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Report to Congressional Requesters

January 2013

FINANCIAL REGULATORY REFORM

Financial Crisis Losses and Potential Impacts of the Dodd-Frank Act

Accountability * Integrity * Reliability

GAO-13-180

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Highlights

Highlights of GAO-13-180, a report to congressional requesters

Why GAO Did This Study

The 2007-2009 financial crisis threatened the stability of the U.S. financial system and the health of the U.S. economy. To address regulatory gaps and other problems revealed by the crisis, Congress enacted the Dodd-Frank Act. Federal regulators will need to issue hundreds of rules to implement the act. Industry representatives, academics, and others generally have supported the act's goal of enhancing U.S. financial stability, but implementation of certain of the act's provisions has led to much debate. These experts have expressed a wide range of views on the potential positive and negative effects that the act could have on the U.S. financial system and broader economy.

GAO was asked to examine the (1) losses associated with the recent financial crisis; (2) benefits of the act for the U.S. financial system and the broader economy; and (3) costs of the act's reforms. GAO reviewed empirical and other studies on the impacts of financial crises and the Dodd-Frank reforms, as well as congressional testimonies, comment letters, and other public statements by federal regulators, industry representatives, and others. GAO obtained and analyzed data on agency resources devoted to the act's implementation. GAO also obtained perspectives from regulators, academics, and representatives of industry and public interest groups through interviews and an expert roundtable held with the assistance of the National Academy of Sciences. GAO provided a draft of this report to the financial regulators for review and comment and received technical comments, which were incorporated as appropriate.

View GAO-13-180. For more information, contact A. Nicole Clowers at (202) 512-8678 or clowersa@gao.gov.

What GAO Found

The 2007-2009 financial crisis has been associated with large economic losses and increased fiscal challenges. Studies estimating the losses of financial crises based on lost output (value of goods and services not produced) suggest losses associated with the recent crisis could range from a few trillion dollars to over $10 trillion. Also associated with the crisis were large declines in employment, household wealth, and other economic indicators. Some studies suggest the crisis could have long-lasting effects: for example, high unemployment, if persistent, could lead to skill erosion and lower future earnings for those affected. Finally, since the crisis began, federal, state, and local governments have faced greater fiscal challenges, in part because of reduced tax revenues from lower economic activity and increased spending to mitigate the impact of the recession.

While the Dodd-Frank Wall Street Reform and Consumer Protection Act's (Dodd-Frank Act) reforms could enhance the stability of the U.S. financial system and provide other benefits, the extent to which such benefits materialize will depend on many factors whose effects are difficult to predict. According to some academics, industry representatives, and others, a number of the act's provisions could help reduce the probability or severity of a future crisis and thereby avoid or reduce the associated losses. These include subjecting large, complex financial institutions to enhanced prudential supervision, authorizing regulators to liquidate a financial firm whose failure could pose systemic risk, and regulating certain complex financial instruments. In contrast, some experts maintain these measures will not help reduce the probability or severity of a future crisis, while others note that their effectiveness will depend on how they are implemented by regulators, including through their rulemakings, and other factors, such as how financial firms respond to the new requirements. Quantifying the act's potential benefits is difficult, but several studies have framed potential benefits of certain reforms by estimating output losses that could be avoided if the reforms lowered the probability of a future crisis.

Federal agencies and the financial industry are expending resources to implement and comply with the Dodd-Frank Act. First, federal agencies are devoting resources to fulfill rulemaking and other new regulatory responsibilities created by the act. Many of these agencies do not receive any congressional appropriations, limiting federal budget impacts. Second, the act imposes compliance and other costs on financial institutions and restricts their business activities in ways that may affect the provision of financial products and services. While regulators and others have collected some data on these costs, no comprehensive data exist. Some experts stated that many of the act's reforms serve to impose costs on financial firms to reduce the risks they pose to the financial system. Third, in response to reforms, financial institutions may pass increased costs on to their customers. For example, banks could charge more for their loans or other services, which could reduce economic growth. Although certain costs, such as paperwork costs, can be quantified, other costs, such as the act's impact on the economy, cannot be easily quantified. Studies have estimated the economic impact of certain of the act's reforms, but their results vary widely and depend on key assumptions. Finally, some experts expressed concern about the act's potential unintended consequences and their related costs, adding to the challenges of assessing the benefits and costs of the act.

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Abbreviations

AIG	American International Group, Inc.
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BLS	Bureau of Labor Statistics
CBO	Congressional Budget Office
CCP	central counterparty
CDS	credit default swaps

CFTC	Commodity Futures Trading Commission
CFPB	Bureau of Consumer Financial Protection
CPP	Capital Purchase Program
CPSS	Committee on Payment and Settlement Systems
DGP	Debt Guarantee Program
FDIC	Federal Deposit Insurance Corporation
FHFA	Federal Housing Finance Agency
FHFB	Federal Housing Finance Board
FRBNY	Federal Reserve Bank of New York
FSB	Financial Stability Board
FSOC	Financial Stability Oversight Council
FTE	full-time equivalent
GDP	gross domestic product
GSE	government-sponsored enterprise
HERA	Housing and Economic Recovery Act of 2008
HUD	Department of Housing and Urban Development
IAIS	International Association of Insurance Supervisors
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
MMMF	money market mutual fund
NAS	National Academy of Sciences
NCUA	National Credit Union Administration
OCC	Office of the Comptroller of the Currency
OFHEO	Office of Federal Housing Enterprise Oversight
OLA	orderly liquidation authority
OTC	over-the-counter
OTS	Office of Thrift Supervision
OFR	Office of Financial Research
QM	qualified mortgage
QRM	qualified residential mortgage
SEC	Securities and Exchange Commission
SEF	swap execution facility
SCAP	Supervisory Capital Assessment Program
S&L	savings and loan
SIFI	systemically important financial institutions
TAGP	Transaction Account Guarantee Program
TLGP	Temporary Liquidity Guarantee Program

January 16, 2013

The Honorable Tim Johnson
Chairman
Committee on Banking, Housing, and Urban Affairs
United States Senate

The Honorable Michael E. Capuano
Ranking Member
Subcommittee on Oversight and Investigations
Committee on Financial Services
House of Representatives

The 2007-2009 financial crisis threatened the stability of the U.S. financial system—composed of financial institutions, markets, and infrastructure—and the health of the U.S. economy.[1] At the peak of the crisis, the federal government introduced unprecedented support for financial markets, providing hundreds of billions of dollars of capital and over a trillion dollars of emergency loans to financial institutions. Many households suffered as a result of falling asset prices, tightening credit, and increasing unemployment. While many factors likely contributed to the crisis and the relative role of these factors is subject to debate, gaps and weaknesses in the supervision and regulation of the U.S. financial system generally played an important role.[2] To address such shortcomings, Congress enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act).[3] As summarized on the Senate Banking Committee's website, the act seeks to (1) address risks to the stability of the U.S. financial system, in part through the creation of the Financial

[1]As discussed below, no universal or widely accepted definition of a financial crisis exists. Indeed, no clear consensus exists on when the recent financial crisis started or ended (if yet). In a number of speeches, officials from the Board of Governors of the Federal Reserve System and several academics have dated the crisis as starting in 2007 and ending in 2009. We are adopting that time frame, although others sometimes date the crisis as starting in 2008 and ending in 2009.

[2]As discussed in the background section of this report, other factors that are thought to have contributed to the crisis include financial innovations and economic conditions, characterized by accommodative monetary policies, ample liquidity and availability of credit, and low interest rates that spurred housing investment.

[3]Pub. L. No. 111-203, 124 Stat. 1376 (2010).

Stability Oversight Council (FSOC), (2) end too-big-to-fail bailouts of large, complex financial institutions, (3) increase transparency and regulation for certain complex financial instruments, and (4) strengthen protections for consumers and investors.[4]

Federal financial regulators and other agencies are continuing to make progress in implementing the Dodd-Frank Act's numerous provisions, which may require hundreds of rulemakings. While the financial services industry, academics, and others generally have supported the Dodd-Frank Act's goal of enhancing the stability of the U.S. financial system, the act's implementation has not been free of controversy or debate. For example, a consensus exists neither on the extent to which the act will help to reduce the likelihood and severity of future financial crises nor on the magnitude of the costs that the act, generally, and its regulations, specifically, will impose on U.S. financial institutions and the U.S. economy. The Dodd-Frank Act has not yet been fully implemented; thus, its impacts have not fully materialized. Nonetheless, analyses of the potential and actual impacts can help inform policymakers about the ongoing implementation of the act's reforms.

As requested, the objectives of this report are to describe what is known about

- the losses and related economic impacts associated with the 2007-2009 financial crisis;
- the benefits of the Dodd-Frank Act, particularly its key financial stability provisions, for the U.S. financial system and broader economy; and
- the costs associated with the act, particularly its key financial stability provisions.

To address our objectives, we reviewed and analyzed academic and other studies that assess the economic impacts of financial crises or financial regulatory reforms, including the Dodd-Frank Act. We reviewed the methodological approaches of selected studies and determined that they were sufficient for our purposes. However, the results should not

[4]U.S. Senate, Committee on Banking, Housing, and Urban Affairs, *Dodd-Frank Wall Street Reform: Conference Report Summary,* accessed December 17, 2012, http://banking.senate.gov/public/index.cfm?FuseAction=Issues.View&Issue_id=84d77b9f-c7ab-6fe2-4640-9dd18189fb23.

necessarily be considered as definitive, given the methodological or data limitations contained in the studies individually and collectively. To show changes in economic indicators following the start of the financial crisis, we obtained and analyzed data from the Bureau of Economic Analysis, Bureau of Labor Statistics, National Bureau of Economic Research, and other sources. We obtained and summarized data on the incremental budgetary costs associated with the act's implementation for 10 federal entities: the Board of Governors of the Federal Reserve System (Federal Reserve); Commodity Futures Trading Commission (CFTC); Federal Deposit Insurance Corporation (FDIC); Federal Housing Finance Agency (FHFA); Office of the Comptroller of the Currency (OCC); Securities and Exchange Commission (SEC); Department of the Treasury (Treasury); Bureau of Consumer Financial Protection, commonly known as the Consumer Financial Protection Bureau (CFPB); FSOC; and the Office of Financial Research (OFR). For parts of our methodology that involved the analysis of computer-processed data, we assessed the reliability of these data and determined that they were sufficiently reliable for our purposes. Through interviews and an expert roundtable we held with the assistance of the National Academy of Sciences, we obtained perspectives from academics; current and former federal financial regulators; representatives of industry, public interest, and investor groups; and other experts on the potential benefits and costs of the act's reforms. In addition, we reviewed relevant reports and public statements by these groups as well as Dodd-Frank Act rules and comment letters. Finally, we reviewed prior GAO work on the fiscal outlook for federal, state, and local governments and on financial regulatory reform. Appendix I contains additional information on our scope and methodology.

We conducted this performance audit from November 2011 to January 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

U.S. Financial Regulatory Framework

The financial regulatory framework in the United States was built over more than a century, largely in response to crises and significant market developments. As a result, the regulatory system is complex and fragmented.[5] While the Dodd-Frank Act has brought additional changes, including the creation of new regulatory entities and the consolidation of some regulatory responsibilities that had been shared by multiple agencies, the U.S. financial regulatory structure largely remains the same. It is a complex system of multiple federal and state regulators, as well as self-regulatory organizations, that operates largely along functional lines. The U.S. regulatory system is described as "functional" in that financial products or activities are generally regulated according to their function, no matter who offers the product or participates in the activity.

Banking Regulators

In the banking industry, the specific regulatory configuration depends on the type of charter the banking institution chooses. Depository institution charter types include

- *commercial banks*, which originally focused on the banking needs of businesses but over time have broadened their services;
- *thrifts*, which include savings banks, savings associations, and savings and loans and were originally created to serve the needs—particularly the mortgage needs—of those not served by commercial banks; and
- *credit unions*, which are member-owned cooperatives run by member-elected boards with an historical emphasis on serving people of modest means.

These charters may be obtained at the state or federal level. State regulators charter institutions and participate in their oversight, but all institutions that have federal deposit insurance have a federal prudential regulator. The federal prudential regulators—which generally may issue regulations and take enforcement actions against industry participants

[5]For a more detailed discussion of the evolution of the U.S. financial regulatory framework before the enactment of the Dodd-Frank Act, see GAO, *Financial Regulation: A Framework for Crafting and Assessing Proposals to Modernize the Outdated U.S. Financial Regulatory System*, GAO-09-216 (Washington, D.C.: Jan. 8, 2009).

within their jurisdiction—are identified in table 1. The act eliminated the Office of Thrift Supervision (OTS) and transferred its regulatory responsibilities to OCC, the Federal Reserve, and FDIC.[6] To achieve their safety and soundness goals, bank regulators establish capital requirements, conduct onsite examinations and off-site monitoring to assess a bank's financial condition, and monitor compliance with banking laws. Regulators also issue regulations, take enforcement actions, and close banks they determine to be insolvent.

Table 1: Federal Prudential Regulators and Their Basic Functions

Agency	Basic function
Office of the Comptroller of the Currency	Charters and supervises national banks and federal thrifts.
Board of Governors of the Federal Reserve System	Supervises state-chartered banks that opt to be members of the Federal Reserve System, bank holding companies, thrift holding companies and the nondepository institution subsidiaries of those institutions, and nonbank financial companies designated by the Financial Stability Oversight Council.
Federal Deposit Insurance Corporation	Supervises FDIC-insured state-chartered banks that are not members of the Federal Reserve System, as well as federally insured state savings banks and thrifts; insures the deposits of all banks and thrifts that are approved for federal deposit insurance; and resolves all failed insured banks and thrifts and has been given the authority to resolve large bank holding companies and nonbank financial companies that are subject to supervision by the Board of Governors of the Federal Reserve System.
National Credit Union Administration	Charters and supervises federally chartered credit unions and insures savings in federal and most state-chartered credit unions.

Sources: OCC, Federal Reserve Board, FDIC, and NCUA.

Holding companies that own or control a bank or thrift are subject to supervision by the Federal Reserve. The Bank Holding Company Act of 1956 and the Home Owners' Loan Act set forth the regulatory frameworks for bank holding companies and savings and loan (S&L) holding companies, respectively.[7] Before the Dodd-Frank Act, S&L holding companies had been subject to supervision by OTS and a different set of regulatory requirements from those of bank holding companies. The

[6] OTS chartered and supervised federally chartered savings institutions and savings and loan holding companies. Rule-making authority previously vested in OTS was transferred to OCC for savings associations and to the Federal Reserve for savings and loan holding companies. Other authorities were transferred to OCC, FDIC, and the Federal Reserve. 12 U.S.C. § 5412.

[7] Pub. L. No. 84-511, 70 Stat. 133 (1956) and Pub. L. No. 73-43, 48 Stat. 128 (1933). Bank holding companies are companies that own or control a bank, as defined in the Bank Holding Company Act. S&L holding companies are companies that own or control an S&L.

Dodd-Frank Act made the Federal Reserve the regulator of S&L holding companies and amended the Home Owners' Loan Act and the Bank Holding Company Act to create certain similar requirements for both bank holding companies and S&L holding companies.[8] The Dodd-Frank Act also grants new authorities to FSOC to designate nonbank financial companies for supervision by the Federal Reserve.

Securities and Futures Regulators

The securities and futures markets are regulated under a combination of self-regulation (subject to oversight by the appropriate federal regulator) and direct oversight by SEC and CFTC, respectively.[9] SEC regulates the securities markets, including participants such as securities exchanges, broker-dealers, investment companies, and investment advisers. SEC's mission is to protect investors; maintain fair, orderly, and efficient markets; and facilitate capital formation. In the securities industry, certain self-regulatory organizations—including the securities exchanges and the Financial Industry Regulatory Authority—have responsibility for overseeing the securities markets and their members; establishing the standards under which their members conduct business; monitoring business conduct; and bringing disciplinary actions against members for violating applicable federal statutes, SEC's rules, and their own rules.

CFTC is the primary regulator of futures markets, including futures exchanges and intermediaries, such as futures commission merchants.[10] CFTC's mission is to protect market users and the public from fraud, manipulation, abusive practices, and systemic risk related to derivatives that are subject to the Commodity Exchange Act, and to foster open, competitive, and financially sound futures markets. Like SEC, CFTC oversees the registration of intermediaries and relies on self-regulatory

[8]For a more detailed discussion of the regulatory framework for bank holding companies and S&L holding companies, see GAO, *Bank Holding Company Act: Characteristics and Regulation of Exempt Institutions and the Implications of Removing the Exemptions*, GAO-12-160 (Washington, D.C.: Jan. 19, 2012).

[9]Certain securities activities also are overseen by state government entities.

[10]Futures commission merchants are individuals, associations, partnerships, corporations, and trusts that solicit or accept orders for the purchase or sale of any commodity for future delivery on or subject to the rules of any exchange and that accept payment from or extend credit to those whose orders are accepted. Firms and individuals who trade futures with the public or give advice about futures trading must be registered with the National Futures Association, the industrywide self-regulatory organization for the U.S. futures industry.

organizations, including the futures exchanges and the National Futures Association, to establish and enforce rules governing member behavior. In addition, Title VII of the Dodd-Frank Act expands regulatory responsibilities for CFTC and SEC by establishing a new regulatory framework for swaps. The act authorizes CFTC to regulate "swaps" and SEC to regulate "security-based swaps" with the goals of reducing risk, increasing transparency, and promoting market integrity in the financial system.[11]

Consumer Financial Protection Bureau

The Dodd-Frank Act established CFPB as an independent bureau within the Federal Reserve System and provided it with rule-making, enforcement, supervisory, and other powers over many consumer financial products and services and many of the entities that sell them.[12] Certain consumer financial protection functions from seven existing federal agencies were transferred to CFPB.[13] Consumer financial products and services over which CFPB has primary authority include deposit taking, mortgages, credit cards and other extensions of credit, loan servicing, debt collection, and others. CFPB is authorized to supervise certain nonbank financial companies and large banks and credit unions with over $10 billion in assets and their affiliates for consumer protection purposes. CFPB does not have authority over most insurance activities or most activities conducted by firms regulated by SEC or CFTC.

Federal Housing Finance Agency

The Housing and Economic Recovery Act of 2008 (HERA) created FHFA to oversee the government-sponsored enterprises (GSE): Fannie Mae, Freddie Mac, and the Federal Home Loan Banks.[14] Fannie Mae and Freddie Mac were created by Congress as private, federally chartered

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[11] A swap is a type of derivative that involves an ongoing exchange of one or more assets, liabilities, or payments for a specified period. Financial and nonfinancial firms use swaps and other over-the-counter derivatives to hedge risk, or speculate, or for other purposes. Swaps include interest rate swaps, commodity-based swaps, and broad-based credit default swaps. Security-based swaps include single-name and narrow-based credit default swaps and equity-based swaps. For the purposes of this report, we use "swaps" to refer to both "swaps" and "security-based swaps."

[12] 12 U.S.C. §§ 5481–5603.

[13] These agencies included the Federal Reserve, FDIC, the Federal Trade Commission, the Department of Housing and Urban Development, the National Credit Union Administration, OCC, and OTS.

[14] Pub. L. No. 110-289, 122 Stat. 2654 (2008).

companies to provide, among other things, liquidity to home mortgage markets by purchasing mortgage loans, thus enabling lenders to make additional loans. The system of 12 Federal Home Loan Banks provides funding to support housing finance and economic development. Until enactment of HERA, Fannie Mae and Freddie Mac had been overseen since 1992 by the Office of Federal Housing Enterprise Oversight (OFHEO), an agency within the Department of Housing and Urban Development (HUD), and the Federal Home Loan Banks were subject to supervision by the Federal Housing Finance Board (FHFB), an independent regulatory agency.[15] In July 2008, HERA created FHFA to establish more effective and more consistent oversight of the three housing GSEs.[16] Given their precarious financial condition, Fannie Mae and Freddie Mac were placed in conservatorship in September 2008, with FHFA serving as the conservator under powers provided in HERA.

Federal Insurance Office

While insurance activities are primarily regulated at the state level, the Dodd-Frank Act created the Federal Insurance Office within Treasury to monitor issues related to regulation of the insurance industry.[17] The Federal Insurance Office is not a regulator or supervisor, and its responsibilities include identifying issues or gaps in the regulation of insurers that could contribute to a systemic crisis in the insurance industry or the U.S. financial system.

Financial Stability Oversight Council and Office of Financial Research

The Dodd-Frank Act established FSOC to identify risks to the financial stability of the United States, promote market discipline, and respond to emerging threats to the stability of the U.S. financial system. The Dodd-Frank Act also established OFR within Treasury to serve FSOC and its member agencies by improving the quality, transparency, and accessibility of financial data and information; conducting and sponsoring

[15]OFHEO regulated Fannie Mae and Freddie Mac on matters of safety and soundness, while HUD regulated their mission-related activities. FHFB served as the safety and soundness and mission regulator of the Federal Home Loan Banks.

[16]With respect to Fannie Mae and Freddie Mac, the law gave FHFA such new regulatory authorities as the power to regulate the retained mortgage portfolios, to set more stringent capital standards, and to place a failing entity in receivership. In addition, the law provides FHFA with funding outside the annual appropriations process. The law also combined the regulatory authorities for all the housing GSEs that were previously distributed among OFHEO, FHFB, and HUD.

[17]31 U.S.C. § 313.

research related to financial stability; and promoting best practices in risk management.[18]

FSOC's membership consists of the Secretary of the Treasury, who chairs the council, and the heads of CFPB, CFTC, FDIC, the Federal Reserve, FHFA, the National Credit Union Administration, OCC, SEC, the directors of OFR and the Federal Insurance Office, representatives from state-level financial regulators, and an independent member with insurance experience.

Financial Crises

There is no universally accepted definition of a financial crisis. Some academic studies identify three major types of financial crises: banking crises, public debt crises, and currency crises.[19] The most recent financial crisis in the United States is widely considered to have been a banking crisis. While researchers have defined banking crises in different ways, their definitions generally focus on indicators of severe stress on the financial system, such as runs on financial institutions or large-scale government assistance to the financial sector. The large increases in public debt that tend to follow the onset of a banking crisis can make a country more susceptible to a public debt crisis.

Studies reviewing historical banking crises in the United States and other countries found that such crises were associated with large losses in output (the value of goods and services produced in the economy) and employment that can persist for years. A disruption to the financial system can have a ripple effect through the economy, harming the broader economy through several channels. For example, some studies identify ways that strains in the financial system can negatively impact the cost

[18]12 U.S.C. §§ 5321–5333. For additional information on FSOC and OFR, see GAO, *Financial Stability: New Council and Research Office Should Strengthen the Accountability and Transparency of Their Decisions*, GAO-12-886 (Washington, D.C.: Sept. 11, 2012).

[19]Public debt crises can occur when rising levels of government debt lead investors to lose confidence in the ability of a country to repay its debts, causing the country's borrowing costs to surge and forcing large cuts to public spending. Currency crises can occur when there is a speculative attack on the foreign exchange value of a currency, causing a sharp depreciation in the currency or forcing authorities to defend the value of the currency by selling foreign exchange reserves and raising domestic interest rates.

and availability of credit and, in turn, reduce total output.[20] During the recent crisis, certain securitization markets collapsed and households and businesses faced tightened credit conditions. Higher funding costs for firms in the form of higher interest rates and lower equity prices can contribute to declines in investment. Furthermore, as asset prices fall, declines in the wealth and confidence of consumers, businesses, and investors also can contribute to output declines. Historically, governments have provided substantial assistance to financial institutions during banking crises to avert more severe disruptions to the key functions performed by the financial system.

The causes of the 2007-2009 crisis are complex and remain subject to debate and ongoing research. According to many researchers, around mid-2007, losses in the mortgage market triggered a reassessment of financial risk in other debt instruments and sparked the financial crisis. Uncertainty about the financial condition and solvency of financial entities resulted in a liquidity and credit crunch that made the financing on which many businesses and individuals depend increasingly difficult to obtain.[21] By late summer of 2008, the ramifications of the financial crisis ranged from the failure of financial institutions to increased losses of individual savings and corporate investments.

Academics and others have identified a number of factors that may have helped set the stage for problems in the mortgage market and the broader financial system. These factors, in no particular order, include

- financial innovation in the form of asset securitization, which reduced mortgage originators' incentives to be prudent in underwriting loans and made it difficult to understand the size and distribution of loss exposures throughout the system;
- imprudent business and risk management decisions based on the expectation of continued housing price appreciation;

[20]See, for example, Basel Committee on Banking Supervision, *The Transmission Channels between the Financial and Real Sectors: A Critical Survey of the Literature*. Working paper No. 18 (Basel, Switzerland: February 2011).

[21]During the crisis, market liquidity and funding liquidity declined in certain markets. To function efficiently, the securities markets need market liquidity, generally defined as the ability to buy and sell a particular asset without significantly affecting its price. In contrast to market liquidity, which is an asset-specific characteristic, funding liquidity generally refers to the availability of funds in the market that firms can borrow to meet their obligations.

- faulty assumptions in the models used by credit rating agencies to rate mortgage-related securities;
- gaps and weaknesses in regulatory oversight, which allowed financial institutions to take excessive risks by exploiting loopholes in capital rules and funding themselves increasingly with short-term liabilities;
- government policies to increase homeownership, including the role of Fannie Mae and Freddie Mac in supporting lending to higher-risk borrowers; and
- economic conditions, characterized by accommodative monetary policies, ample liquidity and availability of credit, and low interest rates that spurred housing investment.

The United States periodically has experienced banking crises of varying severity. The financial crisis that began in 2007 was the most severe banking crisis experienced by the United States since the 1930s. While this most recent financial crisis may have had some new elements—such as the role of asset securitization in spreading risks across the financial system—studies have found that it followed patterns common to past crises in the United States and other countries. For example, experts have noted that the recent crisis, like many past crises, was preceded by an asset price boom that was accompanied by an excessive buildup in leverage.[22] Another common pattern between the recent and past crises has been the buildup of risks and leverage in unregulated or less regulated financial institutions. While academic studies have used different criteria to identify and date banking crises, studies we reviewed identify the following episodes as U.S. banking crises since the Civil War: the banking panics of 1873, 1893, 1907, and the 1930s; the Savings and Loan Crisis that began in the1980s; and the 2007-2009 crisis. The studies do not consider the stock market crash of 1987 or the bursting of the technology bubble during 2000-2001 to be banking crises, because neither placed severe strains on the financial system that threatened the economy.

[22]Leverage traditionally has referred to the use of debt, instead of equity, to fund an asset and been measured by the ratio of total assets to equity on the balance sheet. Leverage also can be used to increase an exposure to a financial asset without using debt, such as by using derivatives. In that regard, leverage can be defined broadly as the ratio between some measure of risk exposure and capital that can be used to absorb unexpected losses from the exposure.

2007-2009 Financial Crisis Was Associated with Large Economic Losses and Increases in Government Debt

Several studies measure the overall economic costs associated with past financial crises based on the decline in economic output (the value of goods and services produced in the economy) relative to some benchmark, such as the long-term trend in output. While using a variety of methods to quantify these output losses, the studies generally have found the losses from past financial crises to be very large. Some of these studies also analyze changes in unemployment, household wealth, and other economic indicators to show the effects of the crises at a more granular level. In addition, some studies use measures of fiscal costs—such as increases in government debt—to analyze the losses associated with financial crises. In the following section, we review what is known about the losses associated with the recent financial crisis based on these measures.

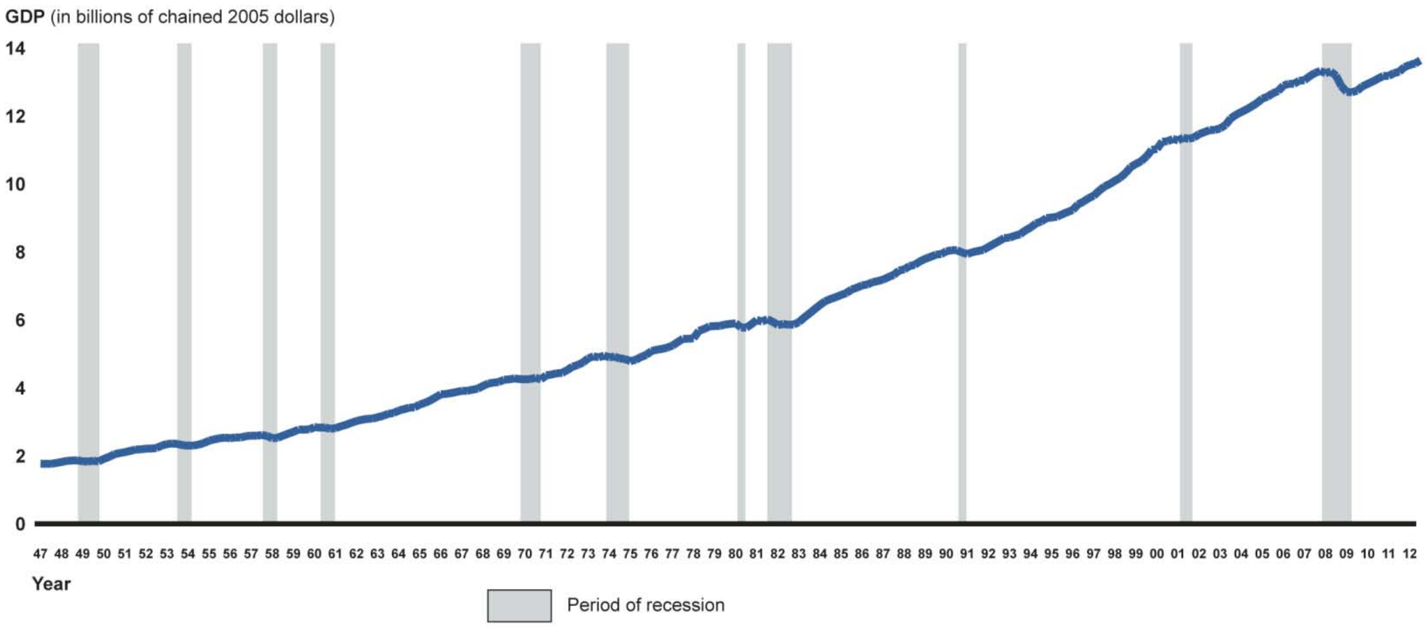
Studies Generally Find That the Recent Crisis Was Associated with Large Losses in Economic Output, but Estimates of Such Losses Vary and Depend on Several Assumptions

The 2007-2009 financial crisis, like past financial crises, was associated with not only a steep decline in output but also the most severe economic downturn since the Great Depression of the 1930s (see fig. 1). According to a study, in the aftermath of past U.S. and foreign financial crises, output falls (from peak to trough) an average of over 9 percent and the associated recession lasts about 2 years on average.[23] The length and severity of this economic downturn was roughly consistent with the experience of past financial crises. The U.S. economy entered a recession in December 2007, a few months after the start of the financial crisis.[24] Between December 2007 and the end of the recession in June 2009, U.S. real gross domestic product (GDP) fell from $13.3 trillion to $12.7 trillion (in 2005 dollars), or by nearly 5 percent. As shown in figure 1, real GDP did not regain its pre-recession level until the third quarter of 2011.

[23]Carmen M. Reinhart and Kenneth S. Rogoff, *The Aftermath of Financial Crises*, National Bureau of Economic Research, Working Paper 14656 (Cambridge, MA: January 2009).

[24]Recessions mark a distinct phase of the overall business cycle, beginning with a business cycle "peak" and ending with a business cycle "trough." Between trough and peak the economy is in an expansion. The National Bureau of Economic Research identifies dates for national recessions, which can vary in overall duration and magnitude. The National Bureau of Economic Research is a private, nonprofit, nonpartisan research organization dedicated to promoting a greater understanding of how the economy works.

Figure 1: U.S. Real Gross Domestic Product in 2005 Dollars and Recession Periods, First Quarter 1947 through Third Quarter 2012



Source: GAO analysis of Bureau of Economic Analysis and National Bureau of Economic Research data.

Although the decline in the U.S. economy's real GDP during the recession may reflect some of the losses associated with the 2007-2009 financial crisis, the decline does not capture the cumulative losses from the crisis. To quantify the overall losses associated with past financial crises, researchers have estimated output losses as the cumulative shortfall between actual GDP and estimates of what GDP would have been if the crisis had not occurred. Measuring the shortfall in GDP in the aftermath of a crisis requires making a number of assumptions, and the measurement will vary depending on what assumptions are used. Figure 2 provides two examples to show how estimates of output losses vary depending on the assumptions used. The output shortfall is shown in the shaded areas of the two examples, with the output shortfall larger in example 2 than in example 1. Important assumptions include the following:

- **Start date of the crisis:** The first assumption involves selecting the date when the crisis began. The start date is shown as the vertical line in examples 1 and 2 and is assumed to be the same. However, researchers have used different assumptions to select the start date of the 2007-2009 financial crisis.[25]

- **The path real GDP would have followed if the crisis had not occurred:** The second assumption involves estimating the counterfactual for the path of GDP—that is, the path that real GDP would have followed in the absence of a crisis.[26] This counterfactual is not observable. Studies have used different assumptions to estimate this path and one approach is to assume that this path would follow a precrisis trend in real GDP growth. For example, one study estimated trend output paths based on average GDP growth for the three years and ten years before the crisis. In figure 2, example 1 assumes a much lower (or less steep) trend rate of GDP growth than example 2. Assuming a higher growth trend results in a larger estimate of output losses.

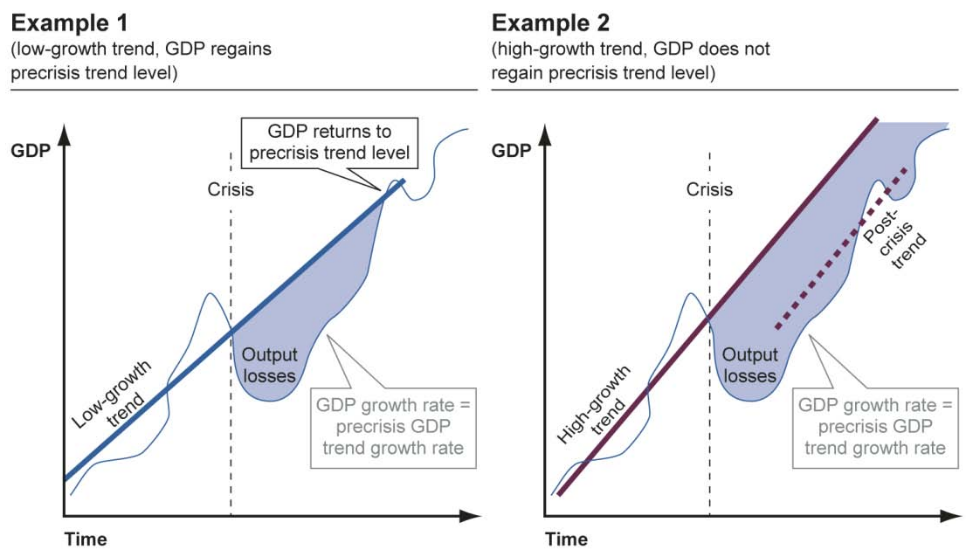
- **Projections of actual GDP:** The third assumption involves determining when GDP regained or will regain its estimated precrisis trend path. With respect to the recent crisis, some studies find that real GDP remains below the estimated precrisis trend. Researchers reach different conclusions about when or whether GDP will regain its long-term trend from before the crisis. Assumptions about the path of actual GDP and how it compares to the potential trend path can reflect different views on whether the output losses from the crisis are temporary or permanent. In contrast to example 1, where the economy regains its precrisis growth rate and level of output, example 2 assumes the economy regains its precrisis rate of output growth but remains permanently below the level of output projected by extrapolating the precrisis growth trend. As a result, output losses in example 2 extend farther into the future and are considerably larger

[25]Many researchers identify August 2007 as the start of the recent financial crisis, when strains appeared in interbank lending markets, but others date the start of the crisis to late 2008, when strains in credit markets intensified and led to the failure or near failure of a number of large financial institutions.

[26]Cecchetti et al. measure output losses by comparing postcrisis levels of GDP with the level of GDP at the onset of the crisis. However, this measure does not account for any growth in GDP that would have been expected to occur in the absence of a crisis. See Stephen G. Cecchetti, Marion Kohler, and Christian Upper, *Financial Crises and Economic activity*, National Bureau of Economic Research, Working Paper 15379 (Cambridge, MA: September 2009).

than in example 1. Some studies describe reasons why financial crises could be associated with permanent output losses. For example, sharp declines in investment during and following the crisis could result in lower capital accumulation in the long-term. In addition, persistent high unemployment could substantially erode the skills of many U.S. workers and reduce the productive capacity of the U.S. economy.

Figure 2: Examples Illustrating Sensitivity of Output Loss Estimates to Key Assumptions



Source: GAO presentation of figure from Basel Committee on Banking Supervision, *An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements* (Basel, Switzerland: August 2010).

Note: Example 2 assumes a higher trend rate of GDP growth than Example 1, resulting in a higher estimate of output losses (shown as the region shaded in grey). In example 1, GDP catches up with its precrisis path, while in example 2 GDP remains on a permanently lower path, albeit one with the same growth rate as that prevailing before the crisis.

Research suggests that U.S. output losses associated with the 2007-2009 financial crisis could range from several trillion to over $10 trillion. In January 2012, the Congressional Budget Office (CBO) estimated that the cumulative difference between actual GDP and estimated potential GDP following the crisis would amount to $5.7 trillion by 2018.[27] CBO defined potential output as the output level that corresponds to a high rate of use of labor and capital. CBO reported that recessions following financial crises, like the most recent crisis, tend to reduce not only output below what it otherwise would have been but also the economy's potential to produce output, even after all resources are productively employed. In its estimate, CBO assumed that GDP would recover to its potential level by 2018, noting that it does not attempt to predict business cycle fluctuations so far into the future. Other studies have reported a wide range of estimates for the output losses associated with past financial crises, with some suggesting that output losses from the recent crisis could persist beyond 2018 or be permanent. In an August 2010 study, a working group of the Basel Committee on Banking Supervision reviewed the literature estimating output losses.[28] According to the Basel Committee working group's review, studies calculating long-term output losses relative to a benchmark (such as an estimated trend in the level of GDP) estimated much larger losses than studies calculating output losses over a shorter time period. In a June 2012 working paper, International Monetary Fund (IMF) economists estimated the cumulative percentage difference between actual and trend real GDP for the 4 years following the start of individual banking crises in many countries.[29] They found a median output loss of 23 percent of trend-level GDP for a historical set of banking crises and a loss of 31 percent for the 2007-2009 U.S. banking crisis. Other researchers who assume more persistent or permanent output losses

[27]CBO calculated this cumulative difference as the sum of the shortfall in output (compared to potential output) for each year that such a shortfall has occurred since the crisis began and the sum of projected shortfalls in the future—specifically, between its 2012 estimate date and 2018, when it projected that output would regain its potential level. See CBO, *The Budget and Economic Outlook: Fiscal Years 2012 to 2022*, (Washington, D.C.: January 2012).

[28]Basel Committee on Banking Supervision, *An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements*, (Basel, Switzerland: August 2010). The Basel Committee on Banking Supervision (Basel Committee) seeks to improve the quality of banking supervision worldwide, in part by developing broad supervisory standards. The Basel Committee consists of central bank and regulatory officials from Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. The Basel Committee's supervisory standards are also often adopted by nonmember countries.

[29]Luc Laevan and Fabian Valencia, *Systemic Banking Crises Database: An Update*, IMF Working Paper, 12/163 (Washington, D.C.: June 2012).

from past financial crises estimate much larger output losses from these crises, potentially in excess of 100 percent of precrisis GDP.[30] While such findings were based on crisis events before 2007, if losses from the 2007-2009 crisis were to reach similar levels, the present value of cumulative output losses could exceed $13 trillion.

Studies that estimate output losses can be useful in showing the rough magnitude of the overall costs associated with the 2007-2009 financial crisis, but their results have limitations. Importantly, real GDP is an imperfect proxy of overall social welfare. As discussed below, real GDP measures do not reveal the distributional impacts of the crisis, and the costs associated with a financial crisis can fall disproportionately on certain populations. In addition, it is difficult to separate out the economic costs attributable to the crisis from the costs attributable to other factors, such as federal government policy decisions before, during, and after the crisis.

2007-2009 Crisis Was Also Associated with Large Declines in Employment, Household Wealth, and Other Economic Indicators

While studies often use output losses to measure the overall costs associated with financial crises, many researchers also discuss trends in unemployment, household wealth, and other economic indicators, such as the number of foreclosures, to provide a more granular picture of the effects of financial crises. As with trends in output losses, it is not possible to determine how much of the changes in these measures can be attributed to the financial crisis rather than to other factors. For example, analyzing the peak-to-trough changes in certain measures, such as home prices, can overstate the impacts associated with the crisis, as valuations before the crisis may have been inflated and unsustainable. The effects of the financial crisis have been wide-ranging, and we are not attempting to provide a comprehensive review of all components of the economic harm. Rather, the following highlights some of the most common types of measures used by academics and other researchers.

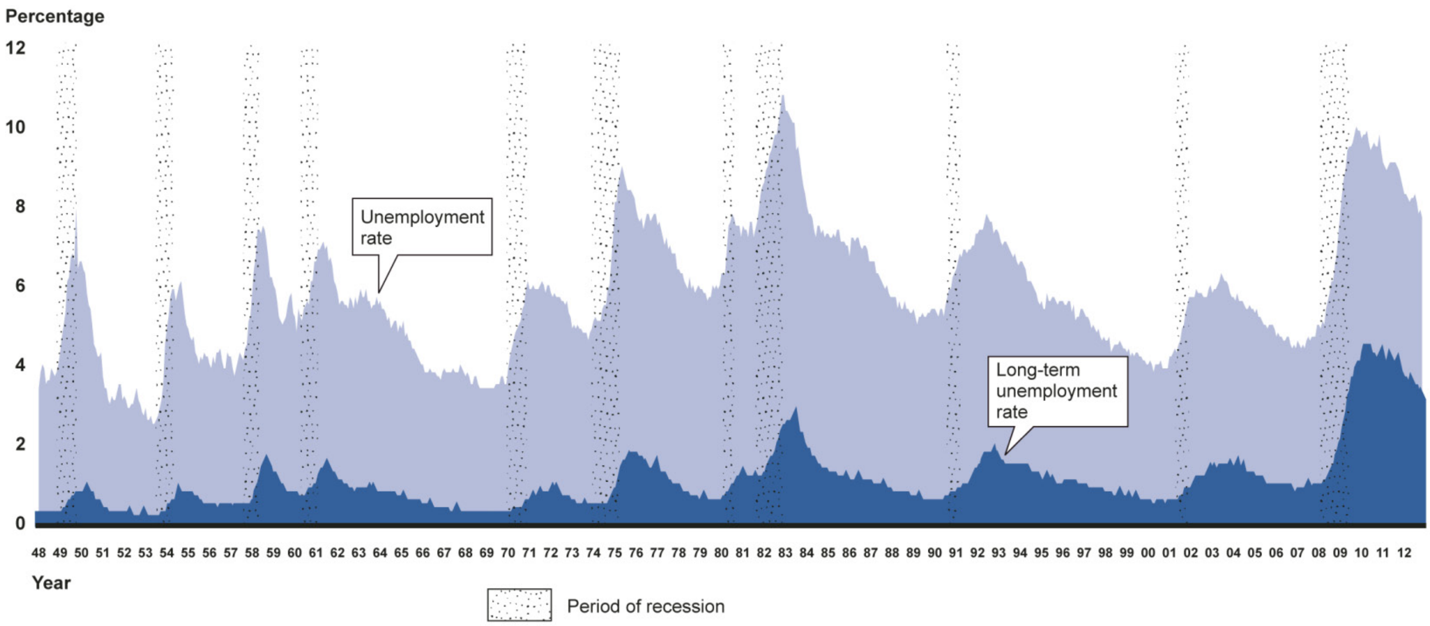
Unemployment

As shown in figure 3, the unemployment rate rose substantially following the onset of the financial crisis and then declined, but it remains above the historical average as of November 2012. The monthly unemployment rate peaked at around 10 percent in October 2009 and remained above 8

[30] See, for example, John H. Boyd, Sungkyu Kwak, and Bruce Smith, "The Real Output Losses Associated with Modern Banking Crises," *Journal of Money, Credit and Banking,* vol. 37, no. 6 (Dec. 2005), pp. 977-999.

percent for over 3 years, making this the longest stretch of unemployment above 8 percent in the United States since the Great Depression.[31] The monthly long-term unemployment rate—measured as the share of the unemployed who have been looking for work for more than 27 weeks—increased above 40 percent in December 2009 and remained above 40 percent as of November 2012.

Figure 3: National Unemployment Rate and Long-Term Unemployed as a Percentage of Labor Force, Seasonally Adjusted, and Recession Periods, 1948 through November 2012



Source: GAO presentation of Bureau of Labor Statistics data.

Persistent, high unemployment has a range of negative consequences for individuals and the economy. First, displaced workers—those who

[31]Persons considered to be marginally attached to the labor force and persons who were employed part time for economic reasons are not counted as unemployed persons in the Bureau of Labor Statistics' (BLS) calculation of the unemployment rate. BLS considers workers who want work and are available for work but who did not actively seek work in the past month as marginally attached to the labor force. BLS defines persons employed part time for economic reasons as those who want and are available for full-time work but have had to settle for a part-time schedule. As of November 2012, total unemployed persons plus these two groups—marginally attached persons and persons working part-time for economic reasons—represented 14.4 percent of the labor force plus those marginally attached to the labor force.

permanently lose their jobs through no fault of their own—often suffer an initial decline in earnings and also can suffer longer-term losses in earnings.[32] For example, one study found that workers displaced during the 1982 recession earned 20 percent less, on average, than their nondisplaced peers 15 to 20 years later.[33] Reasons that unemployment can reduce future employment and earnings prospects for individuals include the stigma that some employers attach to long-term unemployment and the skill erosion that can occur as individuals lose familiarity with technical aspects of their occupation. Second, research suggests that the unemployed tend to be physically and psychologically worse off than their employed counterparts. For example, a review of 104 empirical studies assessing the impact of unemployment found that people who lost their job were more likely than other workers to report having stress-related health conditions, such as depression, stroke, heart disease, or heart attacks.[34] Third, some studies find negative outcomes for health, earnings, and educational opportunities for the children of the unemployed. Fourth, periods of high unemployment can impact the lifetime earnings of people entering the workforce for the first time. For example, one study found that young people who graduate in a severe recession have lower lifetime earnings, on average, than those who graduate in normal economic conditions.[35] In prior work, we reported that long-term unemployment can have particularly serious consequences for older Americans (age 55 and over) as their job loss threatens not only their immediate financial security but also their ability to support

[32] Changes in workers' earnings provide a rough proxy for changes in their knowledge and skills obtained through education and experience—or what is referred to as their "human capital." The decline in earnings for some workers following the crisis could in part reflect other factors, such as their inability to continue working in an industry or occupation where employment has fallen as a result of changes in markets or technologies.

[33] Till von Wachter, Jae Song, and Joyce Manchester, "Long-term Earnings Losses Due to Mass Layoffs During the 1982 Recession: An Analysis Using U.S. Administrative Data from 1974 to 2004" (paper presented at the Institute for the Study of Labor / Centre for Economic Policy Research, 11th Symposium in Labour Economics in Buch, Ammersee, Sept. 17-19, 2009).

[34] McKee-Ryan et al., "Psychological and Physical Well-Being During Unemployment: A Meta-Analytic Study," *Journal of Applied Psychology,* vol. 90, no. 1 (January 2005), 53-76.

[35] Lisa B. Kahn, "The Long-Term Labor Market Consequences of Graduating from College in a Bad Economy," *Labour Economics,* vol. 17, no. 2 (Apr. 2010), 303-316.

themselves during retirement.[36] Persistent high unemployment can also increase budgetary pressures on federal, state, and local governments as expenditures on social welfare programs increase and individuals with reduced earnings pay less in taxes.

Household Wealth and Asset Prices

According to the Federal Reserve's Survey of Consumer Finances, median household net worth fell by $49,100 per family, or by nearly 39 percent, between 2007 and 2010. The survey found that this decline appeared to be driven most strongly by a broad collapse in home prices. Another major component of net worth that declined was the value of household financial assets, such as stocks and mutual funds. Economists we spoke with noted that precrisis asset prices may have reflected unsustainably high (or "bubble") valuations and it may not be appropriate to consider the full amount of the overall decline in net worth as a loss associated with the crisis. Nevertheless, dramatic declines in net worth, combined with an uncertain economic outlook and reduced job security, can cause consumers to reduce spending. Reduced consumption, all else equal, further reduces aggregate demand and real GDP.

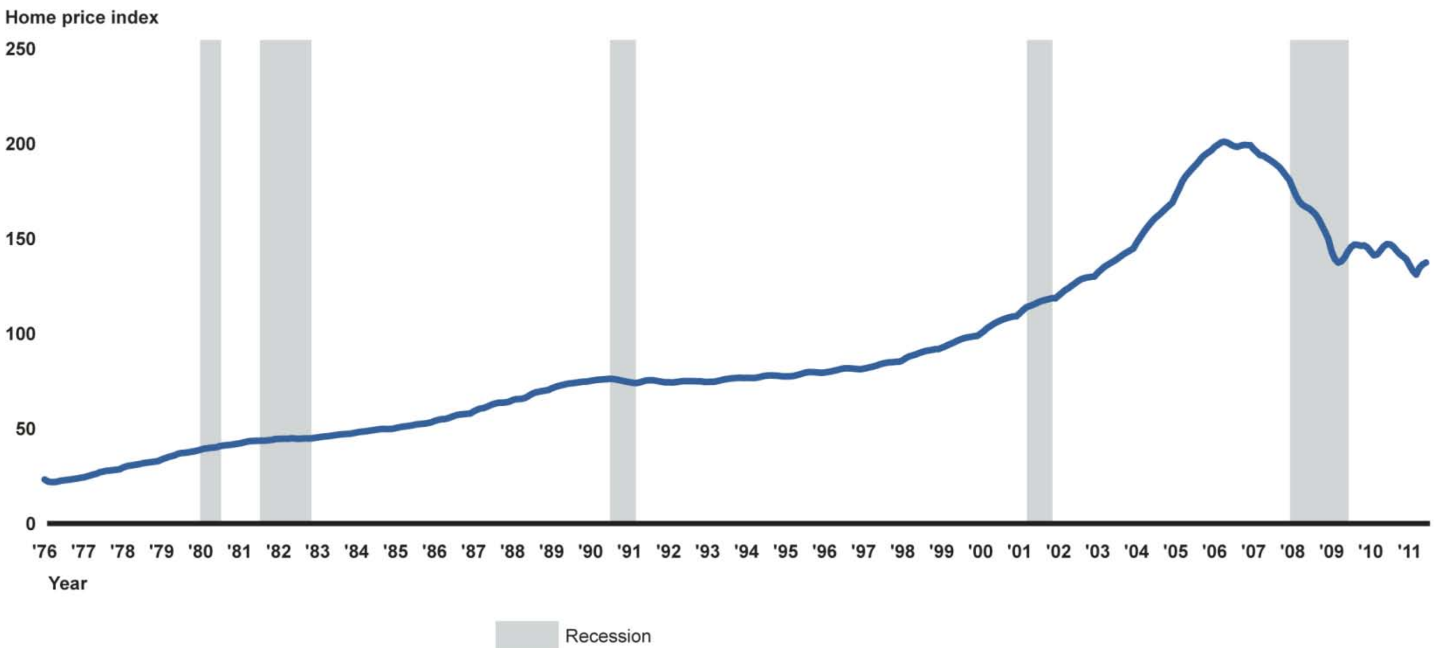
As we reported in June 2012, decreases in home prices played a central role in the crisis and home prices continue to be well below their peak nationwide.[37] According to CoreLogic's Home Price Index, home prices across the country fell nearly 29 percent between their peak in April 2006 and the end of the recession in June 2009 (see fig. 4).[38] This decline followed a 10-year period of significant home price growth, with the index more than doubling between April 1996 and 2006. Since 2009, home prices have fluctuated.

[36]GAO, *Unemployed Older Workers: Many Experience Challenges Regaining Employment and Face Reduced Retirement Security,* GAO-12-445 (Washington, D.C.: Apr. 25, 2012).

[37]GAO, *Foreclosure Mitigation: Agencies Could Improve Effectiveness of Federal Efforts with Additional Data Collection and Analysis*, GAO-12-296 (Washington, D.C.: June 28, 2012).

[38]The CoreLogic Index, like other house price indexes, measures house price changes in a geographic area based on sales of the same properties at different points in time. The use of repeat transactions on the same homes helps to control for differences in the quality of the houses in the data. The CoreLogic index is based on all usable transactions from CoreLogic's public record, servicing, and securities databases of single family attached and detached homes with all types of financing, including prime and nonprime loans.

Figure 4: Home Prices and Recession Periods, January 1976 through June 2011



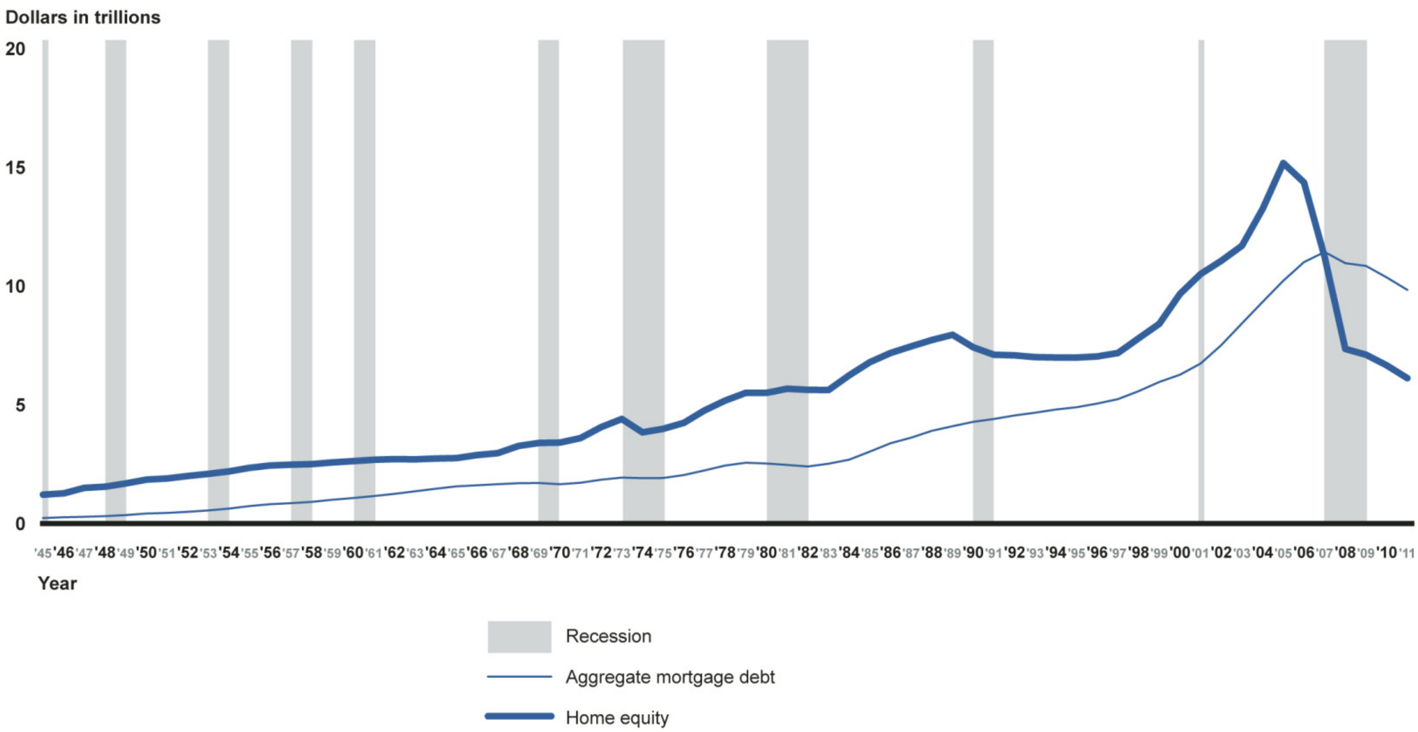
Source: CoreLogic Home Price Index, National Bureau of Economic Research.

Similarly, we also reported that homeowners have lost substantial equity in their homes, because home values have declined faster than home mortgage debt.[39] As shown in figure 5, households collectively lost about $9.1 trillion (in constant 2011 dollars) in national home equity between 2005 and 2011, in part because of the decline in home prices.[40] Figure 5 also shows that between 2006 and 2007, the steep decline in home values left homeowners collectively holding home mortgage debt in excess of the equity in their homes. This is the first time that aggregate home mortgage debt exceeded home equity since the data were kept in 1945. As of December 2011, national home equity was approximately $3.7 trillion less than total home mortgage debt.

[39]See GAO-12-296.

[40]National home equity is the difference between aggregate home value and aggregate home mortgage debt, which is a measure of the value of household-owned real estate debt.

Figure 5: Value of Home Equity and Aggregate Mortgage Debt and Recession Periods, 1945 through 2011

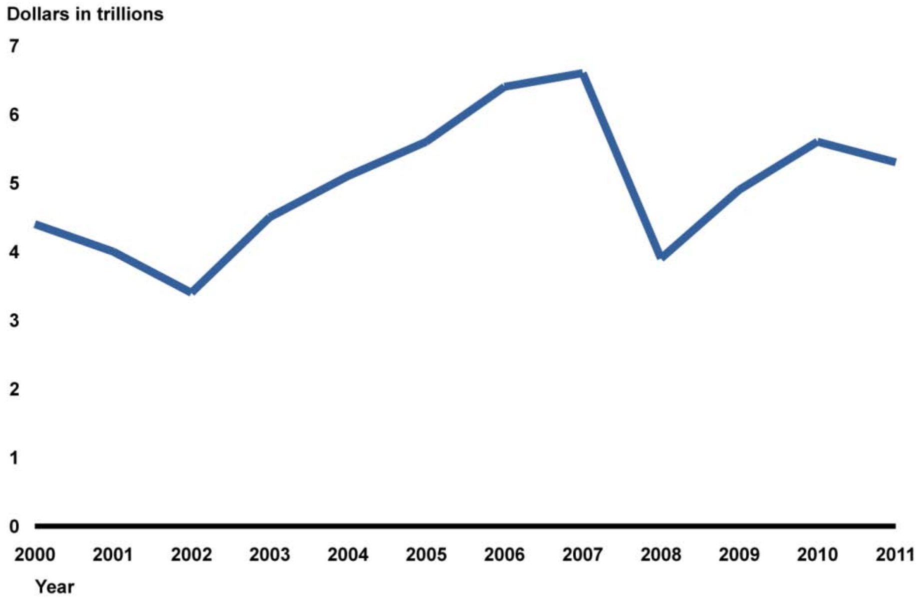


Source: Federal Reserve, Flow of Funds Accounts of the United States; Bureau of Labor Statistics; and National Bureau of Economic Research.

Note: In 2011 constant dollars.

Declines in the value of household investments in stocks and mutual funds also contributed to significant declines in household wealth after the crisis began. In addition to experiencing a decline in the value of their stock and mutual fund investments, households also experienced a decline in their retirement funds. As shown in figure 6, the value of corporate equities held in retirement funds dropped sharply in late 2008. While equity prices and the value of retirement fund assets generally have recovered since 2009, investors and pension funds that sold assets at depressed prices experienced losses. For example, officials from a large pension fund told us that they were forced to sell equity securities at depressed prices during the crisis to meet their liquidity needs. Experts have different views on how the crisis may have changed investors' attitudes towards risk-taking. To the extent that investors are more risk averse and demand higher returns for the risks associated with certain investments, businesses could face increased funding costs that could contribute to slower growth.

Figure 6: Aggregate Value of Corporate Equities Held in Retirement Funds, December 31, 2000, through December 31, 2011



Source: GAO analysis of Federal Reserve Board Flow of Funds data.

Note: This figure includes corporate equities held directly or indirectly through private pension funds and federal, state, and local retirement funds.

Foreclosures

In 2006, the percentage of loans in default or in foreclosure began to increase (see fig. 7).[41] As we previously reported, a number of factors contributed to the increase in loan defaults and foreclosures, including a rapid decline in home prices throughout much of the nation and weak regional labor market conditions in some states where foreclosure rates were already elevated.[42] During the 2007-2009 recession, the elevated unemployment rate and declining home prices worsened the financial circumstances for many families, along with their ability to make their mortgage payments. Foreclosures have been associated with a number

[41]Foreclosure is a legal process that a mortgage lender initiates against a homeowner who has missed a certain number of payments. The foreclosure process has several possible outcomes but generally means that the homeowner loses the property, typically because it is sold to repay the outstanding debt or repossessed by the lender. The legal fees, foregone interest, property taxes, repayment of former homeowners' delinquent obligations, and selling expenses can make foreclosure extremely costly to lenders.

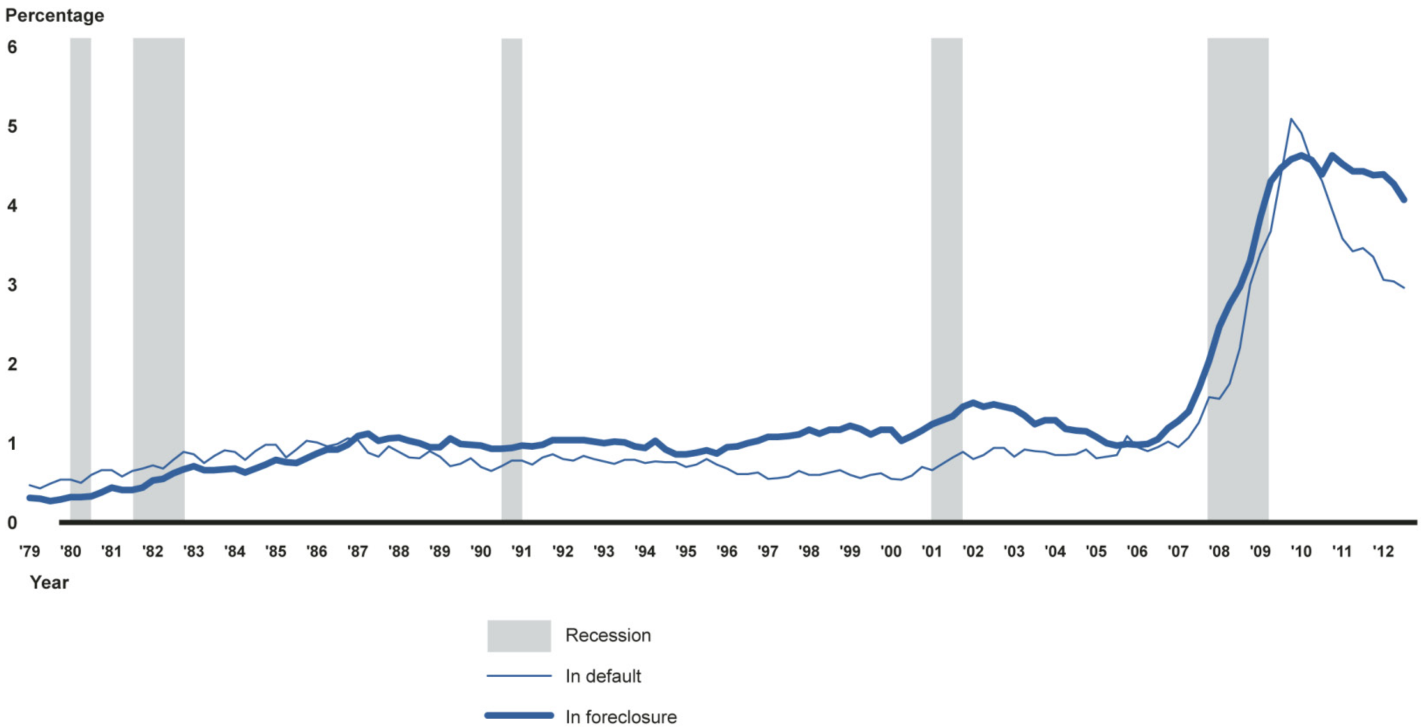
[42]See GAO-12-296.

of adverse effects on homeowners, communities, the housing market, and the overall economy. Homeowners involved in a foreclosure often are forced to move out and may see their credit ratings plummet, making it difficult to purchase another home. A large number of foreclosures can have serious consequences for neighborhoods.[43] For example, research has shown that foreclosures depress the values of nearby properties in the local neighborhood.[44] Creditors, investors, and servicers can incur a number of costs during the foreclosure process (e.g., maintenance and local taxes) and a net loss, if there is a shortfall between the ultimate sales price and the mortgage balance and carrying costs. Large numbers of foreclosures can significantly worsen cities' fiscal circumstances, both by reducing property tax revenues and by raising costs to the local government associated with maintaining vacant and abandoned properties.

[43]See, for example, GAO, *Vacant Properties: Growing Number Increases Communities' Costs and Challenges,* GAO-12-34 (Washington, D.C.: Nov. 4, 2011).

[44]See, for example, Brian A. Mikelbank, "Spatial Analysis of the Impact of Vacant, Abandoned and Foreclosed Properties," study conducted for the Office of Community Affairs, Federal Reserve Bank of Cleveland, 2008; and Kai-yan Lee, "Foreclosure's Price-Depressing Spillover Effects on Local Properties: A Literature Review" (Community Affairs Discussion Paper, Federal Reserve Bank of Boston, 2008).

Figure 7: Percentage of Loans in Default 90 Days or More or in Foreclosure and Recession Periods, March 1979 through September 2012



Source: Mortgage Bankers Association; National Bureau of Economic Research.

Federal, State, and Local Governments Have Faced Increased Fiscal Challenges Since the Start of the 2007-2009 Financial Crisis

Some studies consider measures of fiscal costs—such as increases in federal government debt—when analyzing the losses associated with financial crises. Like past financial crises, the 2007-2009 financial crisis has been associated with large increases in the federal government's debt and heightened fiscal challenges for many state and local governments. Factors contributing to these challenges include decreased tax revenues from reduced economic activity and increased spending associated with government efforts to mitigate the effects of the recession.

Federal Government's Fiscal Challenges

In prior work, we have reported that the economic downturn and the federal government's response caused budget deficits to rise in recent years to levels not seen since World War II.[45] While the structural imbalance between spending and revenue paths in the federal budget predated the financial crisis, the size and urgency of the federal government's long-term fiscal challenges increased significantly following the crisis's onset. From the end of 2007 to the end of 2010, federal debt held by the public increased from roughly 36 percent of GDP to roughly 62 percent. Key factors contributing to increased deficit and debt levels following the crisis included (1) reduced tax revenues, in part driven by declines in taxable income for consumers and businesses; (2) increased spending on unemployment insurance and other nondiscretionary programs that provide assistance to individuals impacted by the recession; (3) fiscal stimulus programs enacted by Congress to mitigate the recession, such as the American Recovery and Reinvestment Act of 2009 (Recovery Act);[46] and (4) increased government assistance to stabilize financial institutions and markets.

While deficits during or shortly after a recession can support an economic recovery, increased deficit and debt levels could have negative effects on economic growth. For example, rising federal debt can "crowd out" private investment in productive capital as the portion of savings that is used to buy government debt securities is not available to fund such investment. Lower levels of private investment can reduce future economic growth. In

[45]GAO, *The Federal Government's Long-Term Fiscal Outlook: January 2011 Update,* GAO-11-451SP (Washington, D.C.: Mar. 18, 2011). For the most recent update, see GAO, *The Federal Government's Long-Term Fiscal Outlook: Fall 2012 Update,* GAO-13-148SP (Washington, D.C.: Dec. 3, 2012).

[46]Pub. L. No. 111-5, 123 Stat. 115 (2009). The federal government's largest response to the recession to date came in early 2009 with the passage of the Recovery Act. Fiscal stimulus programs are intended to increase aggregate demand—the spending of consumers, business firms, and governments—and may be either automatic or discretionary. Unemployment insurance, the progressive aspects of the tax code, and other fiscal stabilizers provide stimulus automatically by easing pressure on household incomes as economic conditions deteriorate. Discretionary fiscal stimulus, such as that provided by the Recovery Act, can take the form of tax cuts for households and businesses, transfers to individuals, grants-in-aid to state and local governments, or direct federal spending. In response, households, businesses, and governments may purchase more goods and services than they would have otherwise, and governments and businesses may refrain from planned workforce cuts or even hire additional workers. Thus, fiscal stimulus may lead to an overall, net increase in national employment and output.

addition, increased debt increases the amount of interest the government pays to its lenders, all else equal. Policy alternatives to offsetting increased interest payments include increasing tax rates and reducing government benefits and services, which also can reduce economic growth. Moreover, increased fiscal challenges could make the United States more vulnerable to a fiscal crisis should investors lose confidence in the ability of the U.S. government to repay its debts. Such a crisis could carry enormous costs because the federal government would face a sharp increase in its borrowing costs.

The following discussion focuses on the costs associated with the federal government's actions to assist the financial sector. Fiscal stimulus programs, such as the Recovery Act, and the Federal Reserve's monetary policy operations were major components of the federal government's efforts to mitigate the recession that coincided with the 2007-2009 financial crisis. However, given our focus on the Dodd-Frank Act reforms, the potential short-term and long-term impacts of these efforts are beyond the scope of this report. Furthermore, our review did not consider the benefits or costs of government policy interventions relative to alternatives that were not implemented.

With respect to the most significant government programs and other actions to assist the financial sector, the following discussion reviews (1) expert perspectives on how these policy responses could have reduced or increased the severity of the financial crisis and the associated economic losses; (2) the potential costs associated with increased moral hazard; and (3) the financial performance (including income and losses) of the largest of these policy interventions.

Federal financial regulators and several academics and other experts we spoke with highlighted several interventions that they maintain likely helped to mitigate the severity of the 2007-2009 financial crisis. These interventions included

- providing emergency funding to support several key credit markets through the Federal Reserve's emergency credit and liquidity programs;[47]

[47]For more information about these emergency programs, see GAO, *Federal Reserve System: Opportunities Exist to Strengthen Policies and Processes for Managing Emergency Assistance*, GAO-11-696 (Washington, D.C.: July 21, 2011).

- extending federal government guarantees to a broader range of private sector liabilities through FDIC's Temporary Liquidity Guarantee Program (TLGP) and Treasury's Money Market Fund Guarantee Program;
- recapitalizing financial firms through Treasury's Troubled Asset Relief Program's Capital Purchase Program; and
- taking actions with respect to individual firms, such as Fannie Mae, Freddie Mac, American International Group (AIG), Citigroup, and Bank of America, to avert further destabilization of financial markets.

Many experts maintain that these large-scale interventions, in combination with other government actions, such as the stress tests, helped to restore confidence in the financial system and bring about a recovery in certain private credit markets in 2009.[48] In contrast, other experts argue that certain federal government actions worsened, rather than mitigated, the severity of the financial crisis. For example, some experts maintain that the federal government's rescue of Bear Stearns but not Lehman Brothers sent a conflicting signal to the market and contributed to a more severe panic. Some experts also have commented that government assistance to the financial and housing sectors may have slowed the economic recovery by preventing a full correction of asset prices. Many experts agree that several (if not all) of the federal government's policy interventions likely averted a more severe crisis in the short-run and that the long-term implications of these interventions remain to be seen.

Experts generally agree that the government actions to assist the financial sector may have increased moral hazard—that is, such actions may have encouraged market participants to expect similar emergency actions in the future, thus weakening private incentives to properly manage risks and creating the perception that some firms are too big to fail. Increased moral hazard could result in future costs for the

[48]In February 2009, to help restore confidence in the financial system, Treasury announced the Financial Stability Plan, which established the Supervisory Capital Assessment Program (SCAP). SCAP, as implemented by the Federal Reserve and other federal banking regulators, was to determine through a stress test whether the largest 19 U.S. bank holding companies had enough capital for the next 2 years (2009-2010) to support their lending activities and survive a second similar economic shock. For more information about the stress tests, see GAO, *Troubled Asset Relief Program: Bank Stress Test Offers Lessons as Regulators Take Further Actions to Strengthen Supervisory Oversight,* GAO-10-861 (Washington, D.C.: Sept. 29, 2010).

government if reduced private sector incentives to manage risks contribute to a future financial crisis.

Although the financial performance of the federal government's assistance to the financial sector can be measured in different ways, most of the federal government's major programs earned accounting income in excess of accounting losses and the net losses for some interventions are expected to be small relative to the overall increase in the federal debt.[49] For example, the Federal Reserve reported that all loans made under its emergency programs that have closed were repaid with interest and does not project any losses on remaining loans outstanding. Under FDIC's TLGP, program participants, which included insured depository institutions and their holding companies, paid fees on debt and deposits guaranteed by the program; these fees created a pool of funds to absorb losses. According to FDIC data, as of November 30, 2012, FDIC had collected $11.5 billion in TLGP fees and surcharges, and this amount is expected to exceed the losses from the program.[50] In contrast, Treasury's investments in Fannie Mae and Freddie Mac under the Senior Preferred Stock Purchase Agreements program represent the federal government's single largest risk exposure remaining from its emergency actions to assist the financial sector.[51] Cumulative cash draws by the GSEs under this program totaled $187.4 billion as of September 30, 2012, and Treasury reported a contingent liability of $316.2 billion for this program as of September 30, 2011.[52] As of September 30, 2012, Fannie Mae and

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[49]Between September 30, 2007, and September 30, 2011, the gross federal debt increased by about $7.1 trillion. In comparison, Fannie Mae and Freddie Mac's cumulative cash draws (net of dividends paid on these draws) under Treasury's Senior Preferred Stock Purchase Agreements program stood at approximately $137 billion as of September 30, 2012. Some academic studies that review the costs of financial crises have found that costs associated with rescuing financial institutions are generally small relative to overall crisis costs. See, for example, Reinhart and Rogoff (2009).

[50]As of December 31, 2011, FDIC estimated losses of $2.2 billion on TLGP guarantees of deposits and reported that it had paid or accrued $152 million in estimated losses resulting from TLGP debt guarantees.

[51]Under the Senior Preferred Stock Purchase Agreements program, Treasury has made funding advances to Fannie Mae and Freddie Mac to ensure that they have sufficient assets to support their liabilities.

[52]This accrued contingent liability is based on the projected draws from Treasury under the Senior Preferred Stock Purchase Agreements program. It is undiscounted and does not take into account any of the offsetting dividends which may be received as a result of those draws.

Freddie Mac had paid Treasury a total of $50.4 billion in dividends on these investments.[53] The amount that Treasury will recoup from these investments is uncertain. Table 2 provides an overview of income and losses from selected federal government interventions to assist the financial sector.

Table 2: Overview of Income and Losses for Selected Federal Government Interventions to Assist the Financial Sector during the 2007-2009 Financial Crisis

Program or Type of Assistance	Dollar Amount	Accounting Income / Losses
Programs with Broad-Based Eligibility		
Federal Reserve System's emergency credit and liquidity programs[a]	> $1 trillion peak loans outstanding[b]	Approximately $19.7 billion in gross interest and fee income as of June 30, 2012, according to estimates published on the Federal Reserve Bank of New York's (FRBNY) website.[c] The Federal Reserve has reported no losses on the programs that have closed. FRBNY projects that the remaining facility with loans outstanding will not incur losses.
FDIC's Temporary Liquidity Guarantee Program		Over $11 billion in total fee income is expected to exceed projected losses of around $2.4 billion.
• Debt Guarantee Program (DGP)	Approx. $345.8 billion (peak debt guaranteed)	All debt guaranteed by DGP was scheduled to mature by the end of 2012. FDIC collected $10.4 billion in DGP income from fees and surcharges. As of Dec. 31, 2011, FDIC reported estimated DGP losses of $152 million and projected that it would pay $682 thousand in interest payments on defaulting DGP-guaranteed notes in 2012.
• Transaction Account Guarantee Program (TAGP)	Approx. $834.5 billion (peak deposits guaranteed)	TAGP closed on Dec. 31, 2010. FDIC collected $1.2 billion in fees. Cumulative estimated losses totaled $2.2 billion as of Dec. 31, 2011.
Treasury's Guarantee Program for Money Market Funds	> $3 trillion money market fund shares guaranteed at $1 per share	$1.2 billion of fee income and no losses. The program closed on Sept. 18, 2009.
Treasury's Capital Purchase Program (CPP)[d]	$204.9 billion disbursed	As of Oct. 31, 2012, Treasury had received almost $220 billion from its CPP investments, exceeding the $204.9 billion it disbursed. Of that disbursed amount, $8.3 billion remained outstanding as of Oct. 31, 2012. As of Sept. 30, 2012, Treasury estimated that CPP would have a lifetime income of approximately $14.9 billion after all institutions exit the program.

[53]Under the current terms of the Senior Preferred Stock Purchase Agreements program, Fannie Mae and Freddie Mac must pay out all of their quarterly profits (if any) to Treasury.

Program or Type of Assistance	Dollar Amount	Accounting Income / Losses
Assistance to Individual Institutions		
Fannie Mae and Freddie Mac (Treasury)	$187.4 billion drawn from Treasury as of Sept. 30, 2012	$316.2 billion contingent liability reported as of Sept. 30, 2011, which is based on the value of projected investments in the GSEs as of this date.
American International Group, Inc. (AIG) (Treasury and Federal Reserve System)[e]	$182 billion peak commitment by Treasury and FRBNY	$17.7 billion total net profit on all FRBNY assistance to AIG. FRBNY was repaid in full on all loans it provided to assist AIG. Treasury's preferred stock investments of $20.3 billion were fully repaid with interest income of $0.9 billion. Treasury's sales of all of its AIG common stock have yielded total proceeds of about $51.6 billion. Together with its preferred stock investments in AIG, Treasury has recouped the total value of its assistance extended to AIG with a net gain of $5.0 billion.
Assistance to Bank of America Corporation and Citigroup, Inc. (Treasury, FDIC, and Federal Reserve System)	$40 billion in additional capital ($20 billion for each firm) and agreements with regulators to protect against larger-than-expected losses on asset portfolios	$4.0 billion in net income earned by Treasury on its investments in Bank of America Corporation and Citigroup, Inc. under its Targeted Investment Program. Bank of America Corporation and Citigroup, Inc. paid fees of $425 million and $50 million, respectively, to federal government parties to terminate the loss sharing agreements, and government parties received $5.3 billion in Citigroup preferred stock.

Source: GAO presentation of information from FDIC, Federal Reserve System, and Treasury documents.

Note: The financial performance of these programs can be measured in different ways. Accounting measures of financial performance have limitations. For example, they do not capture information about whether the interest, dividend, or other income the federal government received provided appropriate compensation for the risks it assumed.

[a]The Federal Reserve System consists of the Board of Governors of the Federal Reserve System (Federal Reserve)—a federal agency—and 12 regional Reserve Banks. The Federal Reserve Bank of New York operated most of the Federal Reserve System's emergency programs. For more information about these emergency programs, see GAO, *Federal Reserve System: Opportunities Exist to Strengthen Policies and Processes for Managing Emergency Assistance*, GAO-11-696 (Washington, D.C.: July 21, 2011).

[b]Total lending under these emergency programs peaked at over $1 trillion in December 2008.

[c]This estimate includes income from the broad-based emergency programs authorized under Section 13(3) of the Federal Reserve Act, the Term Auction Facility, and the swap lines with foreign central banks. See Fleming, "Federal Reserve Liquidity Facilities Gross $22 Billion for U.S. Taxpayers", accessed December 17, 2012, http://libertystreeteconomics.newyorkfed.org/2012/11/federal-reserve-liquidity-facilities-gross-22-billion-for-us-taxpayers.html.

[d]Created in 2008, the Capital Purchase Program was the primary initiative under the Troubled Asset Relief Program to help stabilize the financial markets and banking system by providing capital to qualifying regulated financial institutions through the purchase of senior preferred shares and subordinated debt.

[e]For more information about the assistance to AIG, see GAO, *Troubled Asset Relief Program: Government's Exposure to AIG Lessens as Equity Investments Are Sold*, GAO-12-574 (Washington, D.C.: May 7, 2012).

State and Local Governments

In our prior work, we have described how the national recession that coincided with the 2007-2009 financial crisis added to the fiscal challenges facing the state and local sectors.[54] Declines in output, income, and employment caused state and local governments to collect less revenue at the same time that demand for social welfare services they provide was increasing. During the most recent recession, state and local governments experienced more severe and long-lasting declines in revenue than in past recessions. Because state governments typically face balanced budget requirements and other constraints, they adjust to this situation by raising taxes, cutting programs and services, or drawing down reserve funds, all but the last of which amplify short-term recessionary pressure on households and businesses. Local governments may make similar adjustments, unless they can borrow to make up for reduced revenue. The extent to which state and local governments took such actions was impacted by the federal government's policy responses to moderate the downturn and restore economic growth. Under the Recovery Act, the federal government provided $282 billion in direct assistance to state and local governments to help offset significant declines in tax revenues.

States have been affected differently by the 2007-2009 recession. For example, the unemployment rate in individual states increased by between 1.4 and 6.8 percentage points during the recession. Recent economic research suggests that while economic downturns within states generally occur around the same time as national recessions, their timing and duration vary. States' differing characteristics, such as industrial structure, contribute to these differences in economic activity.

Declines in state and local pension asset values stemming from the 2007-2009 recession also could affect the sector's long-term fiscal position. In March 2012, we reported that while most state and local government pension plans had assets sufficient to cover benefit payments to retirees for a decade or more, plans have experienced a growing gap between assets and liabilities.[55] In response, state and local governments have

[54]GAO, *State and Local Governments: Knowledge of Past Recessions Can Inform Future Federal Fiscal Assistance,* GAO-11-401 (Washington, D.C.: Mar. 31, 2011).

[55]GAO, *State and Local Government Pension Plans: Economic Downturn Spurs Efforts to Address Costs and Sustainability,* GAO-12-322 (Washington, D.C.: Mar. 2, 2012).

begun taking a number of steps to manage their pension obligations, including reducing benefits and increasing member contributions.

The Dodd-Frank Act May Enhance Financial Stability and Provide Other Benefits, with the Extent of the Benefits Depending on a Number of Factors

The Dodd-Frank Act contains several provisions that may benefit the financial system and the broader economy, but the realization of such benefits depends on a number of factors. Our review of the literature and discussions with a broad range of financial market regulators, participants, and observers revealed no clear consensus on the extent to which, if at all, the Dodd-Frank Act will help reduce the probability or severity of a future crisis. Nevertheless, many of these experts identified a number of the same reforms that they expect to enhance financial stability, at least in principle, and help reduce the probability or severity of a future crisis. At the same time, such experts generally noted that the benefits are not assured and depend on, among other things, how regulators implement the provisions and whether the additional regulations result in financial activity moving to less regulated institutions or markets. Several experts also commented that the act also could enhance consumer and investor protections. While estimating the extent to which the act may reduce the probability of a future crisis is difficult and subject to limitations, studies have found statistical evidence suggesting that certain reforms are associated with a reduction in the probability of a crisis.

Several Dodd-Frank Provisions May Help Reduce the Probability or Severity of a Future Crisis, but Uncertainty Exists about Their Effectiveness

Through our review of the literature and discussions with a broad range of financial market regulators, academics, and industry and public interest group experts, we found no clear consensus on the extent to which, if at all, the Dodd-Frank Act will help reduce the probability or severity of a future financial crisis. However, representatives of these groups identified many of the same provisions in the act that they expect to enhance financial stability, at least in principle, and help reduce the probability or severity of a future crisis. These provisions include the following:

- **Creation of FSOC and OFR:** The act created FSOC and OFR to monitor and address threats to financial stability.
- **Heightened prudential standards for systemically important financial institutions (SIFI):** The act requires that all SIFIs be subjected to Federal Reserve supervision and enhanced capital and other prudential standards. SIFIs include bank holding companies with

$50 billion or more in total consolidated assets and nonbank financial companies designated by FSOC for such supervision.[56]

- **Orderly Liquidation Authority:** The act provides regulators with new authorities and tools to manage the failure of a large financial company in a way designed to avoid taxpayer-funded bailouts and mitigate the potential for such failures to threaten the stability of the financial system.
- **Regulation of swaps:** The act establishes a comprehensive regulatory framework for swaps.
- **Mortgage-related and other reforms:** The act includes provisions to modify certain mortgage lending practices, increase regulation of asset-backed securitizations, and restrict proprietary trading by large depository institutions.

Experts had differing views on these provisions, but many expect some or all of the provisions to improve the financial system's resilience to shocks and reduce incentives for financial institutions to take excessive risks that could threaten the broader economy. While acknowledging these potential financial stability benefits, experts generally were cautious in their assessments for several reasons. Specifically, the effectiveness of certain provisions will depend not only on how regulators implement the provisions through rulemaking or exercise their new authorities but also on how financial firms react to the new rules, including whether currently regulated financial activity migrates to less regulated institutions or markets. In addition, a few experts with whom we spoke said that some of the act's provisions could increase systemic risk and, thus, have adverse

[56]While the Dodd-Frank Act does not use the term "systemically important financial institution," this term is commonly used by academics and other experts to refer to bank holding companies with $50 billion or more in total consolidated assets and nonbank financial companies designated by FSOC for Federal Reserve supervision and enhanced prudential standards.

effects on financial stability.[57] Further, it may be neither possible nor necessarily desirable for the Dodd-Frank Act or any other legislation to prevent all future financial crises, in part because of the tradeoff inherent between financial stability and economic growth.

Creation of FSOC and OFR to Monitor and Address Threats to Financial Stability

The 2007-2009 financial crisis highlighted the lack of an agency or mechanism responsible for monitoring and addressing risks across the financial system and a shortage of readily available information to facilitate that oversight.[58] We reported in July 2009 that creating a new body or designating one or more existing regulators with the responsibility to oversee systemic risk could serve to address a significant gap in the current U.S. regulatory system.[59] Before the Dodd-Frank Act's passage, federal financial regulators focused their oversight more on individual financial firms (called microprudential regulation) and less on market stability and systemic risk (called macroprudential regulation). However, the recent crisis illustrated the potential for one financial firm's distress to spill over into the broader financial system and economy. For example, the failures and near-failures of Lehman Brothers, AIG, Fannie Mae, Freddie Mac, and other large financial institutions contributed to the instability experienced in the financial system during the crisis. The crisis also illustrated the potential for systemic risk to be generated and propagated outside of the largest financial firms (such as by money market mutual funds), in part because of interconnections not only

[57]In our March 2009 testimony on credit default swaps, we noted that no single definition for systemic risk exists. Traditionally, systemic risk has been viewed as the risk that the failure of one large institution would cause other institutions to fail. This micro-level definition is one way to think about systemic risk. Recent events have illustrated a more macro-level definition: the risk that an event could broadly affect the financial system rather than just one or a few institutions. *See* GAO, *Systemic Risk: Regulatory Oversight and Recent Initiatives to Address Risk Posed by Credit Default Swaps*, GAO-09-397T (Washington, D.C.: Mar. 5, 2009).

[58]See, for example, Department of the Treasury, *Financial Regulatory Reform, A New Foundation: Rebuilding Financial Supervision and Regulation* (June 2009).

[59]See GAO, *Financial Markets Regulation: Financial Crisis Highlights Need to Improve Oversight of Leverage at Financial Institutions and across System*, GAO-09-739 (Washington, D.C.: July 22, 2009).

between firms but also between markets.[60] According to some academics and other market observers, a significant market failure revealed by the recent crisis was that the market did not discourage individual financial firms from taking excessive risks that could impose costs on others, including the public.[61] Such spillover costs imposed on others are known as negative externalities, and government intervention may be appropriate to address such externalities.

The Dodd-Frank Act established FSOC to provide, for the first time, an entity charged with the responsibility for monitoring and addressing sources of systemic risk.[62] The act also created OFR to support FSOC and Congress by providing financial research and data.[63] FSOC is authorized, among other things, to

- collect information across the financial system from member agencies and other government agencies, so that regulators will be better prepared to address emerging threats;

[60]Money market mutual funds (MMMF) are mutual funds that are registered under the Investment Company Act of 1940, and regulated under rule 2a-7 under that act. In September 2008, following the failure of Lehman Brothers Inc., many MMMFs faced severe liquidity pressures as redemption requests from their investors increased significantly. Many MMMF investors became concerned about potential losses on their investments when they learned that the Reserve Primary Money Fund, a large MMMF that suffered losses on holdings of Lehman Brothers commercial paper, “broke the buck”—that is, the net asset value of the fund dropped below its target value of $1 per share. Regulators became concerned that these pressures on MMMFs could further exacerbate turmoil in the markets. The potential widespread failure of MMMFs threatened systemic financial stability, as these funds were significant investors in many money market instruments, such as financial and nonfinancial commercial paper, floating rate notes, and CDs. Accordingly, regulators feared that a failure of the MMMF industry could have serious repercussions on other institutions and overall credit market conditions, as many businesses and investment vehicles would have had difficulty rolling over their liabilities and potentially been unable to finance their operations. Treasury and the Federal Reserve created temporary programs to assist MMMFs and reduce the likelihood that these funds would reduce their purchases of money market instruments issued by financial institutions.

[61]See, for example, Viral V. Acharya, Thomas Cooley, Matthew Richardson, and Ingo Walter, *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance* (Hoboken, NJ: John Wiley & Sons, Inc., 2011).

[62]The provisions of the Dodd-Frank Act dealing with FSOC are contained primarily in subtitle A of title I, §§ 111–123, *codified* at 12 U.S.C. §§ 5321–5333 and title VIII, codified at 12 U.S.C. §§ 5461–5472.

[63]The provisions of the Dodd-Frank Act dealing with OFR are contained primarily in subtitle B of title I, §§ 151–156, *codified* at 12 U.S.C. §§ 5341–5346.

- designate certain nonbank financial companies for supervision by the Federal Reserve and subject them to enhanced prudential standards;
- designate as systemically important certain financial market utilities and payment, clearing, or settlement activities, and subject them to enhanced regulatory oversight;
- recommend stricter standards for the large, interconnected bank holding companies and nonbank financial companies designated for enhanced supervision;
- vote on any determination by the Federal Reserve that action should be taken to break up a SIFI that poses a "grave threat" to U.S. financial stability;
- facilitate information sharing and coordination among the member agencies to eliminate gaps in the regulatory structure; and
- make recommendations to enhance the integrity, efficiency, competitiveness, and stability of U.S. financial markets, promote market discipline, and maintain investor confidence.

Financial market regulators, academics, and industry and public interest groups with whom we spoke generally view the creation of FSOC and OFR as positive steps, in principle, to address systemic risk and help identify or mitigate a future crisis for several reasons. First, FSOC and its member agencies now have explicit responsibility for taking a macroprudential approach to regulation, along with tools and authority to help identify and address threats to the financial stability of the United States. For example, certain nonbank financial companies posed systemic risk during the crisis but were subject to less regulation than bank holding companies. To close this regulatory gap, FSOC has the authority to designate a nonbank financial company for supervision by the Federal Reserve and subject it to enhanced prudential standards, if the material distress of that firm could pose a risk to U.S. financial stability.[64] In addition, although the Dodd-Frank Act does not address all sources of systemic risk, the act authorizes FSOC to make recommendations to

[64]As we previously reported, the act provided that FSOC may determine whether a nonbank financial company shall be supervised by the Federal Reserve and subject to prudential standards if it determines that material financial distress at the nonbank financial company, or the nature, scope, size, scale, concentration, interconnectedness, or mix of the activities of the company, could pose a threat to the financial stability of the United States. The act lists specific factors for FSOC to consider in making these determinations along with any other risk-related factors it deems appropriate. Bank holding companies with $50 billion or more in total consolidated assets are automatically subject to the Federal Reserve's enhanced supervision and prudential standards. See GAO-12-886 and 77 Fed. Reg. 21,637 (Apr. 11, 2012).

address regulatory gaps or other issues that threaten U.S. financial stability. For example, FSOC's 2011 and 2012 annual reports discuss financial stability threats not directly addressed by the Dodd-Frank Act (e.g., money market mutual funds, tri-party repurchase agreements, and the GSEs) and make recommendations to address some of them.[65] Finally, OFR may play an important role in gathering and analyzing data that FSOC and its members will be able to use to identify and address emerging risks to the financial system. OFR may also facilitate data sharing among the regulators, which may enable regulators to identify risks in areas emerging from beyond their immediate jurisdictions. Market participants also may benefit from the ability to use OFR data to analyze risks.

Experts also identified a number of factors that could limit FSOC's or OFR's effectiveness. First, it is inherently challenging for a regulator to identify and address certain sources of systemic risk. For example, while asset price bubbles often become clear in hindsight, when such risks appear to be building, policymakers may disagree over whether any intervention is warranted. Second, FSOC's committee structure cannot fully resolve the difficulties inherent in the existing, fragmented regulatory structure. For example, FSOC could encounter difficulties coming to decisions or advancing a reform if it faces resistance from one or more of its members. In addition, FSOC's committee structure, including the Treasury Secretary's role as FSOC chair, could subject FSOC's decision making to political influence. According to a number of experts, establishing FSOC and OFR as independent entities could have better insulated them from political pressures that could dissuade them from recommending or taking actions to promote long-term financial stability, if such actions imposed short-term political costs. On the other hand, the selection of the Treasury Secretary as FSOC chair reflects the Treasury Secretary's traditional role in financial policy decisions.

In a recent report, we identified a number of potential challenges for FSOC, some of which are similar to those discussed above.[66] Specifically, we noted that key components of FSOC's mission—to identify risks to U.S. financial stability and respond to emerging threats to stability—are

[65]Financial Stability Oversight Council, *Annual Report*, 2011 and 2012 (Washington, D.C.: July 2011 and July 2012).

[66]See GAO-12-886.

inherently challenging. Risks to the stability of the U.S. financial system are difficult to identify because commonly used indicators, such as market prices, often do not reflect these risks and threats may not develop in precisely the same way as they did in past crises. Although the act created FSOC to provide for a more comprehensive view of threats to U.S. financial stability, it left most of the pre-existing fragmented and complex arrangement of independent federal and state regulators in place and generally preserved their statutory responsibilities. Further, we noted that FSOC does not have the authority to force agencies to coordinate or adopt compatible policies and procedures. However, we also reported that FSOC and OFR have made progress in establishing their operations and approaches for monitoring threats to financial stability, but these efforts could be strengthened. We made recommendations to strengthen the accountability and transparency of FSOC's and OFR's decisions and activities as well as to enhance collaboration among FSOC members and with external stakeholders. In response to our recommendations, Treasury emphasized the progress that FSOC and OFR have made since their creation and noted that more work remains, as they are relatively new organizations.

Heightened Capital and Other Prudential Standards for SIFIs

The 2007-2009 financial crisis also revealed weaknesses in the existing regulatory framework for overseeing large, interconnected, and highly leveraged financial institutions. Such financial firms were subject to some form of federal supervision and regulation, but these forms of supervision and regulation proved inadequate and inconsistent. For example, fragmentation of supervisory responsibility allowed owners of banks and other insured depository institutions to choose their own regulator. In addition, regulators did not require firms to hold sufficient capital to cover their trading and other losses or to plan for a scenario in which liquidity was sharply curtailed. Moreover, the regulatory framework did not ensure that banks fully internalized the costs of the risks that their failure could impose on the financial system and broader economy.

The Dodd-Frank Act requires the Federal Reserve to supervise and develop enhanced capital and other prudential standards for SIFIs, which include bank holding companies with $50 billion or more in consolidated assets and any nonbank financial company that FSOC designates.[67] The act requires the enhanced prudential standards to be more stringent than

[67]Dodd-Frank Act, § 165, 124 Stat. at 1423–1432, *codified at* 12 U.S.C. § 5365.

standards applicable to other bank holding companies and financial firms that do not present similar risks to U.S. financial stability. The act further allows the enhanced standards to increase in stringency based on the systemic footprint and risk characteristics of each firm. The Federal Reserve plans to implement some of its enhanced standards in conjunction with its implementation of Basel III, a new capital regime developed by the Basel Committee on Banking Supervision.[68] The act's provisions related to SIFIs include the following:

- **Risk-based capital requirements and leverage limits:** The Federal Reserve must establish capital and leverage standards, which as proposed would include a requirement for SIFIs to develop capital plans to help ensure that they maintain capital ratios above specified standards, under both normal and adverse conditions. In addition, the Federal Reserve has announced its intention to apply capital surcharges to some or all SIFIs based on the risks SIFIs pose to the financial system.

- **Liquidity requirements:** The Federal Reserve must establish SIFI liquidity standards, which as proposed would include requirements for SIFIs to hold liquid assets that can be used to cover their cash outflows over short time periods.

- **Single-counterparty credit limits:** The Federal Reserve must propose rules that, in general, limit the total net credit exposure of a

[68]The Federal Reserve intends to satisfy some aspects of the Dodd-Frank Act heightened prudential standards rules for bank SIFIs through implementation of the Basel Committee on Banking Supervision standards. The Basel Committee has developed international standards for bank capital for its member economies since the 1980s. The United States, along with nearly all other major economies, agree to comply with international capital standards. Over the past few years, U.S. federal banking regulators have worked with other members of the Basel Committee to strengthen the regulatory capital regime for internationally active banks and develop a framework for a risk-based capital surcharge for the world's largest, most interconnected banking companies. The new regime, known as Basel III, seeks to improve the quality of regulatory capital and introduces a new minimum common equity requirement. Basel III also raises the numerical minimum capital requirements and introduces capital conservation and countercyclical buffers to induce banking organizations to hold capital in excess of regulatory minimums. In addition, Basel III establishes for the first time an international leverage standard for internationally active banks. Federal banking regulators are working to implement the Basel III capital reforms in the United States. The Federal Reserve will separately implement consistent capital and liquidity standards for nonbank financial companies designated for enhanced supervision by FSOC.

SIFI to any single unaffiliated company to 25 percent of its total capital stock and surplus.

- **Risk management requirements:** Publicly traded SIFIs must establish a risk committee and be subject to enhanced risk management standards.

- **Stress testing requirements:** The Federal Reserve is required to conduct an annual evaluation of whether SIFIs have sufficient capital to absorb losses that could arise from adverse economic conditions.[69]

- **Debt-to-equity limits:** Certain SIFIs may be required to maintain a debt-to-equity ratio of no more than 15-to-1.

- **Early remediation:** The Federal Reserve is required to establish a regulatory framework for the early remediation of financial weaknesses of SIFIs in order to minimize the probability that such companies will become insolvent and the potential harm of such insolvencies to the financial stability of the United States.

A broad range of financial market regulators, academics, and industry and public interest group experts generally expect the enhanced prudential standards to help increase the resilience of SIFIs and reduce the potential for a SIFI's financial distress to spill over to the financial system and broader economy. Higher capital levels increase a firm's resilience during times of financial stress because more capital is available to absorb unexpected losses. Similarly, increased liquidity (e.g., holding more liquid assets and reducing reliance on short-term funding sources) can reduce the likelihood that a firm will have to respond to temporary strains in credit markets by cutting back on new lending or selling assets at depressed prices. Increased capital and liquidity levels together can limit the potential for large, unexpected losses in the financial system to disrupt the provision of credit and other financial services to households and businesses, which occurred in the most recent financial crisis. Finally, limiting counterparty credit exposures also can help to minimize spillover effects.

[69]Companies subject to enhanced prudential standards also must conduct annual or semi-annual stress tests of their own, depending on their size.

A number of experts viewed the act's enhanced prudential standards for SIFIs as particularly beneficial, because such institutions pose greater risks to the orderly functioning of financial markets than less systemically significant institutions, and subjecting SIFIs to stricter standards can cause them to internalize the costs of the risks they pose to the system. For example, the Federal Reserve intends to issue a proposal that would impose capital surcharges on SIFIs based on a regulatory assessment of the systemic risk they pose, consistent with a framework agreed to by the Basel Committee.[70] In addition, the Dodd-Frank Act's enhanced prudential standards provisions allow federal regulators to impose more stringent risk management standards and oversight of SIFIs' activities, including by conducting stress tests, to help ensure that weaknesses are addressed before they threaten the financial system. Experts noted that these stricter standards, including the surcharges, could serve as a disincentive to financial firms to become larger or otherwise increase the risks they pose to the broader financial system.

Despite generally supporting an increase in the capital requirements, experts questioned the potential effectiveness of certain aspects of the enhanced prudential standards for SIFIs:

- *Impact on "too-big-to-fail" perceptions:* Experts suggested that the market may view SIFIs as too big to fail, paradoxically giving such firms an implicit promise of government support if they run into financial difficulties. As discussed below, perceptions that SIFIs are too big to fail can weaken incentives for creditors to restrain excessive risk-taking by SIFIs and could give such firms a funding advantage over their competitors. However, others noted that the heightened standards were specifically designed to address these issues and view the act as explicitly prohibiting federal government support for SIFIs. For example, the act revises the Federal Reserve Act to prohibit the Federal Reserve from providing support to individual institutions in financial distress and, as discussed below, the act creates a new option for liquidating such firms.

[70] *See* 77 Fed. Reg. 594 (Jan. 5, 2012).The Basel Committee has reached agreement on a framework for capital surcharges on global systemically important banking organizations that would increase their capital requirements by 1 to 2.5 percentage points, depending on their global systemic footprint. In its enhanced prudential standards proposal, the Federal Reserve announced its intention to issue a proposal implementing capital surcharges in the United States along the international timeline and in line with the framework developed by the Basel Committee.

- *Limits of Basel approach to capital standards:* The Federal Reserve will base its enhanced regulatory capital standards, in part, on Basel's approach, which several experts view as having limitations. They recognized that the Basel III standards address some of the limitations that the financial crisis revealed in the regulatory capital framework, but maintain that Basel III continues to place too much reliance on risk-based approaches to determining capital adequacy.[71] During the 2007-2009 crisis, some banks experienced capital shortages, in part because they suffered large losses on assets that were assigned low risk weights under Basel's standards but posed greater risk than their risk weights. The Basel III framework will increase risk weights for certain asset classes—and includes a leverage ratio as a safeguard against inaccurate risk weights—but experts noted that the potential remains for financial institutions to "game" the Basel risk weights by increasing holdings of assets that carry risk-weights that are lower than their actual risks. In addition, some experts maintain that the Basel standards overall may not provide a sufficient buffer to protect firms during times of stress. However, one regulator noted that the leverage ratio, and the higher requirements for common equity and tier 1 capital called for in the Basel III standards, represent a significant tightening of capital regulation (in combination with the imposition of some higher risk weights and better quality of capital).

Implementation of these SIFI provisions is ongoing. In January 2012, the Federal Reserve proposed rules to implement the enhanced prudential standards, but has not yet finalized all of these rules.[72] In addition, the Federal Reserve and other federal prudential regulators are continuing to

[71]Regulators generally require that banks maintain certain ratios of capital as a share of assets to ensure that they have sufficient capital to absorb losses. Under the Basel approaches, banks may weight certain assets based on their risks, and use these risk-weighted assets to calculate their capital adequacy ratios.

[72]On January 5, 2012, the Federal Reserve published proposed rules to strengthen regulation and supervision of large bank holding companies and systemically important nonbank financial companies. The proposal includes a wide range of measures addressing issues such as capital, liquidity, credit exposure, stress testing, risk management, and early remediation requirements. *See* 77 Fed. Reg. 594. The rules concerning stress testing have been finalized. 77 Fed. Reg. 62,378 (Oct. 12, 2012); 77 Fed. Reg. 62,396 (Oct. 12, 2012). The Federal Reserve has also published a proposed rule for large foreign banking organizations and foreign nonbank financial companies supervised by the Federal Reserve. 77 Fed. Reg. 76,628 (Dec. 28, 2012).

work to implement Basel III.[73] As of December 2012 FSOC had not yet designated any nonbank financial companies for Federal Reserve supervision; the Federal Reserve will subsequently be responsible for developing rules for the heightened capital and other prudential standards for these entities.[74]

Orderly Liquidation Authority

Faced with the impending failure of a number of large financial companies during the 2007-2009 financial crisis, federal financial regulators generally had two options: (1) allowing these companies to file for bankruptcy at the risk of exacerbating the crisis (e.g., Lehman Brothers) or (2) providing such companies with emergency funding from the government at the risk of increasing moral hazard (e.g., AIG). As we previously reported, traditional bankruptcy may not be effective or appropriate for financial companies for a variety of reasons.[75] For example, in bankruptcy proceedings for companies that hold derivatives or certain other qualified financial contracts, creditors may terminate such contracts, even though creditors generally may not terminate other contracts because they are subject to automatic stays. Termination of derivative contracts can lead to large losses for the failed firm and other firms through fire sales and other interconnections.[76] For example, the insolvency of Lehman Brothers had a negative effect on financial stability by contributing to a run on money

[73]The Federal Reserve, FDIC, and OCC published in the *Federal Register* in August 2012 joint notices of proposed rulemaking to implement Basel III, the Standardized Approach for risk-based capital, and revisions to the Advanced Approaches for risk-based capital. *See* 77 Fed. Reg. 52,792 (Aug. 30, 2012); 77 Fed. Reg. 52,888 (Aug. 30, 2012); 77 Fed. Reg. 52,978 (Aug. 30, 2012).

[74]In a recent report, we developed indicators to monitor changes in SIFI characteristics that might be suggestive of the Dodd-Frank Act's impact on these firms. See GAO, *The Dodd-Frank Act: Agencies' Efforts to Analyze and Coordinate Their Rules,* GAO-13-101 (Washington, D.C.: Dec. 18, 2012).

[75]GAO, *Bankruptcy: Complex Financial Institutions and International Coordination Pose Challenges*, GAO-11-707 (Washington, D.C.: July 19, 2011). Certain financial institutions, including insured depository institutions and insurance companies, may not file for protection under the Bankruptcy Code. Broker-dealers may qualify for liquidation, but not reorganization, under either the Bankruptcy Code or the Securities Investor Protection Act of 1970.

[76]Fire sales are the disorderly sale of assets to meet margin requirements or other urgent cash needs. Such a sudden sell-off drives down prices, potentially below their intrinsic value, when the quantities to be sold are large relative to the typical volume of transactions.

market mutual funds and disrupting certain swaps markets.[77] Further, bankruptcy is a domestic legal process that varies by jurisdiction. Thus, the bankruptcy of a financial company with foreign subsidiaries, such as Lehman Brothers, can raise difficult international coordination challenges.

In contrast to the Lehman case, the government provided support to some financial firms, such as AIG, because of concerns that their failures would further disrupt the broader financial system. A number of experts maintain this government assistance increased moral hazard by encouraging market participants to expect similar emergency actions in future crises for large, interconnected financial institutions—in effect, reinforcing perceptions that some firms are too big to fail. The perception of certain firms as too big to fail weakens market discipline by reducing the incentives of shareholders, creditors, and counterparties of these companies to discipline excessive risk taking.[78] For example, creditors and shareholders may not demand that firms they view as too big to fail make adequate disclosures about these risks, which could further undermine market discipline.[79] Perceptions that firms are too big to fail also can produce competitive distortions because companies perceived as 'too big to fail' may be able to fund themselves at a lower cost than their competitors.

The Dodd-Frank Act's Title II provides the federal government with a new option for resolving failing financial companies by creating a process under which FDIC has the authority to liquidate large financial companies, including nonbanks, outside of the bankruptcy process—called orderly liquidation authority (OLA). In general, under this authority, FDIC may be appointed receiver for a financial firm if the Treasury Secretary determines that the firm's failure would have a serious adverse effect on U.S. financial stability. Under OLA, FDIC must maximize the value of the firm's assets, minimize losses, mitigate systemic risk, and minimize moral

[77]Approximately 80 percent of the derivative counterparties to Lehman's primary U.S. derivatives entity terminated their contracts within 5 weeks of Lehman's bankruptcy filing.

[78]Market discipline enables investors and other market participants to constrain the risk taking of financial firms by investing in firms that they view as taking appropriate risks—and withdrawing support for firms engaging in behavior market participants view as excessively risky.

[79]We previously reported that for market discipline to be effective, market participants need access to adequate information about the institutions, and institutions need to have sound risk management systems in place, among other things. See GAO-09-739.

hazard. OLA also establishes additional authorities for FDIC as receiver, such as the ability to set up a bridge financial company and to borrow funds from the Treasury to carry out the liquidation.[80] FDIC can subsequently collect funding for the OLA process from the financial industry after a company has been liquidated.

A range of financial market regulators, academics, and industry and public interest group experts identified a number of ways in which the Dodd-Frank Act's OLA provisions could help mitigate threats to the financial system posed by the failure of SIFIs or other large, complex, interconnected financial companies. First, the OLA framework may be effective in addressing the limitations of the bankruptcy process. For example, experts noted that under OLA, FDIC will be able to control the liquidation process and can temporarily prevent creditors from terminating their qualified financial contracts, the termination of which could prompt fire sales that could be destabilizing.[81] Second, under its rules, FDIC has indicated that it will ensure that creditors and shareholders of a company in OLA will bear the losses of the company. By helping to ensure that creditors and shareholders will bear losses in the event of a failure, OLA could strengthen incentives for creditors and shareholders to monitor these firms' risks. Finally, OLA could help convince market participants that government support will no longer be available for SIFIs, which could increase investors' incentives to demand that SIFIs become more transparent and refrain from taking excessive risks.

[80]GAO, *Bankruptcy: Agencies Continue Rulemaking for Clarifying Specific Provisions of Orderly Liquidation Authority,* GAO-12-735 (Washington, D.C.: July 12, 2012). When FDIC is appointed receiver of the financial company it must liquidate and wind up the affairs of the company, which may involve managing the assets of the company, determining the validity of creditor claims against the company, and paying creditor claims. The act generally requires that all creditors of a financial company with similar priority be treated similarly; however, FDIC has the authority to treat similarly situated creditors differently. In some cases, FDIC may repudiate contracts to which a financial company is a party or may enforce certain contracts that otherwise could have been terminated because of the financial company's insolvency.

[81]FDIC retrospectively examined how it could have used OLA to resolve Lehman Brothers Holdings Inc. and concluded it could have promoted systemic stability and made the shareholders and creditors, not taxpayers, bear the losses. See FDIC, "The Orderly Liquidation of Lehman Brothers Holdings Inc. under the Dodd-Frank Act," *FDIC Quarterly*, vol. 5, no. 1 (2011). Critics of this report have noted, among other things, that the analysis does not acknowledge the widespread weakness in financial markets that affected many financial institutions during the financial crisis.

Experts also identified a number of potential challenges and limitations of OLA. OLA is new and untested, and its effectiveness in reducing moral hazard will depend on the extent to which the market believes FDIC will use OLA to make creditors bear losses of any SIFI failure. Experts identified a conflict between OLA's goal of eliminating government bailouts on one hand and minimizing systemic risk on the other. For example, if FDIC imposes losses on some creditors of a failed SIFI, these losses could cause other SIFIs to fail.[82] In that regard, some experts observed that governments historically have not allowed potentially systemically important financial firms to fail during a crisis and question whether a different outcome can be expected in the future. Moreover, experts questioned whether FDIC has the capacity to use OLA to handle multiple SIFI failures, which might occur during a crisis. Another concern is that OLA will be applied to globally active financial institutions, and how FDIC and foreign regulators will handle the non-U.S. subsidiaries of a failed SIFI remains unclear.

In addition, SIFIs must formulate and submit to their regulators resolution plans (or "living wills") that detail how they could be resolved in bankruptcy should they encounter financial difficulties.[83] Experts noted that resolution plans may provide regulators with critical information about a firm's organizational structure that could aid the resolution process. The plans also could motivate SIFIs to simplify their structures, and this simplification could help facilitate an orderly liquidation. However, other experts commented that while resolution plans may assist regulators in gaining a better understanding of SIFI structures and activities, the plans may not be useful guides during an actual liquidation—in part because of

[82]A related concern focused on whether FDIC may have the discretion to impose losses on creditors that might be larger than the market would expect or to pull in types of creditors not otherwise subject to losses under the Bankruptcy Code. If FDIC acts counter to the market's expectations, the result could be to undermine market confidence in the OLA process.

[83]Dodd-Frank Act, § 165(d), 124 Stat. 1426–1427, *codified at* 12 U.S.C. § 5365(d). As we previously reported (see GAO-11-707) this provision requires each nonbank financial company supervised by the Federal Reserve and each bank holding company with total consolidated assets of $50 billion or more to submit periodically to the Federal Reserve, FDIC, and FSOC a plan for the firm's rapid and orderly resolution in the event of material financial distress or failure. Such a firm also must submit a report on the nature and extent of credit exposures the company has to significant bank holding companies and significant nonbank financial firms and the same types of exposures such firms have to the reporting firm. The Federal Reserve and FDIC have not yet finalized their joint proposed rule to implement the credit exposure reporting requirements.

the complex structures of the institutions or because the plans may not be helpful during a crisis. Resolution plans also may provide limited benefits in simplifying firm structures, in part because tax, jurisdictional, and other considerations may outweigh the benefits of simplification.

FDIC has finalized key OLA rules and is engaged in a continuing process of clarifying how certain aspects of the OLA process would work.[84] For example, FDIC officials have clarified that the OLA process will focus on the holding company level of the firm, and stated that the creation of the bridge institution will help ensure that solvent subsidiaries may continue to function. In addition, FDIC and the Federal Reserve are in the process of reviewing the first set of resolution plans, which were submitted in July 2012.

Regulation of Swaps

Except for credit default swaps (CDS)—a type of derivative used to hedge or transfer credit risk—other over-the-counter (OTC) swaps and derivative contracts generally were not central to the systemwide problems encountered during the financial crisis, according to FSOC.[85] Nonetheless, FSOC noted that OTC derivatives generally were a factor in the propagation of risks during the recent crisis because of their complexity and opacity, which contributed to excessive risk taking, a lack of clarity about the ultimate distribution of risks, and a loss in market confidence. In contrast to other OTC derivatives, credit default swaps exacerbated the 2007-2009 crisis, particularly because of AIG's large holdings of such swaps, which were not well understood by regulators or other market participants. Furthermore, the concentration of most OTC derivatives trading among a small number of dealers created the risk that the failure of one of these dealers could expose counterparties to sudden losses and destabilize financial markets. While some standardized swaps, such as interest rate swaps, have traditionally been cleared through clearinghouses—which stand between counterparties in

[84] FDIC issued a final rule on July 15, 2011 (which took effect on August 15, 2011) to implement certain provisions to resolve covered financial companies, including (i) recoupment of compensation from senior executives and directors; (ii) the clarification of power to avoid fraudulent or preferential transfers; (iii) the priorities of expenses and unsecured claims; and (iv) the administrative process for initial determination of claims. 76 Fed. Reg. 41,626. In addition, FDIC and the Federal Reserve published a final rule on resolution plans on November 1, 2011. 76 Fed. Reg. 67,323. For more information, see GAO-12-735.

[85] FSOC, *Annual Report,* 2011.

assuming the risk of counterparty default—most CDS and most other swaps have been traded in the OTC market where holders of derivatives contracts bear the risk of counterparty default.[86] In addition, swaps traded in the OTC market have typically featured an exchange of margin collateral to cover current exposures between the two parties, but not "initial" margin to protect a nondefaulting party against the cost of replacing the contract if necessary. As of the end of the second quarter of 2012, the outstanding notional value of derivatives held by insured U.S. commercial banks and savings associations totaled more than $200 trillion.[87]

As noted earlier, Title VII of the Dodd-Frank Act, also known as the Wall Street Transparency and Accountability Act of 2010, establishes a new regulatory framework for swaps to reduce risk, increase transparency, and promote market integrity in swaps markets. Among other things, Title VII generally

- provides for the registration and regulation of swap dealers and major swap participants, including subjecting them to (1) prudential regulatory requirements, such as minimum capital and minimum initial and variation margin requirements and (2) business conduct requirements to address, among other things, interaction with counterparties, disclosure, and supervision;[88]

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[86]A derivatives clearinghouse or similar organization enables each party to a derivatives transaction to substitute the credit of the clearinghouse for the credit of the parties, provides for the settlement or netting of obligations from the transaction, or otherwise provides services mutualizing or transferring the credit risk from the transaction. Dealers participate in the derivatives market by quoting prices to, buying derivatives from, and selling derivatives to end users and other dealers.

[87]OCC, *Quarterly Report on Bank Trading and Derivatives Activities, Second Quarter 2012*. According to the report, the four banks with the most derivatives activity held 93.2 percent of all derivatives, while the largest 25 banks accounted for nearly 100 percent of all contracts. OCC noted that changes in notional volumes are generally reasonable reflections of business activity and therefore can provide insight into potential revenue and operational issues. However, the notional amount of derivatives contracts does not provide a useful measure of either market or credit risks.

[88]In general, minimum capital requirements are designed to provide firms with sufficient liquidity to meet unsubordinated obligations to customers and counterparties and sufficient resources to wind down in an orderly manner without the need for a formal proceeding. Minimum margin requirements are generally intended to regulate the amount of credit directed into swaps and related transactions and to help protect swaps entities and their customers from price fluctuations and against losses arising from undue leverage. Minimum margin requirements also can help manage counterparty credit risk.

- imposes mandatory clearing requirements on swaps but exempts certain end users that use swaps to hedge or mitigate commercial risk;[89]
- requires swaps subject to mandatory clearing to be executed on an organized exchange or swap execution facility, which promotes pre-trade transparency (unless no facility offers the swap for trading);[90] and
- requires all swaps to be reported to a registered swap data repository or, if no such repository will accept the swap, to CFTC or SEC, and subjects swaps to post-trade transparency requirements (real-time public reporting of swap data).

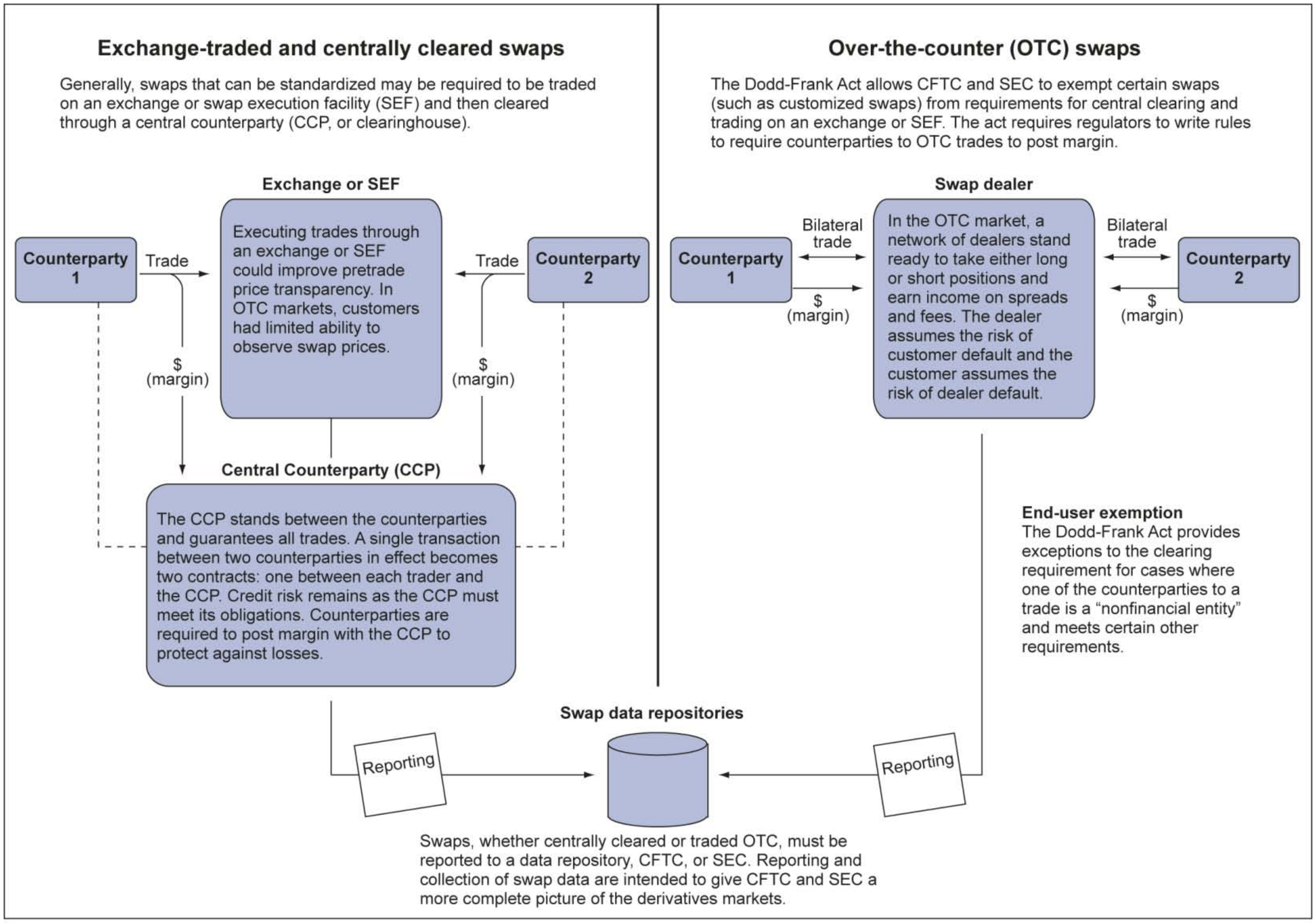
Figure 8 illustrates some of the differences between swaps traded on exchanges and cleared through clearinghouses and swaps traded in the OTC market.[91]

[89] Any entity acting as a clearinghouse, or central counterparty, must register with CFTC, SEC, or both, as appropriate (unless granted an exemption) and is subject to regulatory requirements established by CFTC, SEC, or both, as appropriate.

[90] Organized exchanges and swap execution facilities are subject to comprehensive registration, operational, and self-regulatory requirements.

[91] Clearinghouses use initial and variation margin as a key part of their risk management programs. Initial margin serves as a performance bond against potential future losses. If a clearing member fails to meet its obligations to the clearinghouse (such as failing to pay variation margin when due), resulting in a default, the clearinghouse may use the defaulter's initial margin to cover any loss resulting from the default. Variation margin entails marking open positions to their current market value each day and transferring funds between the clearing members to reflect any change in value since the previous time the positions were marked. This process minimizes the risk that exposures will accumulate over time and thereby reduces the potential impact of a clearing member default and the size of the loss resulting from the default should one occur.

Figure 8: Overview of Clearing, Trading, and Reporting Requirements under Swaps Reforms



Source: GAO analysis of the Dodd-Frank Act.

A broad range of financial market regulators, participants, and observers expect various provisions under Title VII to help promote financial stability, but they also identified potential obstacles or challenges.[92]

[92]In addition to identifying financial stability benefits of Title VII, experts noted that the provisions can provide other benefits to market participants, such as increased market liquidity and lower costs through increased competition and greater transparency.

- **Clearing through clearinghouses:** According to experts, the clearing of swaps through clearinghouses could be beneficial. Clearing can reduce the vulnerability of the financial system to the failure of one or a few of the major swap dealers by transferring credit risk from the swap counterparties to the clearinghouse.[93] By becoming the central counterparty in every trade, a clearinghouse can provide multilateral netting efficiencies to reduce counterparty credit and liquidity risks faced by market participants. Unlike dealers, clearinghouses do not take positions on the trades they clear and may have stronger incentives to develop effective risk management measures and monitor their members' financial condition. In addition, clearinghouses have tools to mitigate counterparty credit risk, for instance, initial and variation margin, as well as the ability to assess their members for additional financial contributions. At the same time, experts have pointed out that clearinghouses concentrate credit risk and thus represent a potential source of systemic risk.[94] For example, a former regulatory official told us that, in her opinion, clearinghouses essentially are too big to fail, given that the Dodd-Frank Act includes provisions mandating centralized clearing of standardized swaps and authorizing the Federal Reserve to provide emergency liquidity to systemically important clearinghouses provided certain conditions are met. Others commented that clearinghouses may be engaged in clearing less standardized or illiquid products, which could pose risk-management challenges for clearinghouses and expose them to greater risks.

- **Margin requirements:** Experts expect the margin requirements for uncleared swaps with swap dealers and major swap participants to help promote financial stability by helping to ensure that market participants have enough collateral to absorb losses. For example, imposing both initial and variation margin requirements on uncleared swaps could help prevent the type of build-up of large, uncollateralized exposures experienced by AIG. Some experts

[93]Counterparty credit risk is the risk to each party in an OTC derivatives contract that the other party will not perform the contractual obligations. Technically, the clearing house members interact with the counterparties.

[94]FSOC has identified certain clearinghouses as systemically important financial market utilities, which are subject to risk management and other enhanced supervisory and prudential requirements under the Dodd-Frank Act and may be afforded access to collateralized emergency liquidity from Federal Reserve Banks in unusual or exigent circumstances.

commented that margin requirements, depending how they are implemented, could have a negative impact on liquidity if there is not a sufficient supply of quality securities that can be posted as collateral to meet margin requirements.

- **Reporting requirements:** Many experts generally expect the swaps reforms that improve transparency to benefit the financial system. For example, the requirement for regulatory reporting of swaps transactions may provide regulators with a better understanding of the current risks in the swaps market and help enhance their oversight of the market. Similarly, public reporting of swap data could benefit market participants by providing them with data on prices and other details about swaps that they can use to better assess their risks. A number of industry representatives noted that the public reporting requirement could lead some market participants to reduce their participation out of fear that others can take advantage of such information. In their view, this could result in a loss of liquidity to the system.

CFTC and SEC have finalized many of the regulations needed to implement Title VII, though several had yet to be finalized as of December 2012. OTC derivatives are globally traded, and many other jurisdictions are in the process of developing new regulatory regimes. However, the United States is one of the first jurisdictions to have enacted legislation in this area. Indeed, the implementation of at least one derivatives-related provision has already been delayed because of the importance of coordinating with international entities. The outcome of the reform process in other jurisdictions will determine the extent to which U.S. firms could be at a competitive advantage or disadvantage. (See app. II for a description of international coordination efforts.)

Mortgage-Related and Other Reforms That Could Enhance Financial Stability

While the previously discussed Dodd-Frank Act provisions were commonly cited as the most important ones for enhancing U.S. financial stability, several financial market regulators, participants, and observers we spoke with identified other provisions that they expect to help enhance financial stability. As with the provisions discussed above, certain key rules implementing the following provisions have not yet been finalized.

- **Mortgage-related reforms:** According to experts, problems in the mortgage market, particularly with subprime mortgages, played a central role in the recent financial crisis, and the act's mortgage-related reforms may help prevent such problems in the future.[95] Some bank and nonbank mortgage lenders weakened their underwriting standards and made mortgage loans to homebuyers who could not afford them or engaged in abusive lending practices before the crisis. These factors, along with the decline in housing prices, contributed to the increase in mortgage defaults and foreclosures. A number of the act's provisions seek to reform the mortgage market—for example, by authorizing CFPB to supervise nonbank mortgage lenders and by prohibiting certain mortgage lending practices, such as issuing mortgage loans without making a reasonable and good faith effort to determine that the borrower has a reasonable ability to repay.[96] Some industry representatives have expressed concerns that these reforms could prevent certain potential homebuyers from being able to obtain mortgage loans. However, other experts noted that before the crisis some loans had rates that did not fully reflect their risks, which contributed to an excess of credit, and the act's reforms may help ensure that loans are accurately priced to reflect risks. Many of the Dodd-Frank Act's mortgage reforms have not yet been implemented through rulemaking.

- **Risk retention for asset securitizations:** According to experts, the securitization of residential mortgages into mortgage-backed securities that subsequently were part of other securitizations also played a central role in the crisis, and the act contains provisions to reform the market.[97] Experts also noted that institutions that created mortgage-backed securities in the lead-up to the crisis engaged in a number of practices that undermined the quality of their securities,

[95]Subprime mortgages generally are made to borrowers with blemished credit and feature higher interest rates and fees than prime loans. We have previously reported that the subprime market experienced substantially steeper increases in default and foreclosure start rates than the prime and government insured markets, accounting for two thirds or more of the overall increase in the number of loans between the second quarter of 2005 and the second quarter of 2007. See GAO, *Information on Recent Default and Foreclosure Trends for Home Mortgage and Associated Economic and Market Developments,* GAO-08-78R (Washington, D.C.: Oct. 16, 2007).

[96]According to the Dodd-Frank Act, a lender is presumed to have satisfied this requirement and receives some protection from liability when it originates a "qualified mortgage" (QM) that meets nine specific criteria, initially set forth in the act, but authorizes CFPB to change these criteria.

[97]A securitization is a financial transaction in which assets, such as mortgage loans, are pooled and securities representing interests in the pool are issued.

including not adequately monitoring the quality of the mortgages underlying their securities, because they did not bear the risk of significant losses if those mortgages defaulted.[98] The act contains provisions that require securitizers of asset-backed securities to retain some "skin in the game" in the form of a certain percentage of the credit risk in asset-backed securities they create.[99] However, experts have different views on the extent to which the level of risk retention for securitizations was central to the problems encountered during the recent crisis, and a few do not view these provisions as potentially beneficial for financial stability. Regulators proposed implementing rules for the provision in 2011 but had yet to finalize the rules as of December 2012.

- **The Volcker rule:** The role that proprietary trading—trading activities conducted by banking entities for their own account as opposed to those of their clients—played in the recent crisis is a matter of debate.[100] However, a number of experts maintain that the ability of banking entities to use federally insured deposits to seek profits for their own account provides incentives for them to take on excessive risks. In particular, some have noted that commercial banks that benefit from the federal financial safety net enjoy access to subsidized capital and thus do not bear the full risks of their proprietary trading activities. To address these concerns, section 619 of the Dodd-Frank Act, referred to as the Volcker rule, generally prohibits a banking entity from engaging in proprietary trading or acquiring or retaining

[98]To securitize mortgage loans, mortgage lenders or originators can either securitize the loans themselves or sell their loans to third parties (some of which are affiliated third parties)—either directly to securitizing institutions or loan aggregators that serve as intermediaries between originators and securitizers—generating funds that could be used to originate more loans. Securitizing institutions include investment banks, retail banks, mortgage companies, and real estate investment trusts.

[99]Dodd-Frank Act, § 941, 124 Stat. at 1890–1896, *codified at* 15 U.S.C. § 78o–11. Specifically, the Dodd-Frank Act requires mortgage securitizers (and certain originating lenders) to retain a financial exposure of no less than 5 percent of the credit risk of any securitized residential mortgage that does not meet a separate set of criteria (to be defined by six federal regulators, excluding CFPB). Securitized mortgages that meet these criteria are exempt from this risk retention requirement, referred to as "qualified residential mortgage" (QRM). The QRM risk retention requirement can be more restrictive than the QM criteria but not less restrictive. 15 U.S.C. § 1639c(b)(2)(A), (3)(B)(i), (c)(1)(B).

[100]See GAO, *Proprietary Trading: Regulators Will Need More Comprehensive Information to Fully Monitor Compliance with New Restrictions When Implemented,* GAO-11-529, (Washington, D.C.: July 13, 2011).

more than a certain maximum percentage of any equity, partnership, or other ownership interest in, or sponsoring, a hedge fund or a private equity fund, among other restrictions involving transactions between covered banking entities and sponsored hedge funds and private equity funds.[101] A number of experts view these restrictions as enhancing financial stability by discouraging excessive risk-taking by these institutions. Others, however, have noted that the Volcker rule, by prohibiting certain proprietary activities of these institutions, could have adverse effects on liquidity and, in turn, the unintended effect of undermining financial stability. In 2011, regulators proposed rules to implement the Volcker rule but had not yet finalized them as of December 2012.

Other Dodd-Frank Provisions May Lead to Additional Consumer and Investor Benefits

Financial market regulators, participants, and observers whom we interviewed also identified provisions that may result in benefits beyond increased financial stability. For example, the act may enhance consumer and investor protections and improve economic efficiency. As with the provisions previously noted, the realization of such benefits will depend, in part, on how regulators implement the provisions. Benefits beyond financial stability that experts highlighted include the following:

- **Enhanced consumer protections:** The Dodd-Frank Act's Title X consolidates rulemaking and other authorities over consumer financial products and services under CFPB. The new agency assumes authority to implement consumer protection laws, such as the Truth in Lending Act and Home Ownership and Equity Protection Act of 1994. CFPB could assist consumers by improving their understanding of financial products and services.[102] For example, experts noted that consumers could benefit from CFPB's efforts, which include providing information on consumer financial products and simplifying

[101]Dodd-Frank Act § 619, 124 Stat. at 1620-1631 *codified at* 12 U.S.C. § 1851. Section 619 of the act requires the federal banking agencies, SEC, and CFTC to promulgate rules implementing the prohibition. 12 U.S.C. § 1851(b). The Volcker Rule also generally prohibits a banking entity from engaging in any permitted activity that, among other things, would involve or result in a material conflict of interest between the banking entity and its customers or that would result in a material exposure to a high-risk asset or trading strategy. 12 U.S.C. § 1851(d)(2)(A)(i).

[102]Board of Governors of the Federal Reserve System and Department of the Treasury Offices of Inspector General, *Review of CFPB Implementation Planning Activities* (Washington, D.C.: July 15, 2011).

disclosures for mortgages, credit cards, and other consumer financial products.

- **Enhanced investor protections:** Certain provisions in the act could provide shareholders with greater influence over, and insight into, the activities of publicly traded companies. For example, the act contains provisions that require shareholder advisory votes on executive compensation, disclosure of the ratio between the chief executive officer's annual total compensation and median annual total compensation for all other employees, and clawback policies for erroneously awarded incentive-based compensation.[103]

- **Improving resource allocation in the economy:** Some experts noted that mortgages and related credit instruments were not accurately priced before the crisis to reflect their risks. As a result, the economy experienced a credit bubble that facilitated a misallocation of resources to the housing sector. For example, one expert noted that residential housing construction during the 2000s was excessive and inefficient. To the extent that the act contributes to a more accurate pricing of credit, the economy could benefit from a more efficient allocation of resources across the broader economy.

Quantifying Potential Benefits Is Difficult, but Some Approaches May Provide Useful Insights

The Dodd-Frank Act's potential benefit of reducing the probability or severity of a future financial crisis cannot be readily observed and this potential benefit is difficult to quantify. Any analyses must be based on assumptions about, or models of, the economy. Consequently, the results of such analyses are subject to substantial uncertainty. Nonetheless, as we noted previously in this report, a working group of the Basel Committee on Banking Supervision summarized several studies that analyze the costs of financial crises, and that used different macroeconomic models of the economy to estimate the impact of more

[103]Dodd-Frank Act, §§ 951, 953, 954, 124 Stat. at 1899–1900, 1903–04, *codified at* 15 U.S.C. §§ 78n–1, 78j–4, 78*l* note. Clawbacks of erroneously awarded incentive-based compensation are recoveries by the company of amounts paid to an employee based on materially inaccurate financial statements. This is money that the executive would not have received if the accounting were done properly and to which the executive was not entitled.

stringent capital and liquidity standards on the annual likelihood of a financial crisis, and the benefits of avoiding associated output losses.[104]

The Basel Committee report suggests that increases in capital and liquidity ratios are associated with a reduction in the probability that a country will experience a financial crisis. Higher capital and liquidity requirements may generate social benefits by reducing the frequency and severity of banking crises and the consequent loss of economic output. The Basel Committee working group found that although there is considerable uncertainty about the exact magnitude of the effect, the evidence suggests that higher capital and liquidity requirements can reduce the probability of banking crises. For example, the models suggest, on average, that if the banking system's capital ratio—as measured by the ratio of tangible common equity to risk-weighted assets—is 7 percent, then a 1 percentage point increase in the capital ratio is associated with a 1.6 percentage point reduction in the probability of a financial crisis—from 4.6 percent to 3.0 percent per year. The working group also found that if the capital ratio was 7 percent, then a 12.5 percent increase in the ratio of liquid assets to total assets in the banking system is associated with a 0.8 percentage point reduction in the probability of a crisis per year, on average. In addition, the incremental benefits of higher capital requirements are greater when bank capital ratios are increased from lower levels and they decline as standards become progressively more stringent. For example, the models suggest, on average, that the reduction in the likelihood of a crisis is three times larger when the capital ratio is increased from 7 percent to 8 percent than it is when the capital ratio is increased from 10 percent to 11 percent. The further away banks are from insolvency, the lower their marginal benefit is from additional protection.

Estimates of the reduced probability of a financial crisis are subject to a number of limitations. For example, researchers note that the reduction in the probability of a crisis depends on the baseline assumptions about the average probability of a crisis before the policy changes—in this case, before the increase in capital requirements. In addition, overall economic conditions, or factors outside of the financial system, also may affect the probability of a financial crisis.

[104]Basel Committee on Banking Supervision, "An Assessment of the Long-Term Economic Impact of Stronger Capital and Liquidity Requirements," Bank for International Settlements (Basel, Switzerland: Aug. 2010).

The Basel Committee working group also summarized the studies' estimates of the potential benefits from higher capital and liquidity requirements in terms of economic output gains that could result from a lower probability of a crisis. The studies used estimates of the costs of a crisis to estimate that a 1 percent decrease in the annual probability of a crisis could have a benefit of 0.2 percent to 1.6 percent per year of increased economic output, depending on the extent to which the crisis losses are temporary or permanent. If, for example, annual GDP were $15 trillion (around the size of U.S. GDP) these estimates suggest that the economic benefit in terms of increased GDP could range from approximately $29 billion to about $238 billion per year. These estimates also are subject to limitations, however. As we previously discussed in this report, estimates of financial crisis losses have varied widely depending on the assumptions made. In addition, these models did not take into account variations in responses to higher capital and liquidity requirements among institutions and regulatory environments.

Given the difficulty of measuring the extent to which the Dodd-Frank Act may reduce the probability of a future crisis, a few academics have proposed a more conceptual approach for comparing the act's potential benefits and costs.[105] According to these experts, the benefits of the act can be framed by determining the percent by which the cost of a financial crisis needs to be reduced to be equal to the act's costs. If the cost of a future crisis is expected to be in the trillions of dollars, then the act likely would need to reduce the probability of a future financial crisis by only a small percent for its expected benefit to equal the act's expected cost. Although an academic told us this thought exercise helped put the benefits and costs of the Dodd-Frank Act into perspective, it provides no insight into whether the act reduces the probability of a future crisis by even a small percent.

[105]See, for example, Steven Schwarcz, "Systemic Risk," *Georgetown Law Journal*, vol. 97: 193-249 (2008).

Significance of the Act's Costs Is Not Fully Known

The Dodd-Frank Act requires federal agencies and the financial services industry to expend resources to implement or comply with its requirements, and some of its reforms are expected to impose costs on the economy. First, federal agencies are devoting resources to fulfill rule-making and other new regulatory responsibilities created by the act. A large portion of these agency resources are funded by fees paid by industry participants or other revenue sources outside of congressional appropriations, limiting the impact of these activities on the federal budget deficit. Second, the act contains a broad range of reforms that generally are imposing or will impose additional regulations and costs on a correspondingly broad range of financial institutions, including banks, broker-dealers, futures commission merchants, investment advisers, and nonbank financial companies. Given the act's focus on enhancing financial stability, large, complex financial institutions will likely bear the greatest costs, but smaller financial institutions and other financial market participants also will incur costs.[106] Third, by imposing costs on the financial services industry, the act also may impose costs on the broader economy and reduce output. For example, financial institutions may charge their customers more for credit or other financial services. While the act's costs can be viewed as the price to be paid to achieve a more resilient financial system and other benefits, some industry representatives question whether the costs, individually or cumulatively, are excessive. Furthermore, observers have also expressed concerns about potential unintended consequences of the act, such as reducing the competitiveness of U.S. financial institutions in the global financial marketplace.

Resources Devoted to the Dodd-Frank Act's Implementation Vary Widely across Federal Agencies

The amount of funding that 10 federal financial entities have reported as associated with their implementation of the Dodd-Frank Act varied significantly from 2010 through 2013, and the amounts have been increasing for some of these entities. Funding resources associated with the Dodd-Frank Act's implementation from 2010 through 2012 ranged from a low of $4.3 million for FHFA to a high of $432.3 million for CFPB (see table 2). In addition, funding associated with the act's implementation increased from 2011 through 2012 for all but one of the agencies, FHFA, and more than doubled for four entities: OFR, FSOC,

[106] See, for example, GAO, *Community Banks and Credit Unions: Impact of the Dodd-Frank Act Depends Largely on Future Rule Makings*, GAO-12-881 (Washington, D.C.: Sept. 13, 2012).

CFPB, and OCC. Three of these four entities—OFR, FSOC, and CFPB—were created through the Dodd-Frank Act and thus are in the process of establishing management structures and mechanisms to carry out their missions. Likewise, according to CFPB and OFR, while some of their funding was used for recurring staffing costs, other funding was used for start-up costs, such as systems development, contractor support, and data purchases. According to FSOC and OFR, the increase in funding is directly proportional to the growth in their staffing and reflects an increase in the size and scope of their organizations. Some new funding resources reported by agencies may represent transfers between entities rather than new funding resources. For example, the large increase in Dodd-Frank-related funding for OCC between 2011 and 2012 reflects OCC's integration of OTS responsibilities and staff, according to OCC officials. In addition, new funding resources for CFPB include some funding resources transferred from the Federal Reserve. In such cases, these new funding resources do not represent an incremental cost of the act's implementation.

Table 3: Summary of 10 Federal Entities' Reported Funding Resources Associated with Implementation of the Dodd-Frank Act, 2010 through 2013

(dollars in millions)

Agency/Entity	2010	2011	2012	2010-2012 Total	2013 Projections
FSOC[a]	$0.0	$2.9	$6.0	$8.9	$8.7
OFRa	0.0	11.3	39.5	50.8	78.1
CFPB[a]	9.2	123.3	299.8	432.3	447.7
Federal Reserve	7.3	62.7	93.1	163.1	Not available
CFTC	0.0	15.4	21.9	37.3	80.0
SEC	0.0	23.5	39.5	63.0	129.0
FDIC	2.3	19.9	38.1	60.3	Not available
FHFA	0.0	2.2	2.1	4.3	2.1
OCC	0.0	34.9	235.0	269.9	Not available
Treasury	0.0	5.6	9.2	14.8	9.4

Source: GAO presentation of data from individual entities.

Note: For 2010, 2011, and 2012, FSOC, OFR, CFPB, and Treasury provided estimates of actual resources expended on Dodd-Frank-related activities, and the other agencies provided estimates of the total resources made available or requested for Dodd-Frank-related activities. Federal Reserve and FDIC data are reported on a calendar year basis, but the other agency data are reported on a fiscal year basis. At the time of this review, the Federal Reserve, FDIC and OCC did not provide projections for 2013.

[a]New entity.

To meet their Dodd-Frank-related responsibilities, federal entities reported that they have hired new staff, redirected staff from other areas, or used staff transferred from other entities. The number of full-time equivalents (FTE) reported by the 10 federal entities as associated with their implementation of the act also varied significantly from 2010 through 2013, and the amounts have been increasing for some entities (see table 3). The entities' estimates of new FTEs related to implementing the Dodd-Frank provisions for 2010 through 2012 ranged from a low of 18 for FHFA to a high of 964 for the Federal Reserve. Some new FTEs reported by agencies represent transfers of staff between agencies rather than new hires. New FTEs for OCC in 2011 include staff transferred from OTS. In addition, new FTEs for CFPB include staff transferred from the agencies whose consumer protection responsibilities were transferred to CFPB. In such cases where new FTEs for an entity have resulted from a transfer of existing regulatory responsibilities between entities, these new FTEs do not represent an incremental cost of the act's implementation.

Table 4: Summary of 10 Federal Entities' Reported New and Redirected Full-Time Equivalents Associated with Implementation of the Dodd-Frank Act, 2010 through 2013

Agency/Entity	2010	2011	2012	2010-2012 Total	2013 Projections
FSOC	0	17	7	24	0
OFR	0	13	47	60	167
CFPB	0	178	653	831	528
Federal Reserve	69	367	528	964	Not available
CFTC	0	121	126	247	268
SEC	0	14	51	65	227
FDIC	0	55	91	146	Not available
FHFA	0	16	2	18	9
OCC	0	133	0	133	0
Treasury	0	33	10	43	3

Source: GAO presentation of data from individual entities.

Note: Federal Reserve and FDIC data are reported on a calendar year basis, and the other agency data are reported on a fiscal-year basis. At the time of this review, the Federal Reserve and FDIC did not provide projections for 2013. OCC reported that 131 FTEs for fiscal year 2011 were transferred from OTS, which the Dodd-Frank Act dissolved as of July 21, 2011. Because these FTEs were already on board at the beginning of fiscal year 2012, they are not considered new Dodd-Frank-related FTEs in fiscal year 2012. OCC also noted that the ongoing aspects of the Dodd-Frank Act, such as rulemakings and participating in FSOC-related activities, have been integrated into the agency's ongoing programs and activities and thus are not shown as separate initiatives related to the act's implementation.

A large portion of the federal entities' resources devoted to the act's implementation are funded by fees paid by regulated institutions or other sources outside the congressional appropriations process, limiting the impact of these activities on the federal budget deficit. Seven of the entities (CFPB, FSOC, OFR, FDIC, FHFA, OCC, and the Federal Reserve) are funded in full through assessments, fees, or other revenue sources and, thus, have not received any congressional appropriations. Moreover, FSOC and OFR are funded by assessments on large bank holding companies and nonbank financial companies designated by FSOC for supervision by the Federal Reserve.[107] SEC receives appropriations, but SEC collects transaction fees and assessments that are designed to recover the costs to the federal government of its annual appropriation. CFPB receives a mandatory transfer of funding from the Federal Reserve, subject to certain limits, but may request discretionary appropriations. Treasury and CFTC are funded through congressional appropriations.[108] Although entities' funding resources and staff have increased due to implementation of the act, these increases are not expected to have a significant impact on the federal deficit. In 2011, CBO estimated that the Dodd-Frank Act would reduce federal deficits by $3.2 billion over the period from 2010 to 2020.[109] CBO projected that the act would increase revenues by $13.4 billion and increase direct spending by $10.2 billion over this period. While CBO's analysis did not consider the potential impacts of the act's reforms on economic growth, its estimates suggest that the size of the act's direct impacts on federal spending is small relative to total federal net outlays of $3.6 trillion in fiscal year 2011. While fees and assessments paid by financial institutions to the federal

[107]FSOC and OFR have not received appropriated funds. During the 2-year period following the enactment of the Dodd-Frank Act, the Federal Reserve provided OFR funds to cover the expenses of the office. Now, OFR is funded through assessments levied on bank holding companies with total consolidated assets of $50 billion or more and nonbank financial companies designated by FSOC for supervision by the Federal Reserve. Until FSOC designates nonbank financial companies, assessments will be levied only against large bank holding companies. The collected assessments are deposited into the Financial Research Fund, which was established within Treasury to fund the expenses of OFR. FSOC's expenses are considered expenses of OFR. 12 U.S.C. §§ 5328, 5345.

[108]Some of Treasury's expenses are funded through statutory provisions that authorize Treasury to spend certain of its receipts.

[109]See D. Elmendorf, CBO, "Review of CBO's Cost Estimate for the Dodd-Frank Wall Street Reform and Consumer Protection Act" (testimony before the Subcommittee on Oversight and Investigations, Committee on Financial Services, U.S. House of Representatives, Washington, D.C., Mar. 30, 2011).

entities help to limit the act's direct impacts on the federal budget deficit, they represent a cost to these institutions and could have indirect impacts on the economy, as discussed later in this report.

In collecting and analyzing this information, we found challenges and limitations that affected our efforts to aggregate the data. For example, agencies told us that their reported funding and FTE resources for 2013 reflect their best estimates of the level of resources required to implement existing and new responsibilities but stated that these estimates were uncertain. As shown in tables 3 and 4, a few agencies did not provide projections for 2013 resources related to the act's implementation. In addition, not all of the federal entities are on a federal fiscal year, so the reported budgetary activities for some entities cover different time frames. Moreover, the entities may have used different approaches to estimate the funding and FTE resources, potentially making the figures harder to compare across entities.

The Act Imposes Costs on the Financial Services Industry but Limited Data Exist on the Magnitude of the Costs

The Dodd-Frank Act's provisions and regulations generally impose or are expected to impose costs on banks and other financial institutions. According to some academics and others, certain types of costs imposed by the act on financial institutions serve to make such institutions internalize costs that they impose on others through their risk-taking and thereby reduce the risk that they pose to the financial system. The extent to which the act imposes costs on financial institutions may vary among not only different types of financial firms (e.g., banks versus nonbank financial companies) but also among the same types of firms (e.g., large banks versus small banks). In discussions with regulators, industry representatives, and other experts, we identified two main categories of financial impacts on financial institutions: (1) increased regulatory compliance and other costs and (2) reduced revenue associated with new restrictions on certain activities.[110] However, as commonly noted by financial firms in their annual reports, the Dodd-Frank Act's full impact on their businesses, operations, and earnings remains uncertain, in part

[110]Compliance costs generally are the costs that firms incur to undertake an activity that they otherwise would not have undertaken in the absence of regulation. Such costs include the costs for regulated firms to hire and train staff, devote staff and management time to compliance activities, hire outside legal or other expertise, and make new investments in information technology or other systems. Compliance costs can include start-up, or one-time, costs (e.g., upgrading computer systems) and recurring costs (e.g., periodic reporting requirements).

because of the rulemakings that still need to be completed. For example, in its 2012 annual report, one large bank holding company noted that it could not quantify the possible effects of the significant changes that were under way on its business and operations, given the status of the regulatory developments. Furthermore, even when the reforms have been fully implemented, it may not be possible to determine precisely the extent to which observed costs can be attributed to the act versus other factors, such as changes in the economy.

Regulatory Compliance and Other Costs

No comprehensive data are readily available on the costs that the financial services industry is incurring to comply with the Dodd-Frank Act. Representatives from financial institutions and industry associations told us that firms generally do not track their incremental costs for complying with the act. Moreover, they said that the piecemeal way that the act is being implemented makes it difficult to measure their regulatory costs. Likewise, none of the industry associations we met with are tracking the incremental costs that their members are incurring to comply with the act. Regulators and others have collected some data on certain compliance costs. Specifically, federal agencies typically estimate the cost of complying with any recordkeeping and reporting requirements of their rules under the Paperwork Reduction Act, but these estimates do not capture other types of compliance costs, which can be more substantial.[111] For example, an SEC rule on asset-backed securities requires issuers of such securities to conduct, or hire a third party to conduct, a review of the assets underlying the securities; this cost is not a paperwork-related cost and thus not included in the compliance costs captured under the Paperwork Reduction Act.[112] In May 2012, the Treasury Secretary asked the Federal Reserve's Federal Advisory Council, a group of bank executives, to prepare a study to provide regulators with more specific examples of the regulatory burdens imposed by the act's reforms.

A number of the Dodd-Frank Act provisions target large financial firms and are expected to increase their compliance or other costs more

[111]See GAO, *Dodd-Frank Act Regulations: Implementation Could Benefit from Additional Analyses and Coordination*, GAO-12-151 (Washington, D.C.: Nov. 10, 2011). OCC reviews potential costs and benefits of each proposed rule in accordance with requirements of the Unfunded Mandates Reform Act, the Regulatory Flexibility Act, and the Congressional Review Act.

[112]76 Fed. Reg. 4231 (Oct. 13, 2010).

significantly than for other financial firms. In particular, several provisions specifically apply to SIFIs, which include bank holding companies with $50 billion or more in total consolidated assets (which we refer to as “bank SIFIs”) and nonbank financial companies designated by FSOC for supervision by the Federal Reserve. Examples of provisions targeting large financial institutions include the following:

- **Enhanced prudential standards:** Higher capital and liquidity requirements can increase funding costs for banks.[113] Studies by the Basel Committee on Banking Supervision, IMF, and Organization for Economic Cooperation and Development estimated that increased capital and liquidity requirements would have modest impacts on funding costs for financial institutions. In contrast, a study by the International Institute of Finance, a global association of financial institutions, found much larger negative impacts. Differences in these studies’ estimates result from differences in certain assumptions. For example, the size of the estimated impact on funding costs depends on assumptions about how much of the increase in banks’ capital levels is due to regulatory reforms rather than other factors. Some researchers have noted that attributing all of the increase in banks’ capital levels to regulatory reforms may overstate the cost impacts of these reforms, because banks likely increased their capital levels, to some extent, in response to market forces after the crisis.

- **Resolution plans:** Regulators and industry officials stated that bank SIFIs have devoted significant staffing resources to developing the required resolution plans and that some plans submitted in July 2012

[113] Higher capital requirements can require banks to increase the portion of their funding that comes from equity capital rather than debt. Heightened liquidity standards can require banks to rely more on longer-term rather than shorter-term debt financing. The results of academic, industry, and other research on the impact of such heightened prudential standards on financial institutions and their customers have varied widely. It generally is more expensive for banks to fund themselves through equity capital (such as by selling stock to investors) than through debt. This is because equity holders are residual claimants and assume more risk than debt holders. In theory, increasing the required proportion of equity funding relative to debt funding should not affect a firm’s overall cost of funding as it reduces the risk that the firm will fail, thereby reducing the returns demanded by both equity and debt holders. However, certain government policies make equity financing (such as through issuing stock to investors) more expensive for financial institutions than debt financing. For example, interest on debt is tax deductible, while dividends on equity securities are not. In addition, bank deposits benefit from federal guarantees and the cost of these liabilities does not fall as capital levels and the perceived safety of the firm increase.

were thousands of pages in length.[114] Regulators estimated that each bank SIFI required to complete a full resolution plan (20 banks) will spend, on average, 9,200 hours to complete the first plan and 2,561 hours to update the plan annually.[115]

- **Stress tests:** In accordance with the act, the Federal Reserve, OCC, and FDIC have issued rules for stress testing requirements for certain bank holding companies, banks, thrift institutions, state member banks, savings and loan companies, and nonbank financial companies FSOC designates for supervision by the Federal Reserve.[116] Bank holding companies with $50 billion or more in assets and nonbank financial companies designated by FSOC will be required to conduct company-run stress tests semi-annually, and the Federal Reserve will be required to conduct stress tests on these companies annually. Financial companies with more than $10 billion but less than $50 billion in assets will be required to conduct company-run stress tests annually as directed by their primary federal banking supervisor. According to industry representatives, stress testing requires newly covered firms to incur significant compliance costs associated with building information systems, contracting with outside vendors, recruiting experienced personnel, and developing stress testing models that are unique to their organization.

- **Regulatory assessments:** The Dodd-Frank Act also increases operating costs for SIFIs and certain large banks through new or higher regulatory assessments. First, under the act, large bank holding companies and nonbank financial companies designated by FSOC for supervision by the Federal Reserve must fund the Financial Research Fund, which funds the operating costs of FSOC and OFR, and certain expenses for the implementation of the orderly liquidation activities of FDIC, through a periodic assessment.[117] The President's

[114]Dodd-Frank Act, § 165(d), 124 Stat. at 1426–1427, *codified at* 12 U.S.C. § 5365(d); 76 Fed. Reg. 67,323 (Nov. 1, 2011).

[115]As discussed earlier, SIFIs must develop annual resolution plans that describe how their institution's failure would proceed through bankruptcy. The rule allows less complex SIFIs to file a tailored resolution plan with reduced information requirements.

[116]77 Fed. Reg. 62,378 (Oct. 12, 2012); 77 Fed. Reg. 62,396 (Oct. 12, 2012); 77 Fed. Reg. 62,417 (Oct. 15, 2012); and 77 Fed. Reg. 61,238 (Oct. 9, 2012).

[117]Dodd-Frank Act, § 155(d), 124 Stat. at 1419, *codified at* 12 U.S.C. § 5345(d); 77 Fed. Reg. 29,884 (May 21, 2012).

fiscal year 2013 budget included estimates of about $158 million for the Financial Research Fund for fiscal year 2013.[118] Second, pursuant to the act, FDIC issued a final rule changing the assessment base for the deposit insurance fund and the method for calculating the deposit insurance assessment rate.[119] According to FDIC, the change in the assessment base shifted some of the overall assessment burden from community banks to the largest institutions, which rely less on domestic deposits for their funding than smaller institutions, but without affecting the overall amount of assessment revenue collected. According to FDIC data, following implementation of the new assessment base, from the first to the second quarter of 2011, total assessments for banks with $10 billion or more in assets increased by $413 million.[120]

In addition to increasing compliance costs for SIFIs and other large financial institutions, Title VII of the Dodd-Frank Act establishes a new regulatory framework for swaps, which is expected to impose substantial compliance and other costs on swap dealers, which generally include large banks, and other swap market participants.

- **Business conduct standards:** Swap dealers and major swap participants will face increased costs to comply with new business conduct standards under the act. These requirements address, among other things, interaction with counterparties, disclosure, reporting, recordkeeping, documentation, conflicts of interest, and avoidance of fraud and other abusive practices. Under CFTC's final rules, swap dealers and major swap participants will need to adopt or amend written policies and procedures, obtain needed representations from counterparties, and determine whether existing counterparty relationship documents need to be otherwise changed or supplemented.

[118] As noted earlier, the Federal Reserve funded the Financial Research Fund through July 20, 2012.

[119] Dodd-Frank Act, §§ 332, 334, 124 Stat. at 1539, *codified at* 12 U.S.C. § 1817; 76 Fed. Reg. 10,672 (Feb. 25, 2011). The deposit insurance fund insures deposits at banks. Deposit insurance fund assessments are insurance assessments collected from its member depository institutions.

[120] After the rule became effective on April 1, 2011, deposit insurance fund assessments for community banks (those with less than $10 billion in assets) decreased in aggregate by $342 million.

- **Clearing, exchange trading, and data reporting:** Changes to the market infrastructure for swaps—such as clearing and exchange-trading requirements—and real-time reporting requirements for designated major swap dealers or major swap participants will require firms to purchase or upgrade information systems. Industry representatives and regulators said that while some compliance costs of the derivatives reforms could be recurring, a large part of these costs will come from one-time upfront investments to update processes and technology. For example, according to industry groups and agency officials, the real-time reporting and swap execution facility technology upgrades for reporting are among the largest technology investment compliance cost areas for derivatives reforms, and costs to develop new reporting technology for firms may vary depending on the compatibility of the new reporting system with the prior system used. In its final rule on real-time reporting of swap data, CFTC estimated that the annual information collection burden on swap dealers and major swap participants would be approximately 260,000 hours.[121]

- **Margin rules:** Swap dealers and end users will incur costs to post the additional collateral required under the new margin rules, including costs to borrow assets to pledge as collateral.[122] For newly raised funds, the net cost would be the difference between the interest rate paid on the borrowed funds and the interest rate earned on the securities purchased to use as collateral. Estimating the incremental costs is difficult, in part because the incremental cost must take into account the extent to which swap dealers in the past, even if they did not require margin explicitly, may have charged end users more to price in a buffer to absorb losses.

Although the Dodd-Frank Act reforms are directed primarily at large, complex U.S. financial institutions, many of the act's provisions are

[121]77 Fed. Reg. 1182 (Jan. 9, 2012).

[122]One study estimates that over half a trillion dollars of net new collateral could be required as a result of moving swaps to clearinghouses. See, for example, M. Singh, *Collateral, Netting and Systemic Risk in the OTC Derivatives Market*, IMF Working Paper, 10/99 (Washington, D.C.: 2010). Swap market participants will face costs associated with funding this additional collateral. Among other options, swap dealers could sell longer-term securities to replace them with lower-yielding government securities that are eligible as collateral. For non-dealers, one option is to borrow funds in order to buy securities to use as collateral.

expected to impose costs on other financial institutions as well. For example, we recently reported that the act's reforms covering residential mortgages, securitizations, executive compensation, and other areas may impose additional requirements and, thus, costs on a broad range of financial institutions, but the magnitude of these costs will depend on, among other things, how the provisions are implemented.[123]

Limitations or Restrictions on Business Activities

In addition to imposing compliance and other costs on financial institutions, the Dodd-Frank Act's provisions may limit or restrict financial institutions' business activities and reduce their revenue or revenue opportunities.[124] Examples of such provisions include the following.

- **Volcker rule:** By generally prohibiting banks from engaging in proprietary trading and limiting their ability to sponsor or invest in hedge and private equity funds, the restrictions could eliminate past sources of trading and fee income for some banks.[125] In addition, according to industry representatives, some banks currently holding private funds face the risk of incurring losses on the investments, if they are required to liquidate such investments at a substantial discount within an allotted period.

- **Swaps reform:** The provisions of the Dodd-Frank Act requiring central clearing and exchange trading of certain swaps could reduce the volume of dealers' higher-profit margin swaps and thereby reduce their revenue. In addition, the margin requirements could reduce the ability of U.S. dealers to compete internationally, according to industry representatives.

- **Single counterparty credit limit:** Section 165(e) of the act directs the Federal Reserve to establish single-counterparty credit limits for SIFIs to limit the risks that the failure of any individual company could

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[123]See GAO-12-881.

[124]Some reforms may reduce revenue or profits for certain financial institutions but benefit other market participants and, thus, may not necessarily result in a net cost to the broader economy. As discussed later in this report, reforms that effect transfers between groups can give rise to economic costs if there are efficiency losses associated with these transfers.

[125]As we previously reported, while bank holding companies earned profits from their proprietary trading operations in most years, in some years they suffered significant losses. See GAO-11-529.

pose to a SIFI. According to industry representatives, the Federal Reserve's proposed rule to implement credit limits would, among other things, require some SIFIs to reduce their derivatives and securities lending activities.

- **Debit card interchange fees:** Under section 1075 of the act (known as the Durbin amendment) the Federal Reserve issued a final rule that places a cap on debit card interchange fees charged by debit card issuers with at least $10 billion of assets.[126] In their SEC filings, several large debit card issuers have estimated lost revenues from the Durbin amendment to be in the hundreds of millions of dollars annually. Similarly, we recently reported that large banks that issue debit cards initially have experienced a decline in their debit interchange fees as a result of the rule but that small banks generally have not.[127] The reduction in debit interchange fees following the adoption of the rule likely has resulted or will result in savings for merchants. However, debit card issuers, payment card networks, and merchants are continuing to react to the rule; thus, the rule's impact has not yet been fully realized.

While the Dodd-Frank Act Could Impose Costs on the Economy, Quantifying Such Costs Is Difficult

Financial markets can channel funds from savers and investors looking for productive investment opportunities to borrowers who have productive investment opportunities but not the funds to pursue them. By serving this financial intermediation function, financial markets can contribute to higher production and efficiency in the economy. Banks and other financial institutions can facilitate transactions between savers and borrowers and reduce the associated costs, as well as provide other financial services and products that contribute to economic growth.[128]

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[126]Dodd-Frank Act, § 1075, 124 Stat. at 2068, *codified at* 15 U.S.C. § 1693o-2; 77 Fed. Reg. 46,258 (Aug. 3, 2012). When a consumer uses a debit card to make an electronic purchase, the merchant does not receive the full purchase amount. Part of the amount (called the merchant discount fee) is deducted and distributed among the merchant's bank, debit card issuer, and payment card network processing the transaction. Historically, the majority of the merchant discount fee was paid from the merchant's bank to the debit card issuer in the form of an interchange fee.

[127]See GAO-13-101 and GAO-12-881.

[128]Financial institutions can help contribute to economic growth by providing financial products and services to businesses and households. For example, they lend funds; transform credits with short term maturities into credits with long-term maturities; provide payment services, investment vehicles, and risk management; and support the functioning of financial markets.

However, according to academics and industry representatives, by imposing higher costs on financial institutions, the Dodd-Frank Act may indirectly impose higher costs on businesses and households and reduce their investment and consumption with a consequent effect on economic output.

Industry representatives, academics, and others generally expect the costs imposed by the act on the economy to be more significant than the act's compliance costs for regulated institutions. At the same time, experts have noted that such costs can be viewed as part of the price to pay to realize the act's potential financial stability and other benefits. For example, reforms that increase safety margins in the financial system—such as by requiring increased capital and collateral to absorb potential losses—represent a tradeoff between lower economic growth in the short term and a lower probability of a financial crisis in the long term. Furthermore, reforms may cause financial market participants to internalize costs that their failure could impose on others through, for example, triggering declines in asset prices and strains in funding markets; thus, such reforms could improve overall economic outcomes. Nevertheless, experts continue to debate whether the economic costs of the act's reforms, individually and cumulatively, could be excessive relative to their potential benefits.

One way through which the Dodd-Frank Act could impose costs on the broader economy is through its reforms that ultimately increase the cost or reduce the availability of credit for households and businesses. All else equal, when credit becomes more expensive or harder to obtain, households may reduce purchases and businesses may reduce investments that are funded by debt. These declines in consumption and investment can reduce GDP. According to academics, industry associations and firms, and others, reforms that could increase the cost or reduce the availability of credit include higher capital and liquidity requirements for financial institutions, the Volcker rule, counterparty credit limits, and mortgage-related provisions.[129]

[129]As discussed earlier in this report, some experts noted that mortgage and related credit instruments were not accurately priced before the crisis to reflect their risks. As a result, the economy experienced a credit bubble that facilitated a misallocation of resources to the housing sector. To the extent that the act's reforms contribute to a more accurate pricing of credit, the economy could benefit from a more efficient allocation of resources.

- **Capital and liquidity requirements:** Higher capital and liquidity requirements for banks can increase their funding and other costs. While banks can respond to these additional costs in a variety of ways, they generally are expected to pass on some of these costs to borrowers by charging higher interest rates on their loans, which could lead to a reduction in output. Some studies have assessed the potential short-term and long-term cost impacts of higher capital and liquidity requirements. Differences in estimates produced by different studies follow from differences in key modeling assumptions.[130] With respect to short-term impacts, studies generally suggest that increasing capital and liquidity requirements for banks will likely be associated with short-term increases in interest rates for borrowers and short-term decreases in lending volumes, output, and economic growth rates during the period over which banks transition to these new requirements, but the magnitudes vary considerably across studies. For example, a Macroeconomic Assessment Group study summarized research by its members on the impact of the transition to the Basel III capital and liquidity requirements and found that interest rates for borrowers are likely to increase and lending volumes are likely to fall during the transition period, but that the ultimate

[130]One key assumption is the choice of baseline levels of capital and liquidity against which changes attributed to financial regulatory reforms are measured. Selecting precrisis levels of capital and liquidity as a baseline could lead to overestimated costs due to financial reforms if financial institutions would have increased capital and liquidity in the absence of such reforms based on lessons learned from the crisis. Other key assumptions relate to the length of the transition period, the responsiveness of bank equity and debt prices to changes in banks' capital and liquidity levels, the responsiveness of lending rates to changes in banks' funding costs, and the extent to which monetary policy can be used to offset any upward pressure on lending rates. For additional discussion of key assumptions that impact estimates of the costs of the act's reforms, see Santos and Elliott, *Estimating the Costs of Financial Regulation,* IMF Staff Discussion Note, September 11, 2012.

reductions in output and growth are likely to be modest.[131] Studies from the IMF and the Organization for Economic Cooperation and Development found broadly similar results.[132] In contrast, a study by the Institute of International Finance estimated the impact of banks' making the transition to meeting Basel III and additional country-specific requirements and found much larger short-term impacts on lending rates, lending volumes, output, and growth rates during the transition period.[133] Studies also suggest that increasing capital and liquidity requirements for banks will likely be associated with long-term or permanent changes in lending rates and output. For example, a Basel Committee working group assessed the long-term impact of higher capital and liquidity requirements and found that they are likely to be associated with modest long-term increases in lending spreads and modest long-term reductions in output.[134] An IMF study found similar results.[135]

- **Volcker rule:** Some experts and industry representatives have expressed concern that the Volcker rule's restriction on proprietary

[131]This study estimated that a 1 percentage point increase in the target ratio of tangible common equity to risk-weighted assets would lead to a maximum decline in the level of GDP of about 0.19 percent from the baseline path, which would occur 4 ½ years after the start of implementation (equivalent to a reduction in the annual growth rate of 0.04 percentage points over this period), followed by a gradual recovery of growth towards the baseline. See Macroeconomic Assessment Group, *Interim Report: Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements*, Bank for International Settlements, (Basel, Switzerland: August 2010), and Macroeconomic Assessment Group, *Final Report: Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements*, Bank for International Settlements, (Basel, Switzerland: December 2010). The Macroeconomic Assessment Group was established by the Financial Stability Board and the Basel Committee on Banking Supervision and includes central banks and banking regulators from 15 countries, as well as several multilateral organizations.

[132]See Scott Roger and Francis Vitek, *The Global Macroeconomic Costs of Raising Bank Capital Adequacy Requirements*, IMF Working Paper WP/12/44, February 2012, and Patrick Slovik and Boris Cournède, *Macroeconomic Impact of Basel III*, OECD Economics Department Working Paper No. 844, OECD Publishing, 2011.

[133]See Institute of International Finance, *The Cumulative Impact on the Global Economy of Changes in the Financial Regulatory Framework*, September 2011.

[134]Basel Committee on Banking Supervision, *An Assessment of the Long-term Economic Impact of Stronger Capital and Liquidity Requirements*, Bank for International Settlements (Basel Switzerland: August 2010).

[135]Santos and Elliott, *Estimating the Costs of Financial Regulation*.

trading by banks could reduce market liquidity and increase the cost of raising funds in the securities markets and thus reduce output. As we previously reported, some market observers maintain that restrictions on proprietary trading by banks under the Volcker rule may reduce the amount of liquidity in the securities markets, depending on how the restrictions are implemented.[136] For example, the rule could reduce the amount of market-making provided by banks for certain debt securities and ultimately result in higher borrowing rates for corporations, state and local governments, or others that use debt securities to help finance their activities.[137] A study sponsored by an industry association estimated that the Volcker rule could increase annual borrowing costs for debt securities issuers by billions of dollars, and reduce liquidity in a wide range of markets, and consequently, to some extent, impede the ability of businesses to access capital through increases in cost of funds to borrowers.[138] However, other experts have asserted that the study's estimate is too high, in part because they believe it understates the potential for other firms to fill the gap left by banks and provide liquidity to the market.

- **Single counterparty credit limit:** According to industry representatives, the Federal Reserve's proposed single counterparty credit limit rule could restrict the ability of SIFIs to engage in derivatives transactions with each other to hedge risk. In turn, such interference could reduce market liquidity and result in higher funding, hedging, and transaction costs for businesses.

- **Mortgage-related reforms:** The act's provisions regulating the underwriting of mortgages also could restrict the availability of mortgage loans and raise mortgage costs for some homebuyers.[139]

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[136] GAO-11-529.

[137] For example, industry groups have expressed concern that strict enforcement of the Volcker rule could cause banks to reduce or withdraw from client-driven trading activities, such as making markets in certain securities (which entails standing ready to buy and sell a security from a client even when there is no other client to take the opposite side of the trade) and providing hedging services to clients. While some have attempted to estimate the impacts of the Volcker rule, these estimates are based on assumptions about how it will be implemented, which may differ significantly from how it is actually implemented.

[138] Oliver Wyman, "The Volcker Rule Restrictions on Proprietary Trading: Implications for Market Liquidity" (Feb. 2012).

[139] GAO, *Mortgage Reform: Potential Impacts of Provisions in the Dodd-Frank Act on Homebuyers and the Mortgage Market*, GAO-11-656 (Washington, D.C.: July 19, 2011).

For example, the act amends the Truth in Lending Act to prohibit lenders from making mortgage loans without regard to borrowers' ability to repay them. As described earlier in this report, lenders may comply with the ability-to-repay standard by originating qualified mortgages that meet criteria that will be finalized by CFPB in rulemaking. In addition, securitized mortgages that meet certain criteria and which are referred to as "qualified residential mortgages" (QRM), are exempt from the act's risk retention requirements. While there is general agreement that new Dodd-Frank rules should restrict certain types of risky loans and loan products that proliferated in the lead-up to the crisis, many market observers have expressed concern that these restrictions could go too far. For example, some mortgage industry representatives have raised concerns that including overly restrictive requirements for loan-to-value and debt service-to-income ratios in the qualified residential mortgage criteria could restrict the availability of mortgages to lower-income borrowers.[140]

Measuring the costs of financial regulation to the broader economy is challenging because of the multitude of intervening variables, the complexity of the global financial system, and data limitations. Many of the rules implementing the act's reforms have not been finalized, and it is difficult to predict how regulated institutions will respond to the act's reforms. For example, the extent to which regulated institutions pass on a portion of their increased costs to their customers may be impacted by competitive forces or other factors. Furthermore, even when the reforms have been fully implemented, it may not be possible to determine precisely the extent to which observed costs can be attributed to the act versus other factors, such as changes in the economy. Differences in assumptions about the appropriate baseline for comparison can lead to significant variation in estimates of the act's impacts. As discussed below, other sources of uncertainty, such as the potential for regulatory arbitrage, add to the challenges of estimating the act's potential costs.

Some of the act's reforms have the effect of transferring wealth across groups and may create economic costs if they result in resources being deployed less efficiently. For example, new assessments to fund the

[140]The loan-to-value ratio is the loan amount divided by the value of the home at mortgage origination. As the required loan-to-value ratio falls, the required borrower down payment increases. The debt-service-to-income ratio represents the percentage of a borrower's income that goes toward all recurring debt payments, including mortgage payments.

Financial Research Fund, which funds the operating costs of FSOC, OFR, and certain expenses for the implementation of the orderly liquidation activities of FDIC, represent an economic transfer from bank holding companies to the Financial Research Fund. In addition, as noted previously, changes in the deposit insurance fund assessment base shift some of the overall assessment burden from smaller banks to the largest institutions without affecting the overall amount of assessment revenue collected. Similarly, while the Durbin amendment has reduced revenues from interchange fees for large debit card issuers, these lost revenues will be offset to some extent by financial benefits to merchants who will pay lower interchange fees. Predicting the extent to which such transfers across groups could reduce economic growth is difficult, in part because how financial institutions will respond to these changes is unclear. For example, financial institutions could respond to increased assessment burdens or reduced revenue streams by cutting other expenses or increasing fees and other costs for their customers. Some market observers have noted that some financial institutions have increased fees on certain services, such as bank checking accounts, to compensate for lost revenues and increased fee assessments from the act. However, financial institutions' business strategies are impacted by a wide range of factors, and determining the extent to which such increased fees can be attributed to the Dodd-Frank Act is difficult.

The Potential for Unintended Consequences Adds to Challenges of Assessing Benefits and Costs

Academics, industry representatives, and others we spoke with also have expressed concern about the potential for the Dodd-Frank Act's reforms to have unintended consequences that could harm U.S. economic growth or the global competitiveness of U.S. financial markets.[141] Experts have a wide range of views on the act's potential to enhance financial stability, with some maintaining that certain reforms could make the financial system more vulnerable to a crisis. For example, some experts suggest that higher capital, liquidity, and collateral requirements will cause regulated institutions to increase significantly their holdings of relatively safe and liquid securities, such as U.S. Treasuries. Such an outcome could inflate the value of such securities and result in large losses if there were a sharp correction in the securities' valuation.

[141] See, for example, Federal Financial Analytics, Inc., "Strategic Regulatory Landscape: Regulatory Intent versus Policy and Market Risk in Financial-Services Industry – Capital, Liquidity, Risk Management and Related Prudential Requirements" (October 2012).

In addition, experts raised concerns about the potential for certain reforms to cause financial activities to shift to less regulated or unregulated markets and pose risks to U.S. financial stability. Of particular concern is the potential for increased regulation of U.S. financial markets to cause financial activities in the United States to move to foreign jurisdictions with less stringent regulations. For example, some academics and industry groups contend that if the United States imposes new margin requirements on swaps before other countries, the swap business could migrate to countries with lower margin requirements. Similarly, industry representatives have raised concerns about the potential for the Volcker rule and single counterparty credit limit to disadvantage U.S. financial institutions relative to foreign competitors that will be permitted to engage in proprietary trading activities outside the United States. While acknowledging these concerns and the need for harmonizing international regulatory standards, regulators noted that it can be advantageous for the United States to be the leader in implementing new regulatory safeguards. For example, when financial institutions are more resilient to unexpected shocks, they can continue to provide loans and other financial services that are important to economic growth, even during periods of market turmoil.

These potential unintended consequences add to the challenge of assessing the costs and full impacts of the Dodd-Frank Act. Currently, the act is imposing costs on the financial services industry that could contribute to slower economic growth. At the same time, the act may help reduce the probability or severity of a future financial crisis, which would benefit the economy by preventing or mitigating crisis-related costs. However, the Dodd-Frank Act remains untested in a number of areas, has yet to be fully implemented, and leaves unresolved certain potential sources of system risk, such as money market funds and the tri-party repo market. As noted earlier, because the costs associated with a financial crisis can total trillions of dollars, the Dodd-Frank Act might need to reduce the probability of a crisis by only a small fraction for its benefits to equal its costs. Whether the act can achieve that outcome is unknown. As the impact of the act's multitude of provisions, individually or cumulatively, materializes, their benefits and costs will become more fully known and understood—enabling policy makers and regulators to revise the requirements, as needed, to achieve the appropriate balance between the act's benefits and costs to the U.S. economy.

Agency Comments

We provided a draft of this report to CFPB, CFTC, FDIC, the Federal Reserve, FSOC, OCC, OFR, Treasury, and SEC for their review and comment. We also provided excerpts of the draft report for technical comment to FHFA. All of the agencies provided technical comments, which we have incorporated, as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to CFPB, CFTC, FDIC, FHFA, the Federal Reserve, FSOC, OCC, OFR, Treasury, and SEC, interested congressional committees, members, and others. In addition, this report will be available at no charge on our web site at http://www.gao.gov.

Should you or your staff have questions concerning this report, please contact me at (202) 512-8678 or clowersa@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix IV.

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Appendix I: Objectives, Scope, and Methodology

The objectives of our report were to examine what is known about (1) the losses and related economic impacts associated with the 2007-2009 financial crisis; (2) the benefits of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act), particularly its key financial stability provisions, for the U.S. financial system and broader economy; and (3) the costs associated with the act, particularly its key financial stability provisions.

To address our first objective, we reviewed and analyzed studies by regulators and academics. We conducted searches of social science, economic, and federal research databases, including EconLit, Google Scholar, and JSTOR, to identify relevant studies that examine the losses associated with the 2007-2009 financial crisis. To help us identify relevant studies, we also relied on federal agencies and academic and other experts. Although we found these studies to be sufficiently reliable for the purposes of our report, the results should not necessarily be considered as definitive, given the potential methodological or data limitations contained in the studies individually or collectively. In addition, we reviewed our prior work that addresses economic impacts associated with the crisis, including the impacts on the fiscal challenges faced by federal, state, and local governments. We interviewed federal financial regulators, academics, industry associations, market participants and others to obtain their perspectives on how the recent financial crisis impacted the economy and what methods have been used to quantify the economic impacts associated with the crisis. Based on our literature review and interviews with experts, we identified approaches commonly used by experts to quantify or describe the economic losses associated with the crisis, and the limitations of these approaches. For example, we summarized approaches used by some researchers to quantify losses associated with the financial crisis in terms of lost gross domestic product, which measures the total goods and services produced in the economy. To describe trends in economic measures associated with the financial crisis, we collected and analyzed data from the Bureau of Economic Analysis, the Bureau of Labor Statistics, CoreLogic, the Federal Reserve Flow of Funds database, and the National Bureau of Economic Research. Lastly, we obtained and analyzed perspectives on the role of the federal government's policy interventions in mitigating the costs of the financial crisis. We obtained and analyzed data from government financial statements and other reports on the income and losses for the most significant government programs to assist the financial sector, including the Troubled Asset Relief Program, the Board of Governors of the Federal Reserve System's (Federal Reserve) emergency liquidity programs, the Temporary Liquidity Guarantee Program, and assistance provided to rescue individual institutions, such as American International Group, Inc. and the government-sponsored enterprises. Our review did not consider the potential short-term and long-term impacts of other federal policy responses to the recession that coincided with the financial crisis, including the American Recovery and Reinvestment Act of 2009.

To address our second objective, we obtained and analyzed a broad range of perspectives on the potential economic benefits of the Dodd-Frank Act and factors that could impact the realization of these benefits. Using a literature search strategy similar to the one described under our first objective, we identified and analyzed academic and other studies that evaluate the potential benefits of one or more of the act's reforms. In addition, we reviewed relevant reports and public statements by federal financial regulators, industry associations, and others. We obtained additional perspectives from regulators, academics, and representatives of industry and public interest groups through interviews and an expert roundtable we held with the assistance of the National Academy of Sciences (NAS). Based on our literature review, interviews, and expert roundtable, we identified provisions of the act that could have the most significant impacts on financial stability, and factors that could impact the effectiveness of these provisions. In addition, we obtained and summarized expert perspectives on potential benefits of the act beyond enhanced financial stability, such as increased consumer and investor protections. Finally, we reviewed and summarized approaches used by researchers to quantify potential benefits of the act's reforms. Although we found these studies to be sufficiently reliable for the purposes of our report, the results should not necessarily be considered as definitive, given the potential methodological or data limitations contained in the studies individually or collectively.

To address our third objective, we obtained and analyzed information on the costs of implementing the Dodd-Frank Act, including for the federal government, the financial sector, and the broader economy. We obtained and summarized data on the incremental budgetary costs associated with the act's implementation for 10 federal entities (Board of Governors of the Federal Reserve System, Commodity Futures Trading Commission, Federal Deposit Insurance Corporation, Federal Housing Finance Agency, Office of the Comptroller of the Currency, Securities and Exchange Commission, Department of the Treasury, Consumer Financial Protection Bureau, Financial Stability Oversight Council, and the Office of Financial Research). We requested data on the entities' estimates of their funding and full-time equivalents agency-wide and for activities related to the Dodd-Frank Act in 2010, 2011, 2012, and 2013. We also requested that the entities identify their sources of funding (appropriations, assessments of supervised institutions, revenue from investments or providing services, and transfers of funds from other agencies), and describe the extent to which new resources related to the Dodd-Frank Act would be funded on a one-time or recurring basis. We corroborated the information with other data, where available. In addition, we reviewed the Congressional Budget Office's estimate of the act's effect on the federal government's direct spending and revenue and, in turn, deficit. To describe the potential costs for the financial sector and the broader economy, we reviewed published works, public statements, and other available analyses by financial regulators, industry representatives, academics, and other experts. We also obtained perspectives from representatives of these groups through interviews and the expert roundtable we held in coordination with NAS. We also had two financial markets experts review a draft of our report and incorporated their comments, as appropriate.

To help inform our work on the second and third objectives, we contracted with NAS to convene a 1-day roundtable of 14 experts to discuss the potential benefits and potential costs of the Dodd-Frank Act. The group of experts was selected with the goal of obtaining a balance of perspectives and included former financial regulatory officials, representatives of financial institutions impacted by the act's reforms, academic experts on financial regulation, a representative of a public interest group, and an industry analyst. The discussion was divided into three moderated sub-sessions. The sub-sessions addressed (1) the potential benefits of the act's key financial stability reforms; (2) the potential costs of these key financial stability reforms; and (3) methodological approaches and challenges in measuring the impacts of the act's reforms. For a list of the 14 experts, see appendix III.

For parts of our methodology that involved the analysis of computer-processed data, we assessed the reliability of these data and determined that they were sufficiently reliable for our purposes. Data sets for which we conducted data reliability assessments include gross domestic product data from the Bureau of Economic Analysis; employment data from the Bureau of Labor Statistics; home price data from CoreLogic; Federal Reserve Flow of Funds data on retirement fund assets; loan default and foreclosure data from the Mortgage Bankers Association; and recession data from the National Bureau of Economic Research. We reviewed information on the statistical collection procedures and methods for these data sets to assess their reliability. In addition, we assessed the reliability of estimates federal entities provided for the funding resources and full-time equivalents associated with Dodd-Frank implementation by comparing these estimates to agency budget documents and interviewing agency staff about how the data were collected. Finally, for studies that present quantitative estimates of the economic impacts associated with financial crises or financial regulatory reforms, we assessed the reasonableness of the methodological approaches used to generate these estimates. Although we found certain studies to be sufficiently reliable for the purposes of our report, the results should not necessarily be considered definitive, given the potential methodological or data limitations contained in the studies, individually or collectively.

We conducted this performance audit from November 2011 to January 2013 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: International Financial Reform Efforts

Many U.S. financial firms conduct business around the world and thus generally are subject to rules on banking, securities, and other financial market activities in multiple jurisdictions. In response to the financial crisis that began in 2007, the United States and other countries have taken steps to introduce financial reforms into their domestic legal and regulatory systems. In parallel with these domestic reform efforts, international organizations have issued new standards and principles to guide their members' efforts. The goal of these international efforts is to harmonize and coordinate views and policies across different jurisdictions to minimize opportunities for regulatory arbitrage—the ability of market participants to profit from differences in regulatory regimes between one jurisdiction and another.

Examples of some of these efforts include the following:

- The G20, a group that represents 20 of the largest global economies, created the Financial Stability Board (FSB) to coordinate and monitor international financial regulatory reform efforts, among other activities.

- The Basel Committee on Banking Supervision (BCBS)—hosted at the Bank for International Settlements (BIS)—has developed a new set of capital and, for the first time, liquidity requirements for banks.

- The Committee on Payment and Settlement Systems (CPSS), which is comprised of central banks, focuses on the efficiency and stability of payment, clearing, and settlement arrangements, including financial market infrastructures. Recently, CPSS has worked jointly with the International Organization of Securities Commissions (IOSCO) to produce a new set of prudential standards for financial market infrastructures.

- IOSCO, a multilateral organization of securities market regulators, has issued policy documents to guide national securities commissions' regulatory reform efforts.

- Various other forums and groups, including the International Association of Insurance Supervisors (IAIS), are housed at BIS and cooperate on financial regulatory reform initiatives. For example, the Joint Forum—which includes representatives of IAIS, BCBS, and IOSCO—works to coordinate financial services reforms.

- Separately, multilateral organizations, such as the International Monetary Fund and Organization for Economic Cooperation and

Development, have published research and analysis of international financial reforms.

Table 5 summarizes selected international financial regulatory reform efforts.

Table 5: Selected Organizations Engaged in Coordination of International Financial Regulatory Reform Efforts

Organization	Sector	Membership	Purpose	Activities
FSB[a]	Multiple	Finance and central bank officials from members of the G20 as well as representatives of other international economic and financial standard-setting organizations[b]	International coordination of national financial authorities and international standard-setting bodies Development and promotion of effective regulatory, supervisory, and other financial sector policies	Establish principles for financial regulatory reform Monitor implementation of financial regulatory reforms, issue progress reports
BIS	Banking	Central banks or monetary authorities of 59 economies plus the European Central Bank[c]	Forum for international cooperation among central banks and within financial and supervisory communities Acts as a bank for central banks	Publishes economic and monetary research Counterparty for central banks in their financial transactions Agent or trustee in connection with international financial operations Hosts other international financial organizations and groups
BCBS[a]	Banking	Central bank or bank supervisory officials representing 27 economies[d]	Forum for cooperation on issues related to banking supervision	Establishes capital and liquidity standards for member banking systems
CPSS[a]	Banking	Central banks' payment and settlement officials	Monitor and analyze developments in domestic, cross-border, and multicurrency payment, settlement, and clearing systems	Sets standards for payment, clearing, and settlement systems
IOSCO	Securities	Securities regulatory officials from more than 100 jurisdictions	Forum for international cooperation among securities regulators	Facilitates standard setting Offers technical assistance
IAIS[a]	Insurance	Insurance regulators and supervisors from more than 190 jurisdictions[e]	Forum for global insurance supervision	Establishes principles, standards, and guidance; works with other counterparts to promote financial stability

Source: GAO summary information collected from each organization's web site.

[a]Hosted at the Bank for International Settlements.

[b]FSB member economies: Argentina, Australia, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Mexico, the Netherlands, Republic of Korea, Russia, Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United

States. FSB Member organizations: Bank for International Settlements, European Central Bank, European Commission, International Monetary Fund, Organization for Economic Cooperation and Development, and The World Bank. Other FSB member groupings: Basel Committee on Banking Supervision, Committee on the Global Financial System, Committee on Payment and Settlement Systems, International Association of Insurance Supervisors, International Accounting Standards Board, and the International Organization of Securities Commissions.

[c]BIS member central banks: Algeria, Argentina, Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong SAR, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Macedonia (FYR), Malaysia, Mexico, the Netherlands, New Zealand, Norway, Peru, the Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, the United Arab Emirates, the United Kingdom and the United States, plus the European Central Bank.

[d]BCBS member economies: Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

[e]Insurance professionals participate as observers in some activities.

Appendix III: Experts Participating in the GAO Roundtable on the Benefits and Costs of the Dodd-Frank Act

Eric Baggesen, California Public Employees’ Retirement System

Sheila Bair, The Pew Charitable Trusts

Robert Bliss, Wake Forest University

Charles Calomiris, Columbia University

Athanassios Diplas, Deutsche Bank

Douglas Elliott, The Brookings Institution

Peter Fisher, BlackRock

Sandra Lawson, Goldman Sachs

Annette Nazareth, Davis, Polk, and Wardwell, LLP

Karen Shaw Petrou, Federal Financial Analytics

Matthew Richardson, New York University

Marcus Stanley, Americans for Financial Reform

Steve Strongin, Goldman Sachs

Paul Volcker, Former Chairman of the Board of Governors of the Federal Reserve System

Appendix IV: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

In addition to the contact named above, Richard Tsuhara (Assistant Director), William R. Chatlos, John Fisher, Catherine Gelb, G. Michael Mikota, Marc Molino, Courtney LaFountain, Robert Pollard, Jennifer Schwartz, Andrew J. Stephens, and Walter Vance made significant contributions to this report.

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