



Testimony

**Statement of
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Addressing the Ongoing Crisis in the Housing and Financial Markets

**before the
Committee on the Budget
United States Senate**

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Chairman Conrad, Senator Gregg, and Members of the Committee, I welcome the opportunity to discuss the turmoil in our nation's housing and financial markets and some options for additional action by policymakers.

A strong financial sector is a necessary component of a robust economy. Financial markets and institutions channel funds from savers to borrowers who need the money to build businesses and hire workers and to buy homes and other goods and services. Indeed, credit is often required to support the ordinary operations of businesses—for example, to finance their inventories and to meet payrolls before payments are received. If the customary means of obtaining credit break down, the disruption to households' and businesses' spending can be severe.

Thus, the ongoing crisis in the U.S. financial system has significantly depressed economic activity during the past year and a half, and it poses a serious threat to the nation's ability to quickly return to a path of solid economic growth. Losses on mortgages, on assets backed by mortgages, and on other loans to consumers and businesses, together with an associated pullback from risk taking in many credit markets, have raised the cost and reduced the availability of credit for borrowers whose credit ratings are less than the very highest. To be sure, among the fundamental causes of the crisis was the provision of too much credit at too low a price as well as insufficient capital. However, the sudden shift to a much higher price for risk taking has led to a significant reduction in wealth and borrowing capacity; it has also forced a number of financial institutions to close and others to be merged with stronger operations. Those forces, in turn, are weighing heavily on consumption, the demand for housing, and businesses' investment.

Policymakers have responded to the turmoil with a set of unprecedented actions. Thus far, a systemic collapse of the financial system has not occurred, and conditions have improved noticeably in some financial markets. Nevertheless, according to some analysts, U.S. banks and thrift institutions could be facing more than \$450 billion in additional estimated losses on their assets—on top of the approximately \$500 billion that has already been recognized. The scale of those losses suggests that many financial institutions and markets will remain deeply troubled for some time, which will keep borrowing exceptionally costly for many borrowers and thereby dampen spending by households and businesses.

Challenging conditions seem likely to persist for some time in the housing and mortgage markets as well. Housing sales remain weak, and construction activity continues to decline. With the housing market's large glut of vacant properties, the prices of homes are likely to fall considerably further, pushing the value of more borrowers' homes below the value of their outstanding mortgages. As more of those "underwater" borrowers experience losses of income during the current recession, rates of delinquency and foreclosure on residential mortgage loans are likely to rise further.

A crucial and challenging question for policymakers is, What further actions can be taken to normalize the financial and housing markets so as to spur economic activity? A separate but equally important question—though not one considered in this

testimony—is, What can policymakers do to reduce the risk of a financial crisis in the future?

I will make four major points in this testimony:

- Turmoil in the housing and financial markets is likely to continue for some time, even with vigorous policy actions and especially without them.
- Most economists think that to generate a strong economic recovery in the next few years, further actions to restore the health of the housing sector and the financial system are needed.
- An effective policy to ensure the availability of credit for qualified borrowers probably requires a multifaceted strategy that uses a range of tools to address the different aspects of financial distress.
- The costs to federal taxpayers of actions to reduce mortgage foreclosures and improve financial conditions are highly uncertain and may be large, but the economic consequences of doing nothing may be even greater.

The Economy's Continuing Financial Problems

The vigorous monetary and financial policy actions of the past year and a half represent a graduated response to the unfolding crisis.¹ When the first signs of financial turmoil emerged, it was not clear either to policymakers or to most other observers just how serious the crisis would become. The Federal Reserve first began to supply additional liquidity to credit markets in August 2007 as pressures from losses on mortgage-related assets unexpectedly began to mount. In the following year and a half, the central bank greatly increased the funds it was providing by creating a number of new lending facilities to address emerging problems among financial institutions and in certain markets (such as those for commercial paper, money market mutual funds, and mortgages). It also expanded arrangements (known as currency swaps) to provide U.S. dollars to a number of foreign central banks and slashed the federal funds rate, which banks charge each other for overnight loans of their monetary reserves, almost to zero by late last year.

Policymakers also took a series of significant steps to prevent the problems with solvency that a number of major financial institutions were experiencing from further destabilizing markets.

- The Federal Reserve, in consultation with the Department of the Treasury, facilitated the sale of the investment bank Bear Stearns to the commercial bank JPMorgan Chase, in March 2008, by lending \$29 billion to a newly formed limited liability company (LLC), Maiden Lane, against a \$30 billion portfolio of Bear

1. Tables 1 through 3 on page 26 describe those actions in more detail.

Stearns's less liquid assets. (An LLC, like a corporation, offers protection from personal liability for debts incurred by a business.)

- The Federal Housing Finance Agency (FHFA)—the regulator of Fannie Mae, Freddie Mac, and the 12 Federal Home Loan Banks—put Fannie Mae and Freddie Mac into conservatorship, and the Treasury provided an initial pledge to inject up to \$100 billion of capital into each of the institutions by purchasing an equity share, or ownership interest, in each company.²
- The Federal Reserve extended a \$60 billion line of credit to the insurance company American International Group (AIG). Additionally, the Federal Reserve Bank of New York arranged to lend up to \$52.5 billion to two newly formed LLCs to fund purchases of residential mortgage-backed securities and collateralized debt obligations from AIG's securities portfolio.
- The Emergency Economic Stabilization Act of 2008 (Division A of Public Law 110-343) created the \$700 billion Troubled Asset Relief Program (TARP), which began purchasing preferred stock of commercial banks in late October. (Preferred stock refers to shares of equity that provide a specific dividend to be paid before any dividends are paid to common stockholders and that take precedence over common stock in the event of a liquidation.) The law also temporarily raised the ceiling on deposit insurance from \$100,000 to \$250,000 per depositor.
- The Treasury, the Federal Reserve, and the Federal Deposit Insurance Corporation (FDIC) jointly announced agreements with Citigroup and Bank of America to provide each with a package of asset guarantees, access to liquidity, and capital.
- The FDIC created the Temporary Liquidity Guarantee Program in October 2008 to strengthen confidence and encourage liquidity in the banking system. The program guarantees certain newly issued unsecured debt of banks, thrift institutions, and certain holding companies and provides full deposit insurance coverage for certain checking and non-interest-bearing deposit accounts, regardless of dollar amount.

The actions mentioned above have improved conditions in some financial markets and thus far reduced the risk of a financial meltdown. The interbank market for short-term loans, which had virtually seized up, has improved markedly in recent months, as indicated by the spread, or difference, between the interest rates banks pay to borrow from each other and their expectations about the federal funds rate. (The

2. Fannie Mae and Freddie Mac were originally created as federally chartered institutions but were privately owned and operated. Designed to facilitate the flow of investment funds, they pool mortgages purchased from mortgage lenders and sell them as mortgage-backed securities, collecting annual guarantee fees on the mortgages they securitize. Conservatorship is the legal process in which an entity is appointed to establish control and oversight of a company to put it in a sound and solvent condition.

spread reflects the risk that banks will not repay the loan.) That spread can be measured by the difference between the key interbank lending rate, the three-month Libor (the London interbank offered rate), and the average expected federal funds rate over the next three months.³ The spread has fallen to about 1 percentage point, which is roughly where it was before the failure of the investment bank Lehman Brothers (though still well above its historical norm) and well below its peak of 3.6 percentage points in October 2008. Transactions in the interbank market for short-term loans have picked up, and loans are being extended to somewhat longer terms than those seen recently, signaling that the crisis of confidence among financial institutions is continuing to ease.

Conditions have also improved in the market for commercial paper, as indicated by a smaller spread between the interest rate on commercial paper and the rate on three-month Treasury bills. (Commercial paper is a kind of short-term borrowing that provides credit to financial and nonfinancial firms.) The spreads for commercial paper that represents higher-quality credit have fallen substantially; in the case of paper with the highest credit rating, spreads have returned to the levels observed before September 2007—that is, before the financial crisis began to emerge. Moreover, the amount of commercial paper issued by financial firms has mostly recovered after a sharp decline last fall (the amount of nonfinancial commercial paper has changed little during the crisis). Those improvements, however, do not imply that private lending has returned to normal; rather, the Federal Reserve has provided extensive financial support to this market, particularly for paper that carries longer maturities, whose spreads remain elevated. Indeed, the amount of outstanding asset-backed commercial paper has yet to recover from the sharp drop that occurred in September 2007, and markets for lower-quality commercial paper no longer extend beyond a 90-day maturity.

Credit difficulties are much more severe for companies with low credit ratings. Firms' issuance of investment-grade (high-quality) debt was robust in the fourth quarter of 2008, and the interest rates that AAA-rated firms—those with the highest credit ratings—are paying to borrow money are 2 percentage points lower than at the height of the crisis, in October. (The spread of the AAA rate over the interest rate on 10-year Treasury notes nevertheless reached historic highs at the end of last year, indicating that the convulsions in financial markets and the recession have affected the cost of credit even for firms with the highest credit rating.) Conditions are more difficult for firms that have lower credit ratings—there has been little issuance of below-investment-grade debt. In addition, spreads on junk bonds have widened since September 2008, in part reflecting the difficulties that continue to beset the economy.

Although some financial conditions have improved significantly since September and October of last year, the flow of credit from banks remains constricted. A recent study showed that apart from preexisting lines of credit, bank lending to large borrowers

3. The Federal Reserve attempts to achieve a target value of the federal funds rate in its conduct of monetary policy. The expected federal funds rate is measured by the overnight index swap contract.

dropped sharply during the September-to-November period.⁴ Moreover, the senior loan officer opinion survey conducted by the Federal Reserve in October 2008 shows that banks continued to tighten lending standards and terms in the third quarter of 2008. About 80 percent of large banks tightened lending standards for commercial and industrial loans, an important source of credit for investment.⁵ In addition to their applying more rigorous standards for borrowers to qualify for such loans, more than 90 percent of banks (on net) raised their interest rates on commercial and industrial loans relative to their cost of funds.

Lending standards for mortgages have tightened as well, with 100 percent of the respondents in the Federal Reserve's October survey saying they were applying more rigorous standards to subprime loans (loans made to borrowers with low credit scores or other impairments to their credit histories), 90 percent saying they had tightened standards on nontraditional mortgages (such as alt-A loans, which are riskier than prime loans), and 70 percent reporting having tightened standards for prime borrowers (those considered least at risk of default). In light of the past excesses in mortgage lending, some tightening in standards had been expected. Since October, interest rates on jumbo mortgages (generally loans of more than \$417,000) and on conventional 30-year mortgages have fallen, but the spreads between those rates and the interest rate on 10-year Treasury notes rose. Those spreads fell in January, however, due in part to the Federal Reserve's actions to support the mortgage market (discussed later).

Lenders have also tightened standards and terms for consumer loans. In the third quarter of 2008, 58 percent of respondents to the Federal Reserve's survey reported tightening standards on credit cards, compared with 67 percent reporting such tightening in the second quarter. Interest rates on credit cards have begun to move down modestly over the past several months, but given the much lower Libor rates, the interest rate spread has, in fact, widened.

Tighter standards for lending, declines in employment, and a large drop in consumer confidence have contributed to a marked slowing in the growth of consumer credit. By November 2008, the amount of consumer credit had grown by only 2¼ percent relative to the amount in November 2007, compared with growth of more than 5½ percent in the previous year. Much of the slowdown in growth in the past year occurred after July 2008, when the financial turmoil began to intensify.

Continuing declines in house prices and the ongoing recession are likely to worsen the financial condition of banks. Delinquency rates on residential mortgage loans continued to rise through the third quarter of last year (the latest available data), and foreclosure rates have remained high. Delinquency rates on commercial real estate loans and consumer installment loans at commercial banks have also risen sharply over the same

4. Victoria Ivanova and David Scharfstein, "Bank Lending During the Financial Crisis of 2008" (working paper, Harvard Business School, December 15, 2008).

5. Board of Governors of the Federal Reserve System, *The October 2008 Senior Loan Officer Opinion Survey on Bank Lending Practices* (November 2008).

time span. According to the latest compilation by the Bloomberg financial information network, financial institutions worldwide have recognized losses of about \$1 trillion since the third quarter of 2007, primarily because they held securities based on residential real estate. Analysts with Goldman Sachs estimate that banks worldwide are likely to experience about another \$1 trillion in losses on residential mortgages, loans for commercial real estate, credit cards, auto loans, commercial and industrial loans, and corporate bonds.⁶

In an attempt to deal with such losses, financial institutions have been reducing their leverage—that is, their use of borrowed funds—by holding a greater amount of capital in relation to their assets. In 2007 and early 2008, many banks seemed to have little difficulty in deleveraging because they could obtain additional capital from private sources through offerings of common and preferred stock. As the solvency of more and more financial institutions has been tested, however, those private sources of capital appear to have dried up.⁷ (Another way to increase capital would be to cut dividends, but most banks are reluctant to do so because that could deter new and existing shareholders from holding the stock.) The interventions by the Treasury and the Federal Reserve in the past several months have been largely directed toward counteracting the contraction of credit that results from banks' deleveraging. The Federal Reserve, through its holdings of assets and by direct lending (for example, in the commercial paper market), has provided credit that private institutions previously would have provided. In addition, most of the first half of the \$700 billion in TARP funding has been used to supply banks directly with capital.

The Need for a Multifaceted Strategy to Address the Financial Crisis

Economists and financial experts widely agree that the financial markets are likely to remain severely stressed for some time and that additional action is desirable now to promote their recovery and hence the economy's return to more vigorous growth. With the economy weakening, losses on loans are likely to continue to deplete the capital of financial institutions for the foreseeable future. Such conditions raise the prospect of a vicious cycle of loan losses, leading to further reductions in the availability of credit, weaker economic activity, more loan losses, and so on. Stimulus from fiscal policies can strengthen the economy and, as a result, complement policies directed specifically at strengthening the financial sector.

6. See Jan Hatzius and Michael Marschoun, *Home Prices and Credit Losses: Projections and Policy Options*, Goldman Sachs Global Economics Paper 177 (New York: Goldman Sachs, January 2009).

7. Because new capital would largely help to shore up balance sheets, new investors would expect existing shareholders to accept a dilution of their ownership. Existing shareholders would rather take the gamble of not raising new capital than suffer an immediate reduction in wealth. Economists refer to that reluctance of distressed firms to raise equity capital as a "debt overhang" problem.

Many analysts agree that a broader, clearer strategy is necessary to help return the flow of credit to a more normal state and support the recovery of overall economic activity. Some critics of the actions taken to date say those interventions have been confusing to markets and have given the impression that the government is “playing favorites” (because different forms and amounts of support have been given to different financial institutions).⁸ Private investors are chary of providing capital to banks in part because of uncertainty about banks’ financial positions and future government actions. Moreover, banks may be postponing actions to resolve their financial problems in anticipation of receiving additional support from the government. Therefore, one advantage of a more clearly enunciated strategy would be that financial markets would be more certain about future policy steps.

Principles for Crafting a Strategy

Several principles can be used to craft a sound strategy for further assisting the recovery of the financial markets:

- Effective strategies would have some degree of flexibility so actions can be adjusted to changing and unexpected circumstances. There is enormous uncertainty not only about the future course of this crisis but also about its impact on economic activity, the degree of success that might be expected from different policy actions, and the amount of resources to devote to those actions. A degree of flexibility would allow policymakers the leeway to shift gears so as to regain traction in a crisis that might continue to unfold in unexpected ways. Flexibility that is governed by principles that are understood by the private sector could reduce uncertainty about the government’s interventions, which can freeze actions by the private sector.
- A sound strategy would determine an appropriate price for the assistance given to financial institutions. Such pricing should give financial institutions an incentive to solve their problems on their own if they are in a position to do so and should mean shuttering institutions that have little prospect of recovery. Underpricing the support would profit creditors, executives, or workers in the financial system at the expense of taxpayers. As a result, it would increase the likelihood that they would continue to take excessive risks in the future or become too large and important an institution to be allowed to fail (a phenomenon known as moral hazard). However, overcharging would delay the system’s and the economy’s recovery.
- An effective strategy would encourage the participation of private capital. Having a role for private capital is important both because the government cannot provide enough money itself and because private market signals regarding the long-term viability of specific institutions can be valuable. Encouraging private capital means

8. See Shadow Financial Regulatory Committee, *An Open Letter to President-Elect Obama*, Statement No. 264 (Washington, D.C.: American Enterprise Institute, December 8, 2008), available at www.aei.org/docLib/20081208_StatementNo.264.pdf; and Luigi Zingales, “Yes We Can, Mr. Geithner,” available at www.voxeu.org/index.php?q=node/2807.

not only that the strategy must provide clear guidance, but also that it must avoid as much as possible a lack of clarity and especially incentives that encourage private capital to sit on the sidelines and wait for government to act.

- As the financial system is rebuilt, private creditors will have to take some losses; and some banks may have to fail: It is neither necessary nor desirable for government to take on all the losses from bad assets.
- An efficient strategy would distort the supply of credit as little as possible. Distortions could arise, for example, if policies picked winners and losers—that is, if they treated financial institutions in similar circumstances differently or focused on certain types of credit at the expense of others with similar needs.
- A sound strategy would coordinate the activities of government agencies (including the Federal Reserve, the Treasury, the FDIC, the FHFA, and the Securities and Exchange Commission) to avoid overlapping actions and initiatives that operate at cross purposes.
- A successful strategy would be implemented quickly to reduce the chances of a vicious cycle of losses on loans, reductions in the availability of credit, weaker economic activity, more loan losses, and so on.

Evidence from Other Crises

Previous financial crises in the United States and other countries highlight the risks and greater costs that come from implementing only partial measures in the hope that time and economic growth will quickly resolve problems in the banking system.

The savings and loan crisis in the United States in the late 1980s illustrates the costs of delaying action. The ultimate cost to taxpayers for cleaning up the thrift crisis was estimated to be about 2 percent of gross domestic product (GDP), and an analysis by the Congressional Budget Office (CBO) found that delays in closing and resolving insolvent thrifts doubled the costs to taxpayers.^{9,10} At the time of the crisis, some regulators thought that the problems facing the thrift institutions were temporary and that, given time, the institutions could be restored to solvency through the profits gained in their operations and a recovery in the value of their assets. In effect, though, that forbearance by regulators led many insolvent institutions to take greater risks in the hope of becoming solvent, a phenomenon known as “gambling for resurrection.” Because most of their deposits were federally insured, the institutions could acquire additional funds to make speculative investments by offering somewhat higher interest rates than solvent institutions had to pay. In the end, the costs to taxpayers spi-

9. Timothy Curry and Lynn Shibut, “Costs of the Savings and Loan Crisis: Truth and Consequences,” *FDIC Banking Review* (2000).

10. Congressional Budget Office, *The Cost of Forbearance During the Thrift Crisis* (June 1991). Note that the costs cited for resolving previous financial crises are generally stated in cash terms.

raled, eventually resulting in the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 and the creation of the Resolution Trust Company.

Financial conditions in Japan in the 1990s were probably closer to current conditions in the United States. In the 1980s, Japan experienced both stock market and real estate bubbles that by 1992 had burst. Initially, Japanese authorities encouraged the formation of private asset management companies that would purchase troubled assets from banks, but as the financial problems deepened, public funds were also used to purchase assets. In 1997, a credit crisis began with the bankruptcy of a major bank and a securities firm. Like the United States, Japan faced highly elevated interbank lending rates after those events, reflecting a lack of confidence in its financial institutions. In the midst of the crisis, the government changed the accounting rules governing banks' financial statements, allowing banks to choose whether to value assets at their historical book value or to use "mark-to-market" accounting.¹¹ As a result, Japanese banks could report earnings using the accounting method that was more favorable to them. Using the book value of assets also gave Japanese banks an incentive to offer additional credit to troubled borrowers rather than to healthier firms "to avoid the realization of losses on their own balance sheets."¹² Furthermore, as was the case during the U.S. thrift crisis, regulators allowed and even encouraged the practice of forbearance.

By late 2002, Japan had finally begun to address the problems caused by forbearance, and its regulators were pressuring banks to improve their balance sheets. Japan's financial sector improved, but whether the more effective regulation of banks or the global economic boom that began in 2003 had the greater impact is difficult to determine. The costs associated with the rescue of Japan's financial system have been estimated at about 25 percent of GDP.¹³

The lack of support provided to the financial system during the Great Depression differed from the policy of forbearance that characterized the U.S. thrift crisis and Japan's financial turmoil, and some economists view that laissez-faire approach to the widespread bank failures that occurred during the Depression as an example of being too strict. According to Federal Reserve Chairman Ben Bernanke, policymakers thought at the time that "to weed out weak banks was a harsh but necessary prerequisite to the recovery of the banking system."¹⁴ By contrast, in Bernanke's view, the Federal

11. Takeo Hoshi and Anil Kashyap, *Will the U.S. Bank Recapitalization Succeed? Lessons From Japan*, NBER Working Paper 14401 (Cambridge, Mass.: National Bureau of Economic Research, December 2008).

12. Joe Peek and Eric Rosengren, "Unnatural Selection: Perverse Incentives and the Misallocation of Credit in Japan," *American Economic Review*, vol. 95 (2005).

13. See Luc Laeven and Fabian Valencia, *Systemic Banking Crises: A New Database*, IMF Working Paper WP/08/224 (Washington, D.C.: International Monetary Fund, November 2008); and Anil Kashyap, "Sorting Out Japan's Financial Crisis," *Federal Reserve Bank of Chicago Economic Perspectives*, vol. 26 (2002, Fourth Quarter).

14. Ben S. Bernanke, "Money, Gold, and the Great Depression" (remarks at the H. Parker Willis Lecture in Economic Policy, Washington and Lee University, Lexington, Va., March 2, 2004).

Reserve should have increased the monetary base either by supplying more funds to banks or by increasing the currency in circulation to limit the adverse effects of bank failures on borrowers and depositors. Those funds could then have been used to pay off depositors and curtail runs on banks.

A more successful outcome emerged from the response of Swedish policymakers to the financial crisis of 1992, which came on the heels of a speculative bubble in Swedish real estate. By 1991, the cost of the reunification of Germany had caused interest rates in Europe to increase sharply. In addition, international growth was slowed by a recession in the United States, and the combination of those factors led Sweden's real estate bubble to burst. The steep decline in the value of real estate in turn impaired the value of the assets held by many Swedish banks. The crisis was exacerbated by attempts to defend Sweden's currency: Sweden's central bank, the Riksbank, let overnight rates rise as high as 500 percent to prevent the outflow of the Swedish currency. In that difficult environment, Sweden's economy fell into recession, and banks' losses increased rapidly.

The Swedish government insisted that banks value loans and assets on their balance sheets using mark-to-market accounting standards.¹⁵ Under those rules, the values prevalent in the financial markets were applied, even though many participants believed that the current conditions in those markets temporarily understated the values of the assets. That policy led to large losses for the banks, but authorities considered such a policy necessary to restore confidence in the financial system. After the banks' assets were marked to market, banks identified as having good prospects for surviving were helped, and the rest were either merged with stronger banks or liquidated.

As was the case in the savings and loan crisis in the United States, Sweden formed asset-management companies to deal with the assets from the liquidated banks. No measures were adopted to support nonfinancial companies, and the number of bankruptcies rose markedly. Sweden placed limits on the Riksbank in its dealings with the banks, basically allowing the central bank only to provide liquidity and not to take risks with taxpayers' funds. Sweden's financial sector began to recover about a year after the crisis reached its peak, in late 1993, at a cost of about 4 percent of its gross national product.

The experiences of previous financial crises highlight the risks to nations' economies and the costs to taxpayers when governments delay action to bolster their financial systems in the hope that economic growth will resolve banks' problems. Of course, some cases could be cited in which global economic growth has allowed financial systems to recover without special government action. Yet once the problems of such systems became as severe as in the United States' current situation, economists and financial experts generally agreed that additional action was desirable to promote a system's

15. See Lars Heikenstein, Deputy Governor, Riksbank, "Financial Crisis—Experiences from Sweden" (speech in Seoul, Korea, July 15, 1998).

recovery. Successful approaches have entailed forceful action by government authorities to uncover the true financial condition of each bank, to close banks in the worst shape, and to provide support to banks that appear viable in the long run.

Possible Elements of a Rescue Strategy

Several complementary approaches might be used to further assist the recovery of the financial system. Some extend or continue current interventions; others attack the crisis from different angles.

Inject More Equity into Financial Institutions. The government could further strengthen the financial system by taking a larger ownership interest in some financial institutions through the purchase of more equity. That could be accomplished by continuing the Capital Purchase Program (CPP) under the TARP, an approach that was widely supported by economists when it began. In the eyes of some observers, the government's further purchases of equity in banks would bring the government closer to nationalizing a major portion of the banking system. However, additional purchases may be appropriate if conditions in the financial markets worsen.

The main advantage of this approach is that it would provide banks with a greater capacity to absorb further losses, which would help stabilize the banking system and in so doing support banks' lending. Another advantage of injecting equity is that it would maintain existing channels of borrowing and lending. Such channels cannot be created overnight, and the use of existing pathways would allow lending to pick up again more quickly.

Some observers have criticized the CPP because they believe that banks that have received money from the equity purchases have not increased their lending sufficiently. That criticism is difficult to evaluate because it is very hard to trace the use of particular funds in large and complex banks, and it is very hard to know what bank lending would have been in the absence of equity injections by the TARP. In addition, many banks currently have good reason not to boost lending. To the extent that they need to reduce their own leverage, they can do that either by lending less or by getting more capital. The government's capital injection may thus mean that banks do not have to cut their own lending as much, but that may not mean they can actually increase lending. Moreover, even without the need to delever, the slow growth of lending reflects banks' unwillingness to increase risky lending in the current recession or a lower demand for borrowing as a result of the slowdown.

A further criticism of the CPP is that it is purchasing equity from banks at very favorable terms for the banks. The program requires all banks to pay a dividend of 5 percent on the government's preferred shares for the first five years—even though banks that have other outstanding preferred shares currently pay the owners of those shares a higher dividend. Moreover, the subsidy that the government's purchase represents varies by bank, because it depends on the market's assessment of the riskiness of investment in the bank.

Injecting more equity into financial institutions raises the risk of propping up banks that should be allowed to fail. By supporting weak banks, the government may be allowing them to take excessive risks in hopes of resurrecting themselves. If they are successful, they stay in business; if they are not successful, their mistakes are paid for by the federal deposit insurance system or by taxpayers.

Government equity injections are, moreover, unlikely to be sufficient to fill all the capital needs of banks if they are to provide a level of lending that is sufficient for a growing economy after the recession ends. Policy therefore needs to be designed to encourage private investors to supply some of the new capital. A clear, principled policy can reduce the incentive for private investors to sit on the sidelines, waiting to see how much money the government will commit and which institutions will be supported.

One possible approach to determining which banks should receive funds and the price they should pay for them, while at the same time encouraging private participation in recapitalization, would be to match the government's equity contributions or loans to private equity purchases. The involvement of private investors would solve the pricing problem because they would inject capital into firms only on terms that provided an adequate return on their investment. Policymakers could require that any injections of public capital be matched by private investors' equity purchases and that the dividend rate that banks pay on their new public capital equal the rate they must pay on the new private capital. In that way, taxpayers would receive a return on their investment that more closely reflected the risks they were assuming. However, the management and shareholders of distressed firms are unlikely to agree to take equity infusions without some federal subsidy because the injection of new equity capital on market terms usually benefits the firm's debtholders at the expense of its shareholders.¹⁶

Address Troubled Assets. The government could facilitate the removal of troubled assets from the balance sheets of some institutions. Such a removal could clarify the true value of institutions' balance sheets by removing the difficult-to-value assets from some institutions and by establishing a market price that other institutions could use in their own valuations. That step might improve the solvency of some institutions by establishing a price for troubled assets that exceeds both the value of those assets on the institutions' books and the price that investors are currently willing to pay for them. That would leave those institutions in a better position to raise capital and make new loans. At the same time, establishing a market price could force some institutions to recognize losses, because of the accounting rule that most assets held for sale must be marked to market. Moreover, removing troubled assets would allow the managers of financial institutions to focus on new lending rather than on cleaning up previous mistakes.

16. That phenomenon is termed the "debt overhang" problem (see, for example, S. Myers, "Determinants of Corporate Borrowing," *Journal of Financial Economics*, vol. 5 (1977)).

One approach that is currently much under discussion is to set up an “aggregator bank” that would purchase risky assets that are not actively traded from troubled institutions and then dispose of them, leaving the balance sheets of the banks clean so that they could then return to lending. That is similar to Sweden’s approach, described earlier.

The first problem to be encountered is how much to pay for those assets. Because they are not actively traded, the assets do not have readily observable market values. Paying too much would help recapitalize the banks, but it would reward risky behavior and leave taxpayers with a large bill from the losses on the assets. Erring on the low side—such as by buying assets at fire-sale prices—would run the risk of forcing banks to mark down the assets to unrealistically low prices, making more banks insolvent than perhaps needed to be.

As with capital injections, the government could partner with private investors to determine a market price for asset purchases. In that case, the government could partially finance (through loans) the purchase of troubled assets by private investors. Because the investors’ profits would depend on accurate pricing, they would help determine the assets’ fair market prices. The government would not finance the full cost of the purchases so that private investors would have to put up—in essence, risk—some of their own money for the transaction. The government could help protect taxpayers’ money in a number of ways: by requiring that the private investors take losses before the government, by holding the purchased assets as collateral, or by using recourse arrangements for the loans (essentially collateralizing the loan with the investors’ other assets). However, without some federal subsidy, private investors might find few willing sellers of such assets.

Alternatively, instead of buying assets, the government could guarantee portfolios of assets; that is, provide insurance against some losses on the assets. An asset guarantee would shift the risk of loss from the financial institutions to the federal government, just as if the government had taken direct ownership of the troubled assets. With guarantees in place, financial institutions would more easily borrow and raise capital. Determining the price of the guarantee would not be easy, and the government could experience large losses if the price was too low, or fail to attract participation if the price was too high.

Yet another approach, known as “good bank/bad bank,” tries to isolate troubled assets in a different way. An existing bank that has a large amount of troubled assets is split into two new banks—one (a “good” bank) with all of the good assets and lending operations and the other (a “bad” bank) with all of the bad assets.¹⁷ Mellon Bank

17. Chairman Ben S. Bernanke, “The Crisis and the Policy Response” (the Stamp Lecture, London School of Economics, January 13, 2009). See also Zingales, “Yes We Can, Mr. Geithner.” Zingales also proposes a prepackaged bankruptcy option that would allow banks to restructure their debt and restart lending. He describes that option in fuller detail in “Plan B,” *The Economist’s Voice* (October 2008), available at www.bepress.com/ev.

used that approach to deal with its soured energy and real estate loans (without government support) in 1988, and the Swiss government used it last year to deal with the problems of the bank UBS. This approach essentially forces the stockholders and creditors of the bank to absorb the losses from the bad assets while creating a new bank with a clean, transparent balance sheet that should be able to borrow and lend in a normal way. In principle, that approach does not require government funds, although as a practical matter, such funds may well be necessary.

Dividing assets and putting them into separate entities has the advantage of providing greater clarity and less uncertainty about the financial health of the new good banks than are offered by the more subtle approaches of guarantees or selective asset purchases. Consequently, the good banks would be more willing to lend to each other (although there might be some reluctance if the existing management team remained in place) and more able to raise new capital from private investors to support new lending. Because this approach would effectively quarantine the bad bank away from the greater financial system, the approach would also allow for a more orderly liquidation of the bad bank's assets. Such a process would probably obtain higher prices for the assets than those achievable through a fire-sale liquidation.

However, even though Mellon Bank managed to split itself into a good and a bad bank in 1988, many securities lawyers are skeptical that similar splits could be accomplished now without government support or perhaps legislation, because of the competing interests of debt and equity holders. Those competing interests could come into play because some ways of accomplishing the split could favor stockholders over creditors by allowing stockholders a share of profits in the new good bank.

Approaches that inject capital and purchase troubled assets could be used together. The government could pay market prices for the assets and then help banks cover their losses through a program of capital injections. In that way, the prices of the assets would not be distorted, but the banks would receive some assistance. That approach, however, has the disadvantage of potentially providing the most government capital to the banks that made the worst business decisions and therefore have the greatest volumes of toxic assets on their balance sheets.

Provide Credit Directly. The government could increase its direct lending to consumers, homeowners, and businesses by expanding existing programs or starting new ones. That approach would increase the availability and lower the cost of credit for those borrowers.

For example, the Federal Reserve could expand its Term Asset-Backed Securities Loan Facility (TALF). The TALF is designed to help participants in the market meet the credit needs of households and small businesses by supporting the issuance of asset-backed securities that are collateralized by student loans, auto loans, credit card loans, and loans guaranteed by the Small Business Administration. The TALF is expected to begin lending in February 2009; at that point, the Federal Reserve Bank of New York will lend up to \$200 billion on a nonrecourse basis to holders of certain AAA-rated

securities that are backed by newly and recently originated consumer and small business loans. The Federal Reserve Bank of New York will lend an amount that is less than the market value of the securities; the loans will be secured at all times by those securities. The Treasury—under the TARP—will provide \$20 billion of credit protection to the Federal Reserve Bank of New York in connection with the TALF. The Federal Reserve could expand the TALF by buying securities backed by other types of assets, such as mortgages on commercial properties.

The Federal Reserve also could expand its Commercial Paper Funding Facility (CPFF), which is designed to provide a liquidity “backstop” to U.S. issuers of commercial paper. The CPFF is intended to improve liquidity in short-term funding markets and thereby contribute to greater availability of credit for businesses and households. Under the CPFF, the Federal Reserve Bank of New York finances the purchase of highly rated unsecured and asset-backed commercial paper from eligible issuers via primary dealers.¹⁸ In expanding the facility, the Federal Reserve could purchase more paper from eligible issuers and expand the program to include lower-rated paper.

Another alternative would be for the government to attempt to broadly lower the cost of mortgage loans. In lowering the cost of borrowing, such a program would raise the demand for houses, but it would be unlikely to boost house prices significantly, given the large overhang of vacant houses. Programs of that kind would also help reduce unnecessary foreclosures by increasing opportunities to refinance unaffordable loans.

Several programs are already in place to lower the cost of prime conforming loans (loans of up to \$417,000—higher in high-cost areas—that are eligible to be purchased by Fannie Mae and Freddie Mac).

- The Housing and Economic Recovery Act of 2008 authorized the Department of the Treasury to buy obligations and securities issued by Fannie Mae and Freddie Mac. About \$70 billion of residential mortgage-backed securities had been purchased as of December 31, 2008.
- Over the next several quarters, the Federal Reserve, through competitive auctions, will purchase up to \$100 billion in debt issued by the three government-sponsored enterprises for housing—Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System.¹⁹
- Over the next several quarters, the Federal Reserve will purchase up to \$500 billion in mortgage-backed securities issued by Fannie Mae, Freddie Mac, and the Government National Mortgage Association (Ginnie Mae).²⁰

18. Primary dealers are firms that trade in U.S. government securities with the Federal Reserve System. There are currently 17 primary dealers.

19. Unlike Fannie Mae and Freddie Mac, the Federal Home Loan Bank System, which provides low-cost loans to home mortgage lenders, has not been taken over by the government.

20. Ginnie Mae, a government-owned corporation, guarantees securities backed by federally insured or guaranteed loans, mainly loans insured by the Federal Housing Administration or guaranteed by the Department of Veterans Affairs.

The government could begin a similar program to help thaw the market for jumbo mortgages and stimulate originations of jumbo loans. Under such an approach, the government could purchase securities that are backed by jumbo loans either directly or through Fannie Mae and Freddie Mac.

Policymakers have also worked to improve the supply of student loans. In May 2008, lawmakers enacted Public Law 110-227, the Ensuring Continued Access to Student Loans Act, which allowed the Department of Education to offer buyer- and lender-of-last-resort programs to lenders in the Family Federal Education Loan Program (or FFELP). Lenders in the FFELP program, who finance the loans they make to students in private capital markets (with federal assistance), have seen their financing costs increase sharply since the financial market turmoil began. Under the new programs, which apply to loans issued before July 1, 2010, lenders may obtain temporary financing from the Education Department at attractive borrowing terms (that is, at financing rates higher than those that might be considered normal but lower than the rates they could get in the current credit markets), or they may sell their loans to the department (at close to face value). Without the additional federal assistance, those higher funding costs would have forced lenders to cut back on their lending in the 2008-2009 school year and beyond.

To date, the actions of the department have been successful in ensuring the continued availability of student loans. The Department of Education has provided temporary financing of \$8.7 billion, which covers almost half of the loans originated in the 2008–2009 school year. Loans worth approximately \$62 million have thus far been sold to the department under the purchase programs. In November, the Department of Education announced new programs that broadened eligibility for funding and purchases of loans to those originated before 2008. (Before that announcement, only loans that were originated in the 2008–2009 and 2009–2010 school years were eligible for purchase or financing.) Lenders may also be eligible to finance their student loans under the Federal Reserve’s TALF.

Assist Troubled Businesses and Governments. As part of a broader strategy to support the overall economy rather than just the financial sector, the government could assist nonfinancial industries, as it has started to do with some of the major U.S. automobile manufacturers, whose possible failure appears likely to worsen the ongoing recession. Policymakers used some of the funds provided through the TARP to support General Motors and Chrysler and their financial arms. However, other industries have also sought assistance, putting policymakers in the position of picking winners and losers in the current economic downturn. That situation raises issues of fairness, prompting questions about why some workers and firms receive assistance but others do not. It also raises issues of economic efficiency because assisting troubled businesses could keep labor and capital from moving to other businesses and industries that might better be able to use them. That problem may not seem severe during a recession, when there are unused resources. But to the extent that businesses that would otherwise have failed are still around, and failing to thrive, after the recession,

resources will be misallocated and the productivity engine of the economy will be compromised.

Promoting Actions to Lessen the Number of Mortgage Foreclosures

The government could help mortgage borrowers and lenders, and improve conditions in the housing market, by more vigorously supporting efforts to reduce the number of avoidable foreclosures. In 2007, about 1.6 million foreclosures were initiated; the first nine months of 2008 alone saw 1.7 million foreclosures. Moreover, with house prices likely to continue to fall and with the recession pushing down family incomes, analysts expect the number of foreclosures to remain high during the next two years. (CBO expects that the prices of houses will decline by another 14 percent, and some forecasters in the private sector are looking for even bigger slides.) Some analysts are now suggesting that the prices of houses in some markets are back to or near their fundamental values; however, another possibility is that prices could overshoot on the downside by 10 percent or more.²¹ Many of the coming foreclosures are unavoidable because the borrowers cannot afford a refinanced loan that would also be profitable for lenders (that is, the profits from the modified loan are less than the amount that the lender would earn through foreclosure). However, some of those foreclosures might be avoided if distressed borrowers were given the opportunity to refinance their loans on more favorable terms. If government policies do not address the foreclosure problem, the additional excess supply of houses could further push up expected mortgage losses, which already exceed \$1 trillion, according to some analysts.

The benefits of preventing unnecessary foreclosures are considerable, not only for lenders and borrowers but also for the economy. The cost of a foreclosure may range from 30 percent to 60 percent of the value of a property, and by contributing to neighborhood blight, foreclosures have additional negative spillover effects on local economies. A reduction in the number of avoidable foreclosures would complement other actions to strengthen the financial sector because it would shore up the values of mortgage loans on lenders' books—although not by enough to resolve the problems with solvency in the financial system. A smaller number of foreclosures would also provide some support for house prices, but probably not enough to reverse their ongoing decline.

Modifications of mortgage loans have increased in the past year, but the approach has met with limited success—in part because a large percentage of loans that had been modified have subsequently redefaulted.²² However, the streamlined modification

21. For example, see Hatzius and Marschoun, *Home Prices and Credit Losses*.

22. More than 37 percent of the loans modified in the first quarter of 2008 were more than 30 days delinquent after three months, and 55 percent were more than 30 days delinquent six months later. See Office of the Comptroller of the Currency and the Office of Thrift Supervision, *OCC and OTS Mortgage Metrics Report, Third Quarter 2008* (December 2008). Also see the remarks of John Dugan, Comptroller of the Currency, at the Office of Thrift Supervision's Third Annual National Housing Forum, Washington, D.C., December 8, 2008.

plan used by the FDIC to modify loans made by the failed lender IndyMac may have more success because it targets a substantial reduction in the borrower's monthly payments and repayment burden.²³

Efforts to reduce foreclosures face a number of obstacles. Lenders are afraid that if they modify some loans, borrowers who otherwise might meet their contractual mortgage payments will ask for loan modifications as well. Lenders also may be waiting to see what mitigation strategies the government settles on. Further complicating modifications of loans in many instances are second mortgages and home-equity loans and lines of credit. When first liens are underwater—the value of the house is less than the balance on the mortgage—any second liens are almost valueless. In that circumstance, modifying the first lien—especially reducing the principal on an underwater loan—may do the borrower no good if it simply increases the value of the second mortgage. Thus, meaningful loan modification may require the cooperation of second lien holders, which can be difficult to arrange.

Modifications of loans held in “pools” that back securities face additional obstacles. (Rates of foreclosure on loans that have been held by the lenders and not securitized are about 20 percent to 30 percent lower than the rates experienced by third-party servicers.) Third-party servicers have little or no financial incentive to modify mortgages because they will not be adequately compensated for their costs. In addition, legal constraints and uncertainties in the pooling and servicing agreements for mortgage-backed securities may inhibit modifications. Servicers may be prohibited from performing modifications that improve the net returns to all investors collectively if some investors (typically those holding the lowest-priority claims on the securities' returns) are made worse off by the modification.

Consequently, a number of proposals have been advanced to overcome those obstacles. To align the incentives of servicers more closely with those of investors and borrowers, servicers could be paid a fee for each successful loan modification. Alternatively, investors could be given an incentive to be more receptive to loan modifications. Under some proposals, those fees would be subsidized by the government. Currently, Fannie Mae and Freddie Mac are increasing the payments they make for loan modifications.

Alternatively, a number of proposals would change the legal constraints that inhibit loan modifications on securitized loans. For example, one would eliminate explicit restraints on modifications and create a “safe harbor” from lawsuits in the case of modifications that raise the overall net returns to investors.²⁴ However, such proposals

23. The FDIC contends that systematic loan modifications can still make good business sense even with a default rate of 40 percent. See the statement of John F. Bovenzi, Deputy to the Chairman and Chief Operating Officer, Federal Deposit Insurance Corporation, before the House Committee on Financial Services, January 13, 2009.

24. Statement of Christopher J. Mayer, professor, Columbia Business School, before the House Committee on Financial Services, January 13, 2009.

might raise constitutional issues unless compensation was provided to some of the parties who lost out. And that kind of approach would require using taxpayers' money to compensate the holders of the riskiest "slices" of mortgage-backed securities.

Another important obstacle to actions to promote loan modifications is that a large number of distressed borrowers have "negative home equity"—that is, balances on their loans that exceed the homes' value. By the middle of last year, an estimated 10.5 million borrowers had a total of about \$850 billion in negative home equity with an average amount of more than \$75,000.²⁵ Those borrowers do not have the necessary equity to qualify for a refinanced loan with a private lender.²⁶ To address that problem, policymakers created the Hope for Homeowners program under the Federal Housing Administration (FHA) to encourage private lenders to refinance loans of borrowers with negative home equity. The FHA will guarantee new 30-year fixed-rate mortgages under the plan if the loans meet a number of criteria. One criterion, that the new loan be between 90 percent and 97 percent of the home's current appraised value, has limited lenders' interest in the program because it requires them, in some cases, to "recognize" (record on their balance sheets) a substantial loss on the original loan. To date, no modifications have been completed under this program, and the number of applications has been minimal. Reducing the size of that write-down or subsidizing it (or both) would encourage more lenders to participate, but it would also shift more costs to the government.

Other proposals for limiting foreclosures would shift more costs to taxpayers either through federal loan guarantees or direct purchases of loans and their modification by the government. For example, a proposal by the FDIC would result in the government's guaranteeing modified loans. Under the proposal's streamlined approach to modifications, modified mortgages would include a reduction in interest rates, an extension of loan terms to 40 years, and forbearance on repayment of the principal, all of which would be designed to reduce a borrower's monthly cost for housing to as low as 31 percent of his or her monthly income. If the loans subsequently redefaulted, lenders would recover up to 50 percent of the loan from the government, subject to some restrictions.

A proposal modeled after the approach taken by the Depression-era Home Owners Loan Corporation (HOLC) would have the government purchase and then refinance mortgages that were in or near default. A new agency would be created that would buy mortgages from lenders at some discount to the mortgages' book values (the values for the loans that lenders carry on their balance sheets) and then refinance them at

25. Christopher Mayer and R. Glenn Hubbard, "Home Prices, Interest Rates, and the Mortgage Market Meltdown" (working paper, Columbia University Business School, October 2008), available at www2.gsb.columbia.edu/faculty/cMayer/Papers/Mayer_Hubbard_BEP_10_2008_v7.pdf.

26. Private lenders have generally avoided writing down the principal of mortgage loans in favor of either forbearance on payment of the principal or reductions in interest rates. In part, they fear that write-downs will encourage borrowers to behave strategically to qualify; in part, they also hope that housing prices will recover in the future.

interest rates tied to the government's borrowing rates (that is, the rates on Treasury securities). Buying up all of the troubled loans, however, would require hundreds of billions of dollars, and determining prices that would provide enough protection to taxpayers would be particularly challenging. Dangers include the likelihood that the worst mortgages would be sold to the government and that a lack of funding would allow only some borrowers to be helped. Although the HOLC returned a small amount of funds to the Treasury when it was liquidated, the program was not costless to taxpayers, who were not compensated for the risks they bore. Another concern is how to target any subsidies that are offered and avoid the problem that some borrowers might be helped a great deal and others only slightly. (Tying the subsidy to the size of the mortgage, for example, would provide greater help to those with bigger mortgages.) Given the aggregate amount of negative equity, such proposals could cost the government hundreds of billions of dollars, even with the private sector absorbing a good portion of the losses.

A different approach to encouraging loan modifications would be to change federal bankruptcy laws. Bankruptcy judges could be allowed to restructure certain mortgages on principal residences under Chapter 13—for instance, by limiting a mortgage to the current value of a home (known as “cram down”) or by changing the terms of a loan. Under current law, Chapter 13 halts foreclosure proceedings by lenders, giving homeowners an opportunity to restructure their financial arrangements. Although Chapter 13 currently gives courts the leeway to adjust many financial obligations, it does not generally allow the terms of a mortgage on a principal residence to be modified.²⁷ Changing that provision of Chapter 13 would allow bankruptcy courts to treat mortgages on a primary residence in the same way they treat secured debts on other items, such as motor vehicles, vacation homes, investment properties, and personal businesses. (In practice, bankruptcy judges seldom restructure mortgages on vacation or investment properties.)

Allowing a bankruptcy court to modify the amount or terms of a mortgage changes incentives for both borrowers and lenders. It gives borrowers an incentive to file for bankruptcy as a way to lower their mortgage payments and avert foreclosure. Consequently, lenders would have a greater incentive to restructure loans voluntarily. Lenders would also have a stronger incentive to be more prudent in making loans, which could help avoid future excesses in the mortgage markets. In doing so, lenders might raise mortgage rates, particularly for high-risk borrowers, to offset any expected additional losses from loan modifications in bankruptcy. However, some research indicates

27. 11 U.S.C. §1322(b)(2). Furthermore, the Supreme Court has held that even when the value of the debt exceeds the value of the property—a partially secured debt—courts may not modify that debt. See *Nobleman v. Am. Savings Bank*, 508 U.S. 324 (1993). Conversely, when a second (or third) mortgage is wholly unsecured because the value of the property is insufficient to satisfy the first mortgage, such subordinated debt may be discharged. *Tanner v. FirstPlus Fin. Inc.* (In re Tanner), 217 F.3d 1357 (11th Cir. 2000) announced what has become the dominant view among the circuit courts of appeals. Hence, the claims of partially secured creditors are protected by bankruptcy law, but the claims of unsecured creditors are not.

that in the past, the terms and availability of mortgages that could be modified in bankruptcy were not too different from those that bankruptcy did not cover.²⁸ The increase in mortgage rates might be limited in part because lenders might also change other lending terms to reduce their exposure to losses. Changing the bankruptcy law could also add to the caseload of the bankruptcy court system.

The Budgetary Costs of the Financial Rescue

The ultimate costs of the actions taken in response to the turmoil in the financial markets are uncertain, but they could be quite large. Those costs derive from the policy actions of various parts of the government—the Federal Reserve, the Treasury, and other federal agencies. Many of the actions involve the purchase of assets or loans by the government; as a result, some portion of the current funding being directed toward the crisis (perhaps most of it) is likely to be recouped in the future. However, given the fragility of the financial sector and the riskiness of the assets being purchased or guaranteed—as well as the social purposes underlying the policy responses—the federal government can expect some net losses from its transactions. (Tables 1 to 3 contain details of those actions.)

Costs to the Taxpayer

Most of the policy actions taken in response to the financial turmoil have been more like investments than like cash outlays. Both the Federal Reserve and the Treasury have been purchasing financial instruments (for example, mortgage-backed securities) in an effort to boost liquidity in the market; at some point in the future, many of those instruments will be redeemed by their issuers or sold to other buyers. Because such investments were not made purely with the goal of making a profit, they could reasonably be expected to result in some losses.

The Federal Reserve. Activities of the Federal Reserve are not directly recorded in the federal budget. Rather, each year its net earnings—generated by interest on its holdings of securities; income from foreign currency holdings; fees received for services provided to institutions that accept monetary deposits from consumers (such as check clearing, funds transfers, and automated clearinghouse operations); and interest on

28. See Adam J. Levitin and Joshua Goodman, *The Effect of Bankruptcy Strip-Down on Mortgage Markets*, Business Economics and Regulatory Policy Working Paper No. 1087816 (Washington, D.C.: Georgetown University Law Center, February 6, 2008). See also Michelle J. White, *Bankruptcy: Past Puzzles, Recent Reforms, and the Mortgage Crisis*, Working Paper No. 14549 (Cambridge, Mass.: National Bureau of Economic Research, December 2008).

loans to such institutions—are remitted to the Treasury and recorded in the budget as revenues. That income is typically in the range of \$20 billion to \$30 billion a year.²⁹

Thus, recent actions by the Federal Reserve to address the turmoil in the markets may affect federal revenues through their impact on the amount of earnings that the central bank remits to the Treasury. Those earnings will be diminished by any losses that resulted from creditors being unable to repay loans or from assets that the Federal Reserve acquired proving to be worth less than the cost to acquire them. The central bank has committed nearly \$2.3 trillion to its programs, but the assets purchased through those programs are backed by collateral. Still, CBO estimates that the Federal Reserve will incur modest losses, although it is expected to eventually recoup nearly all of its investments. Nevertheless, losses are possible; for example, the Federal Reserve has already written down—by about \$2 billion—the value of the assets it acquired in the takeover of Bear Stearns.

The Troubled Asset Relief Program. CBO records spending for the TARP on a risk-adjusted discounted-present-value basis rather than on a cash basis.³⁰ That is, CBO accounts for the costs resulting from interest subsidies, potential defaults on lending, and other factors. As is the case with the Federal Reserve's transactions, the principal of most of the assets acquired under the TARP should be repaid over time. Of the \$700 billion that the TARP is expected to disburse before the end of December of this year, CBO anticipates that the subsidy cost (after adjusting for market risk) will be about \$200 billion.

Purchases of Mortgage-Backed Securities. The Treasury is also purchasing mortgage-backed securities in the private market. Again, those transactions are basically an exchange of assets—the Treasury has used cash to buy the securities and will receive cash upon the sale of the asset or at its maturity. Because there is no statutory provision for an alternate treatment, the cost of purchases of mortgage-backed securities is computed using standard credit reform procedures.³¹ To date, the net cost of those purchases is close to zero.

29. The Federal Reserve is now paying interest on required reserves and excess balances held on behalf of financial institutions. The interest rate paid on those deposits is currently set at 0.25 percent; CBO estimates that the Federal Reserve will incur interest costs of less than \$5 billion in 2009. Authorization to pay interest on such reserves came from the Emergency Economic Stabilization Act of 2008, which advanced the effective date of a provision of the Financial Services Regulatory Relief Act of 2006 that was slated to take effect in 2011.

30. The Administration is accounting for capital purchases made under the TARP on a cash basis rather than the present-value basis adjusted for market risk that was specified in the Emergency Economic Stabilization Act of 2008. (Present value is the value on a given date of a future payment or series of future payments, discounted using an appropriate interest rate to reflect the risk and term to maturity of the underlying asset.) The Administration's treatment will show more outlays than will CBO's treatment for the TARP this year and then will show cash receipts in future years.

31. For an explanation of credit reform, see Congressional Budget Office, *Policy Options for the Housing and Financial Markets*, Box 3-2 (April 2008).

Fannie Mae and Freddie Mac. In CBO’s baseline projections of the federal budget, most of the cost recorded in 2009 for Fannie Mae and Freddie Mac stems from the existing assets and liabilities of the two GSEs at the time of their takeover. CBO estimates that the value of the GSEs’ mortgage loans and guaranteed assets falls short of their liabilities by about \$200 billion (on a present-value basis); that amount is included in CBO’s estimate of the deficit as calculated for 2009. Nearly \$40 billion in 2009 and smaller annual amounts thereafter represent the estimated annual subsidy costs (on a net-present-value basis) associated with the GSEs’ new business after the takeover. The decline in the annual subsidy reflects CBO’s forecast that the housing and mortgage markets will stabilize over the next several years.

CBO has long held that the federal government has subsidized the operation of Fannie Mae and Freddie Mac by providing what some have called an “implicit guarantee” of the GSEs’ debt.³² However, the federal government has never recognized the cost of the subsidy in its budget. The value of that guarantee (the existence of which has now been demonstrated by the Treasury) is a large component of the estimated cost of the GSEs’ operations that CBO has included in its baseline budget projections.

Other Agencies. A few other agencies have also taken actions in response to the turmoil in the markets, either through existing authority or on the basis of recent legislation. The FDIC has temporarily raised the limit on insurance coverage—from \$100,000 to \$250,000 per depositor—and has established a program to enhance liquidity by guaranteeing debt issued by banks as well as deposits in checking accounts and other non-interest-bearing accounts. The FDIC will also provide assistance to Citigroup in conjunction with the TARP and the Federal Reserve.

Financial turmoil has also affected credit unions. As a result, the National Credit Union Administration, or NCUA (the federal agency that charters and supervises federal credit unions and insures deposits) has created programs to ensure the liquidity of its member institutions. The costs incurred by the FDIC and NCUA are treated in the budget on a cash basis.

The Department of Housing and Urban Development (HUD) has established several programs in an attempt to reduce foreclosures and address other issues in the housing market. Many of those programs were created by the Housing and Economic Recovery Act of 2008, but HUD has also used existing authority to create the FHA Secure program. HUD’s programs are also treated in the budget on a cash basis.

Differences Between CBO and the Administration in the Treatment of Policy Actions in the Budget

By this point, two major differences have arisen between CBO and the Administration in their treatment of policy actions taken in response to the financial crisis. One

32. See Congressional Budget Office, *Assessing the Public Costs and Benefits of Fannie Mae and Freddie Mac* (May 1996), and *Federal Subsidies and the Housing GSEs* (May 2001).

involves the recording of the budgetary costs of the TARP, and the other deals with the costs related to the conservatorship of Fannie Mae and Freddie Mac.

The Troubled Asset Relief Program. Section 123 of the Emergency Economic Stabilization Act of 2008 states that the federal budget should display the costs of purchasing or insuring troubled assets by using procedures similar to those specified in the Federal Credit Reform Act but with an adjustment to account for market risk. Under that procedure, the federal budget would not record the gross cash disbursement for the purchase of a troubled asset (or the cash receipt for its eventual sale) but instead would reflect the market value of the asset or an estimate of the government's net cost (on a present-value basis) for the purchase. Broadly speaking, the net cost is the purchase cost minus the present value—calculated using an appropriate discount factor that reflects the riskiness of the underlying cash flows associated with the asset—of any estimated future earnings from holding the asset and the proceeds from its eventual sale.

Following that directive, CBO has estimated that the net costs of the TARP's activities through January 22, 2009 (with \$293 billion disbursed), total \$94 billion. That calculation implies a subsidy rate of 32 percent—that is, the net subsidy (in 2009 dollars) amounts to an estimated 32 percent of the government's initial expenditures. CBO and the Administration's Office of Management and Budget do not differ significantly in their assessments of the subsidy cost of those transactions but vary in their judgment as to how the transactions should be reported for budgetary purposes.

OMB submitted its first report to the Congress on the costs of the Treasury's purchases and guarantees of troubled assets on December 5, 2008,³³ at the time that the report was compiled (November 6, 2008), the TARP had disbursed \$115 billion to eight large banks in exchange for preferred stock and warrants (securities that entitle the holder to buy stock of the company that issued them at a specified price). OMB maintains that the Federal Credit Reform Act applies only to direct loans and loan guarantees and that the reference in the Emergency Economic Stabilization Act does not require the use of credit reform procedures for other types of transactions. As a result, it budgeted for those initial TARP disbursements on a cash basis rather than by reporting the estimated subsidy cost.

In its December report on the TARP, however, OMB also provided two alternative estimates of the subsidy cost of that first set of disbursements. One such estimate was valued using procedures similar to those specified in the Federal Credit Reform Act (discounting future cash flows using a risk-free rate), and the other estimate was calculated using an approach similar to the way CBO treats the TARP (discounting future cash flows while adjusting for estimated market risk). OMB's second alternative calculation is comparable to CBO's assessment of the cost of the first \$115 billion of trans-

33. Office of Management and Budget, "OMB Report Under the Emergency Economic Stabilization Act, Section 202," letter to the Honorable Nancy Pelosi (December 5, 2008), available at www.whitehouse.gov/omb/legislative/eesa_120508.pdf.

actions. Using a modified credit reform basis (that is, adjusting for risk), OMB estimated those costs to be \$25.5 billion, or a subsidy rate of 22 percent, and CBO arrived at a cost of \$20.5 billion, or a subsidy rate of 18 percent. Most of that difference is probably explained by such factors as the discount rate used (which is affected by when the estimates were made) and the volatility of stock prices (which affects the potential value of the warrants).

Fannie Mae and Freddie Mac. CBO has concluded that because of the extraordinary degree of management and financial control that the government has exercised, Fannie Mae and Freddie Mac should now be considered federal operations. Although the GSEs are not legally government agencies and their employees are not civil servants, CBO believes it is appropriate and useful to policymakers to account for and display the GSEs' financial transactions alongside all other federal activities in the budget.

However, the Administration continues to treat the two organizations as separate from the government. As a result, it has so far recorded the cash infusion that the Treasury provided to Freddie Mac (\$13.4 billion) as an outlay. By contrast, CBO considers such payments as intragovernmental transfers that have no net effect on the budget.

Table 1.

Actions Taken by the Federal Reserve in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Funding		Description
	Committed to Date	Potential ^a	
Reductions in Interest Rates	n.a.	n.a.	The target for the federal funds rate (the interest banks charge on loans to other banks) was reduced 10 times between September 2007 and December 2008, falling from 5.25 percent to between zero and 0.25 percent.
Loans to Financial Institutions			
Primary and Secondary Credit Programs	63	Unknown	Through the primary and secondary credit programs, the Federal Reserve disburses short-term loans to banks and other institutions that are legally allowed to accept monetary deposits from consumers. The term of the loan may be as long as 90 days.
Term Auction Facility	416	600	The Term Auction Facility (TAF) allows banks and other financial institutions to pledge collateral in exchange for a loan from the Federal Reserve. The interest rate on the loan is determined by auction; such auctions are conducted biweekly for loans with a maturity of either 28 or 84 days. The maximum size of each auction is \$150 billion, although accepted bids for most recent auctions have been considerably smaller.
Takeover of Bear Stearns	29	29	The Federal Reserve created Maiden Lane I, a limited liability company (LLC), to acquire certain assets of Bear Stearns at a cost of \$29 billion. (An LLC offers protection from personal liability for business debts, just like a corporation. The profits and losses of the business pass through to its owners, as they would if the business was a partnership or sole proprietorship.) The LLC will manage those assets to maximize the likelihood that the investment is repaid and to minimize disruption to financial markets. The current value of the portfolio on the Federal Reserve's balance sheet is \$27 billion.

Continued

Table 1.

Continued

Actions Taken by the Federal Reserve in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Funding		Description
	Committed to Date	Potential ^a	
Support for AIG Acquired control of nearly 80 percent of the insurance company	82	113	The Federal Reserve agreed to loan AIG \$60 billion and acquired control of nearly 80 percent of the company. In addition, the Federal Reserve Bank of New York bought \$19.5 billion of residential mortgage-backed securities from AIG's portfolio through an LLC and another \$24.5 billion of collateralized debt obligations (CDOs) on which AIG wrote contracts for credit default swaps through another LLC. (CDOs are complex financial instruments that repackage assets such as mortgage bonds, loans for leveraged buyouts, and other debt—including other CDOs—into new securities. A credit default swap is a type of insurance arrangement in which the buyer pays a premium at periodic intervals in exchange for a contingent payment in the event that a third party defaults. The size of the premium paid relative to the contingent payment generally increases with the likelihood of default.)
Support for Short-Term Corporate Borrowing Commercial Paper Funding Facility	351	1,800	The Commercial Paper Funding Facility (CPFF) finances the purchase of commercial paper (securities sold by large banks and corporations to obtain funding to meet short-term borrowing needs, such as payroll) directly from eligible issuers. Securities purchased under this program may be backed by assets or unsecured; they must be highly rated, denominated in U.S. dollars, and have a maturity of three months. The program is in effect through April 30, 2009.
Support for Money Market Mutual Funds Money Market Investor Funding Facility	0	540	The Money Market Investor Funding Facility (MMIFF) is designed to restore liquidity to money markets by purchasing certificates of deposit, bank notes, and commercial paper from money market mutual funds and other similar investors. The authority to purchase assets is in effect through April 30, 2009.

Continued

Table 1.

Continued

Actions Taken by the Federal Reserve in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Funding		Description
	Committed to Date	Potential ^a	
Support for Money Market Mutual Funds (Continued)			
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility	15	Unknown	The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) provides funding to U.S. depository institutions and bank holding companies to finance their purchases of high-quality asset-backed commercial paper (ABCP) from money market mutual funds under certain conditions. The program is intended to assist money market funds that hold such paper in meeting demands for redemptions by investors and to foster liquidity in the ABCP market specifically and money markets generally. The program is in effect through April 30, 2009.
Support for Primary Dealers			
Term Securities Lending Facility and TSLF Options Program	133	200	The Term Securities Lending Facility (TSLF) offers to lend Treasury securities held by the Federal Reserve for a one-month term in exchange for other types of securities held by the 17 financial institutions, known as primary dealers, that trade directly with the Federal Reserve. The TSLF Options Program (TOP) offers options on short-term TSLF loans that will be made on a future date. (An option is a contract written by a seller that conveys to the buyer the right—but not the obligation—to buy or sell a particular asset.)
Primary Dealer Credit Facility	33	Unknown	The Primary Dealer Credit Facility (PDCF) provides overnight loans in exchange for eligible collateral to financial institutions that trade directly with the Federal Reserve. The program is in effect through April 30, 2009.
Support for the Mortgage Market			
Purchases of the debt of the housing-related government-sponsored enterprises	23	100	The Federal Reserve will purchase up to \$100 billion in debt issued by three government-sponsored enterprises (GSEs)—Fannie Mae, Freddie Mac, and the Federal Home Loan Banks—through competitive auctions over the next several quarters.

Continued

Table 1.

Continued

Actions Taken by the Federal Reserve in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Funding		Description
	Committed to Date	Potential ^a	
Support for the Mortgage Market (Continued)			
Purchases of mortgage-backed securities	53	500	Over the next several quarters, the Federal Reserve will purchase up to \$500 billion in mortgage-backed securities (MBSs) issued by GSEs and the Government National Mortgage Association (Ginnie Mae).
Support for Consumer and Small Business Lending	0	200	
Term Asset-Backed Securities Loan Facility			Through the Term Asset-Backed Securities Loan Facility (TALF), the Federal Reserve Bank of New York will lend up to \$200 billion to holders of certain AAA-rated asset-backed securities (consumer and small business loans), and the Troubled Asset Relief Program will provide \$20 billion of credit protection (protection against debtors that do not pay because of insolvency or protracted default) for those loans. The TALF is expected to begin lending in February 2009; the authority expires on December 31, 2009.
Assistance to Citigroup	0	234	The Federal Reserve will absorb 90 percent of any losses resulting from the federal government's guarantee of a pool of Citigroup's assets after payouts have been made by Citigroup, the Troubled Asset Relief Program, and the Federal Deposit Insurance Corporation.
Assistance to Bank of America	0	87	The Federal Reserve will absorb 90 percent of any losses resulting from the federal government's guarantee of a pool of Bank of America's assets after payouts have been made by Bank of America, the Troubled Asset Relief Program, and the Federal Deposit Insurance Corporation.
Currency Swaps	At least 500	Unlimited	In response to strong demand for dollars from abroad, the Federal Reserve has contracted with 14 foreign central banks to make U.S. dollars available temporarily. After a specified period of time, the original amounts of dollars will be returned in exchange for the foreign currency.

Source: Congressional Budget Office based on information from the Federal Reserve.

Note: n.a. = not applicable.

a. "Potential funding" refers to the size of the market or the maximum amount of lending under the program.

Table 2.**Actions Taken by the Treasury in Support of the Housing and Financial Markets as of January 22, 2009**

(Billions of dollars)

Action	Disbursements		Subsidy ^b (Credit basis)	Description
	To Date	Potential ^a		
Troubled Asset Relief Program	293	700	94	<p>The Emergency Economic Stabilization Act of 2008 (Division A of P.L. 110-343) granted authority to the Treasury to purchase \$700 billion in assets through a new program, the Troubled Asset Relief Program (TARP). The second \$350 billion will become available on January 27, 2009.</p> <p>As of January 22, the program had disbursed \$293 billion. The subsidy cost estimated by the Congressional Budget Office—about \$94 billion to date—is computed using the modified credit reform procedure (that is, accounting for market risk) specified in P.L. 110-343.</p>
Housing-Related Tax Provisions	0	12	n.a.	<p>The Housing and Economic Recovery Act of 2008 (P.L. 110-289) authorized a refundable tax credit for first-time home buyers (to be repaid, without interest, over a 15-year period) and contained other housing-related tax provisions.</p>
Purchases of Obligations and Securities Issued by Fannie Mae and Freddie Mac	71	Unlimited	-1	<p>The Housing and Economic Recovery Act of 2008 authorized the Department of the Treasury to buy obligations and securities issued by Fannie Mae and Freddie Mac. About \$71 billion of residential mortgage-backed securities (securities whose value is derived from an underlying pool of mortgages) had been purchased as of December 31, 2008. Authority to make such market purchases expires on December 31, 2009. The subsidy cost recorded in the budget is computed using standard credit reform procedures.</p>

Continued

Table 2.**Continued**

Actions Taken by the Treasury in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Disbursements		Subsidy^b (Credit basis)	Description
	To Date	Potential^a		
Conservatorship for Fannie Mae and Freddie Mac	14	200	n.a.	The Treasury received senior preferred equity shares and warrants in exchange for any future contributions necessary to keep the two entities solvent. (Preferred equity shares provide a specific dividend to be paid before any dividends are paid to common stockholders and take precedence over common stock in the event of a liquidation; a warrant is a security that entitles the holder to buy stock of the company that issued it at a specified price.)
Temporary Guarantee Program for Money Market Funds	Unknown	3,000	n.a.	The Treasury will guarantee investors' shares as of September 19, 2008. The guarantee is in effect through April 30, 2009, but can be extended through September 18, 2009. Participating funds pay a fee of 1.5 or 2.2 basis points times the number of shares outstanding. (A basis point is one-hundredth of a percentage point.)
Supplementary Financing Program	175	Unlimited	n.a.	The Treasury is borrowing from the public to assist the Federal Reserve.

Source: Congressional Budget Office based on information from the Department of the Treasury.

Note: n.a. = not applicable.

- a. "Potential disbursements" refers to the maximum amount of spending under the program or the maximum amount of outstanding assets available for guarantee.
- b. "Subsidy," broadly speaking, refers to the purchase cost minus the present value of any estimated future earnings from holding those assets and the proceeds from the eventual sale of them.
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Table 3.**Actions Taken by Other Agencies in Support of the Housing and Financial Markets as of January 22, 2009**

(Billions of dollars)

Action	Disbursements		Description
	To Date	Potential ^a	
Federal Deposit Insurance Corporation			
Temporarily Raised the Basic Limit on Insurance Coverage from \$100,000 to \$250,000 per Depositor	n.a.	700	The Emergency Economic Stabilization Act of 2008 (Division A of P.L. 110-343) temporarily raised the limit on deposit insurance through December 31, 2009. That action is estimated to increase the amount of insured deposits by about \$700 billion, or 15 percent.
Temporary Liquidity Guarantee Program	n.a.	1,450	<p>The Temporary Liquidity Guarantee Program has two components. The first—the debt guarantee program—aims to enable participating institutions to borrow and lend money more readily. It fully protects certain newly issued senior unsecured debt (securities that are not backed by collateral and have priority over all other debt in ranking for payment in the event of default) with a maturity of more than 30 days, including promissory notes, commercial paper (securities sold by large banks and corporations to meet short-term needs, such as payroll), and interbank funding. The guarantee applies to debt that is issued by June 30, 2009, and matures no later than June 30, 2012. Participating institutions pay fees based on the maturity of the debt. To date, the Federal Deposit Insurance Corporation (FDIC) has guaranteed \$238 billion of new debt; potential guarantees could total \$1 trillion.</p> <p>The second component provides full guarantees for certain checking and other non-interest-bearing accounts through December 31, 2009. Participating institutions also pay fees for this guarantee, which could total \$450 billion.</p>

Continued

Table 3.

Continued

Actions Taken by Other Agencies in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Disbursements		Description
	To Date	Potential ^a	
Federal Deposit Insurance Corporation (Continued)			
Assistance to Citigroup	0	10	The FDIC may absorb up to \$10 billion in losses resulting from the federal government's guarantee of a pool of Citigroup's assets after payouts have been made by Citigroup and the Troubled Asset Relief Program. As a fee for the guarantee, the FDIC will receive \$3 billion in preferred stock (shares of equity that provide a specific dividend to be paid before any dividends are paid to common stockholders and that take precedence over common stock in the event of a liquidation).
Department of Housing and Urban Development			
Redevelopment of Abandoned and Foreclosed Homes	0	4	The Housing and Economic Recovery Act of 2008 (P.L. 110-289) provided \$4 billion in funding to state and local governments to purchase and rehabilitate foreclosed and abandoned homes.
HOPE for Homeowners Program	0	1	The HOPE for Homeowners program permits home mortgages to be refinanced through private lenders with a guarantee from the Federal Housing Administration. The new loans must have a loan-to-value ratio that is no greater than 90 percent of the property's appraised value.
FHA Secure	n.a.	1	FHA Secure was a temporary initiative to permit lenders to refinance non-FHA (Federal Housing Administration) adjustable-rate mortgages. The program has made about 4,000 loans since fall 2007 and expired on December 31, 2008.
Federal Housing Finance Agency			
Conservatorship for Fannie Mae and Freddie Mac	n.a.	n.a.	The Federal Housing Finance Agency and the Treasury took control of these two government-sponsored enterprises (GSEs) on September 6, 2008. Under the current circumstances, the Congressional Budget Office (CBO) views Fannie Mae and Freddie Mac as governmental entities.

Continued

Table 3.

Continued

Actions Taken by Other Agencies in Support of the Housing and Financial Markets as of January 22, 2009

(Billions of dollars)

Action	Disbursements		Description
	To Date	Potential ^a	
National Credit Union Administration			
Streamlined Modification Program	Unknown	Unknown	The Streamlined Modification Program is intended to avoid foreclosures by creating a fast-track method for reducing monthly payments on mortgages. The program will restrict payments to 38 percent of a household's gross monthly income by reducing the interest rate, extending the life of the loan, or deferring principal. That policy applies to loans held by Fannie Mae and Freddie Mac and was launched on December 15, 2008.
Credit Union Homeowners Affordability Relief Program and Credit Union System Investment Program	5	41	These two loan programs are operated through the National Credit Union Administration's Central Liquidity Facility and are financed by borrowing from the Federal Financing Bank. The Credit Union Homeowners Affordability Relief Program (CU HARP) will provide subsidized funding intended to help credit unions modify mortgages. The Credit Union System Investment Program (CU SIP) seeks to facilitate lending by shoring up corporate credit unions (which primarily provide financial resources and services to other credit unions).
Temporary Corporate Credit Union Liquidity Guarantee Program	n.a.	Unknown	The Temporary Corporate Credit Union Liquidity Guarantee Program guarantees certain unsecured debt of participating corporate credit unions that was or will be issued between October 16, 2008, and June 30, 2009. Such debt must mature by June 30, 2012. Participating institutions pay annualized fees for the guarantees. To date, this program has guaranteed \$5 billion in debt.

Source: Congressional Budget Office based on information from the Federal Deposit Insurance Corporation, the Department of Housing and Urban Development, the Federal Housing Finance Agency, and the National Credit Union Administration.

Note: n.a. = not applicable.

a. "Potential disbursements" refers to the maximum amount of spending under the program or the maximum amount of outstanding assets available for guarantee.