adjusts for the maturity and nonstandard amortization schedules of loans and loan guarantees.

Projected Subsidies. Calculated on a FCRA basis, the average subsidy rate for commercial loan programs in 2022 is estimated to be 0.5 percent, and the lifetime budgetary cost is projected to be \$767 million. The positive subsidy rate and the net cost for such programs stem mainly from the SBA’s loans for disaster assistance, which are projected to cost \$1.0 billion in 2022. But most of the commercial loan programs have a subsidy rate that is zero or negative; those programs are projected to save the federal government \$1.5 billion. Of those savings, more than 80 percent is attributable to the Farm Service Agency’s direct loans for farm ownership, the Export-Import Bank’s long-term guarantees, the Department of Agriculture’s Treasury Electric loans (which are used to finance facilities that generate, transmit, or distribute electricity), the International Development Finance Corporation’s direct loan program, and direct loans made by the Department of Transportation under the Transportation Infrastructure Finance and Innovation Act (TIFIA).

Calculated on a fair-value basis, the average subsidy rate for commercial loan programs in 2022 is estimated to be 11.7 percent, and the lifetime cost is projected to be \$16.8 billion. (That rate, which was calculated using the loss-multiple approach, is 0.4 percentage points higher—a difference equal to \$0.6 billion in subsidy costs—than it would have been if the risk-adjusted

19. The Public Service Loan Forgiveness program forgives the outstanding balance on direct loans—loans received under the William D. Ford Federal Direct Loan Program—after borrowers have made 10 years of payments under a qualifying repayment plan, such as IDR, while employed full-time in the public sector.

discount rate approach that was used in the past had been used this year.) More than half of the projected cost results from four programs administered by the SBA: loans for disaster assistance (\$4.1 billion), 7(a) loan guarantees for small businesses (\$2.8 billion), 504 loan guarantees for commercial real estate refinances (\$1.1 billion), and 504 loan guarantees for debentures (a type of security) issued through certified development companies (\$1.1 billion). The difference in budgetary impact between the FCRA and fair-value estimates for commercial loan programs is \$16.1 billion.

When CBO varied the loss multiples for commercial loans by plus or minus 0.5, the resulting cost on a fair-value basis ranged from \$15.6 billion to \$18.1 billion. Similarly, the fair-value subsidy rate varied by plus or minus 0.9 percentage points from the central estimate of 11.7 percent.

Comparison With Last Year's Projections. Calculated on a FCRA basis, the average subsidy rate for commercial loans is projected to increase from -0.8 percent in 2021 to 0.5 percent in 2022, and the budgetary cost projected for 2022 is \$1.8 billion more than what was projected last year for 2021. Calculated on a fair-value basis, the average subsidy rate for commercial loans is projected to increase from 10.1 percent in 2021 to 11.7 percent in 2022, and the projected cost of those programs in 2022 is \$2.8 billion more than the cost projected last year for 2021. New programs in 2022 account for \$0.8 billion of the subsidy costs on a FCRA basis and \$2.5 billion on a fair-value basis.

Aside from those new programs, the increase in both the FCRA and fair-value subsidies for commercial loans is driven mainly by changes in the projected credit obligations for two programs. First, an increase of \$8.4 billion in proposed credit obligations (from \$1.1 billion in 2021 to \$9.5 billion in 2022) for the SBA's disaster loan program raised the projected budgetary cost of the program by \$917 million on a FCRA basis and by \$3.5 billion on a fair-value basis.²⁰ Those effects were magnified by an increase in the FCRA subsidy rate of 2 percentage points (an increase of \$27 million in subsidy costs) and an increase in the fair-value subsidy rate of 17.8 percentage points (an increase of \$321 million in subsidy costs). (Calculated using the loss-multiple approach, the fair-value subsidy rate was 11.7 percentage points higher

than it would have been if it had been calculated using the risk-adjusted discount rate approach.) In all, the projected budgetary costs of the program increased by \$945 million on a FCRA basis and by \$3.8 billion on a fair-value basis.

The second change was a decrease of \$10.5 billion in proposed credit obligations (from \$16.7 billion in 2021 to \$6.2 billion in 2022) for the Export-Import Bank's long-term guarantees, which decreased the projected budgetary savings of the program by \$553 million on a FCRA basis and by \$108 million on a fair-value basis.²¹ Those effects were made larger by an increase of 1.1 percentage points in the subsidy rate on a FCRA basis (an increase of \$159 million in subsidy costs) and an increase of 2.3 percentage points on a fair-value basis (an increase of \$223 million in subsidy costs). (Calculated using the loss-multiple method, the fair-value subsidy rate was 2.6 percentage points higher than it would have been if the risk-adjusted discount rate approach had been used instead.) In all, the projected budgetary costs of the Export-Import Bank's long-term guarantees increased by \$712 million on a FCRA basis and by \$331 million on a fair-value basis.

The effects of new programs and changes in the fair-value subsidy for those two existing programs were largely offset by a decrease of \$21.1 billion in proposed credit obligations (from \$32.1 billion in 2021 to \$11.0 billion in 2022) for direct loans made by the Department of Transportation under TIFIA, combined with a decrease in the subsidy rate. The decrease in credit obligations reduced the projected budgetary cost of those loans by \$100 million on a FCRA basis and by \$3.7 billion on a fair-value basis.²² Those effects were made larger by a decline of 2.2 percentage points in the subsidy rate on a FCRA basis (a reduction of \$343 million in subsidy costs) and by a decline of 10.7 percentage points in the subsidy rate on a fair-value basis (a reduction of \$2.5 billion in subsidy costs). (Calculated using the loss-multiple approach, the fair-value subsidy rate was 1.1 percentage points lower than it would have been if, instead, the risk-adjusted discount rate approach had been used.) In all, the projected budgetary cost of TIFIA subsidies in

20. The Administration now projects obligations in 2021 to be \$272 billion, which is significantly more than both the amount projected in the 2021 budget and the amount that the Administration has proposed for 2022.

21. The Administration now projects obligations in 2021 to be \$4.2 billion, which is less than both the amount projected in the 2021 budget and the amount that the Administration has proposed for 2022.

22. The Administration now projects obligations in 2021 to be \$11.0 billion, which is less than the amount projected in the 2021 budget and equal to the amount that the Administration has proposed for 2022.

2022 is \$443 million less on a FCRA basis, and \$6.2 billion less on a fair-value basis, than the cost projected last year for 2021.

The projected cost of other existing programs in 2022 is \$0.2 billion less than the cost projected last year for 2021 on a FCRA basis and \$2.3 billion more on a fair-value basis. The largest increases in the fair-value cost were for SBA commercial real estate refinances (\$1.0 billion) and Foreign Military Financing direct loans and guarantees (\$0.6 billion).

Consumer Loans

The federal government also provides loans and loan guarantees to individual borrowers. In 2022, such credit assistance is projected to total \$4 million for just two programs: the State Department's repatriation loans and VA's vocational rehabilitation loans.²³ In most cases, those loans and guarantees are secured only by the borrower's income and not by the borrower's other assets, which increases the amount of market risk.

Projected Subsidies. Calculated on a FCRA basis, the average subsidy rate for consumer loans in 2022 is estimated to be 29.3 percent, and the lifetime budgetary cost is projected to be \$1.3 million. Of the four categories that CBO has described in this analysis, credit assistance to consumers is the only one that has a largely positive subsidy rate when analyzed under FCRA procedures.

Calculated on a fair-value basis, the average subsidy rate for consumer loans in 2022 is estimated to be 36.9 percent, and the lifetime cost is projected to be \$1.6 million. The difference in budgetary impact between the FCRA and fair-value estimates is \$0.3 million. VA's vocational rehabilitation loans have a maturity of one year with no expected defaults; thus, there is no risk adjustment for that program, and the fair-value estimate is the same as the FCRA estimate.

When CBO varied the loss multiple for consumer loans by plus or minus 0.5, the resulting cost on a fair-value basis ranged from \$1.6 million to \$1.7 million, and the fair-value subsidy rate varied by plus or minus 1.4 percentage points from the central estimate of 36.9 percent.

23. The State Department provides emergency repatriation loans to destitute Americans abroad who are unable to finance their return to the United States.

Comparison With Last Year's Projections. Calculated on a FCRA basis, the subsidy rate for the State Department's repatriation loan program is projected to decrease by 8.9 percentage points from 2021 to 2022. However, the effect of that change on the budgetary cost was more than offset by a proposed increase of \$0.8 million in credit obligations; in all, the projected budgetary cost increased by \$0.2 million on a FCRA basis. Calculated on a fair-value basis, the subsidy rate is projected to increase by 1.0 percentage point, increasing costs by \$0.5 million. (That subsidy rate, which was calculated using the loss-multiple approach, was 5.9 percentage points higher than it would have been if, instead, the risk-adjusted discount rate approach had been used.)

Differences Between the Estimates Presented in this Report and CBO's Baseline Projections

CBO regularly projects loan volume and cash flows for the largest credit programs, including the Department of Education's student loan programs, Fannie Mae's and Freddie Mac's guarantees of mortgage-backed securities, the FHA's single-family and reverse mortgage guarantee programs, and VA's mortgage guarantee program. Those programs account for more than 90 percent of total federal credit assistance. To compute the estimates in this analysis, CBO used its own baseline projections of the volume of loans and cash flows for those programs.

For smaller federal credit programs, which are mostly funded by discretionary appropriations, CBO generally projects that under current law, subsidy costs would grow at the rate of inflation—the same approach that the agency uses to project all discretionary appropriations. Because CBO does not estimate cash flows for those smaller credit programs, the agency based its subsidy estimates for those programs on cash flow estimates prepared by the Administration, which reflect the President's proposed funding for 2022. Nevertheless, in aggregate, CBO's baseline projections for federal credit programs are similar to those produced for this report using FCRA procedures.²⁴

24. The Department of Transportation's TIFIA program is a case in which CBO's baseline projections differ substantially from the estimates in this report. The Federal-Aid Highway Program, which includes several grant programs in addition to the TIFIA loan program, receives funds for all of its programs in a single appropriation; CBO does not separately estimate what will be allocated to TIFIA. In the President's budget, the Administration proposes to separate TIFIA into its own program account.

This document, which is part of the Congressional Budget Office's continuing effort to make its work transparent, provides Members of Congress, their staff, and others with information about the cost of federal credit programs under two methods: the methods specified in the Federal Credit Reform Act of 1990, which apply to most federal credit programs, and methods based on the fair-value approach, which incorporate market risk. In keeping with CBO's mandate to provide objective, impartial analysis, the report makes no recommendations.

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CBO seeks feedback to make its work as useful as possible. Please send any comments to communications@cbo.gov.



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