Evaluating the Government as a Source of Systemic Risk

Deborah Lucas
MIT and NBER

First Draft: September 30, 2011

Prepared for the *Conference on Systemic Risk and Data Issues*, Wednesday October 5, 2011. I'd like to thank Zvi Bodie, Arlene Holen, Andrew Lo, and David Torregrosa for helpful suggestions, and Douglas Elliott for generously allowing me to reproduce his graphs. The views and opinions expressed are those of the author.

1. Introduction

The financial crisis of the late 2000s led to widespread calls for changes in the regulatory system, and to the enactment on July 21, 2010 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Among its many provisions, the Dodd-Frank Act established the Financial Stability Oversight Council (FSOC) and the Office of Financial Research (OFR) to address the concern that policymakers and investors lacked sufficient data to anticipate emerging threats to financial stability or assess how shocks to one financial firm could impact the system as a whole. Specifically, the FSOC is charged with three primary purposes:[1]

> 1. To identify risks to the financial stability of the United States that could arise from the material financial distress or failure, or ongoing activities, of large, interconnected bank holding companies or nonbank financial companies, or that could arise outside the financial services marketplace.
>
> 2. To promote market discipline, by eliminating expectations on the part of shareholders, creditors, and counterparties of such companies that the U.S. government will shield them from losses in the event of failure.
>
> 3. To respond to emerging threats to the stability of the U.S. financial system.

To help support the FSOC's mission, the OFR is tasked with improving the quality of financial data available to policymakers and with facilitating more robust and sophisticated analyses of the financial system.

In that context, most discussions about systemic risk and the need for additional monitoring and data collection have focused on private-sector financial institutions. However, the U.S. federal government is the world's largest and most interconnected financial institution, and through its activities—as a banker, rule-maker, and regulator—arguably represents a major source of systemic risk. The government's counterparties and creditors assume that they will be shielded from losses by taxpayers, and hence the government is subject to little market discipline. In some respects federal financial institutions are less transparent and more lightly scrutinized than their

[1] Financial Stability Oversight Council, 2011 Annual Report, http://www.treasury.gov/initiatives/fsoc/Documents/FSOCAR2011.pdf

counterparts in the private sector. The financial activities of state and local governments also may pose risks to the broader financial system.

This paper makes the case that the government is a significant source of systemic risk, and hence that it falls under the mandate of the FSOC and OFR to monitor and study it. To that end, I present several measures of the size and scope of the government's role in financial markets, discuss some of the mechanisms by which government actions (or inactions) may give rise to systemic risk, and suggest some specific areas where the OFR through its data initiatives and analysis could help to illuminate the risks that are identified and contribute to their mitigation.

Several factors support the contention that the government is a significant source of systemic risk. The most obvious is its sheer size as a financial institution (or more accurately, a collection of loosely affiliated financial institutions). Calculations presented in the paper show that just through its traditional credit programs, the government comprised a $2.3 trillion financial institution in 2010, and that figure increases to over $20 trillion when Fannie Mae, Freddie Mac, the Federal Home Loan Banks, deposit insurance, the Federal Reserve System, and the Pension Benefit Guarantee Corporation are included. However, probably more important for systemic risk than the government's direct effect on the allocation and riskiness of credit is its influence on the incentives facing private individuals and institutions through its regulatory, tax and other policies. The government's policies reflect a variety of sometimes competing political objectives, and there is no "invisible hand" guiding the government toward adopting policies that foster efficiency and avoid the buildup of systemic risks. In fact, systemic risks arising from government actions may be relatively hard for policymakers and the public to identify because of the lack of transparency surrounding government activities.

There are a few important caveats. Clearly the government can act as an important counterweight to systemic risk rather than as a cause of it; that role has been discussed extensively in the literature.[2] The analysis here is meant to be a first step and is by no means comprehensive. For instance, the many activities of the Federal Reserve and other financial regulatory agencies are only touched on briefly, and the risks that arise from fiscal imbalances

[2] For some recent analyses of the government as a stabilizing as well as a destabilizing influence, see Restoring Financial Stability, How to Repair a Failed System, edited by V. Acharya and M. Richardson (2009).

and high levels of government debt are not discussed at all. Furthermore, I have not attempted to rank the sources of government-induced systemic risk that are identified by size or likelihood, or to compare the magnitude of the risks with those arising from private-sector activities. It is hoped that those important and challenging issues will be addressed by future research.

The paper is organized as follows: Section 2 presents data on the size and scope of the federal financial activities. Section 3 describes some of the channels through which the government can be an important source of systemic risk. To illustrate some of those possibilities, Section 4 takes a closer look at the residential mortgage market and discusses how the government's actions there can have systemic consequences. Section 5 concludes with some suggestions for where additional data collection, dissemination, and analysis could make the potential risks more transparent and thereby help to reduce them.

2. Sizing up the Federal Government as a Financial Institution

The federal government's activities as a financial institution include providing loan guarantees and making direct loans for housing, education, agriculture, small businesses, energy and trade; implicitly or explicitly guaranteeing the obligations of government sponsored enterprises such as Fannie Mae and Freddie Mac, the Federal Home Loan Banks and the Farm Credit System; and insuring bank deposits and defined benefit pension plans.[3] (For a history of the government's credit programs and more information about them, see Elliot, 2011.)

The size of those activities could be measured in several ways: by the face value of federally-backed credit outstanding, by the flow of new commitments in a given year, by a value-at-risk calculation or by the value of the subsidies provided to program participants. Because simple stock measures (obligations outstanding or obligations insured) are readily available and relatively reliable, most of the statistics presented here are of that sort.[4]

[3] A broader accounting of the government's financial activities would include its insurance programs (e.g., for disasters, floods, nuclear power, and terrorism), its provision of pension benefits to federal civilian and military employees, social security, and its assumption of other contingent financial liabilities, but here the scope is limited to its major activities that are similar to those of private financial institutions.

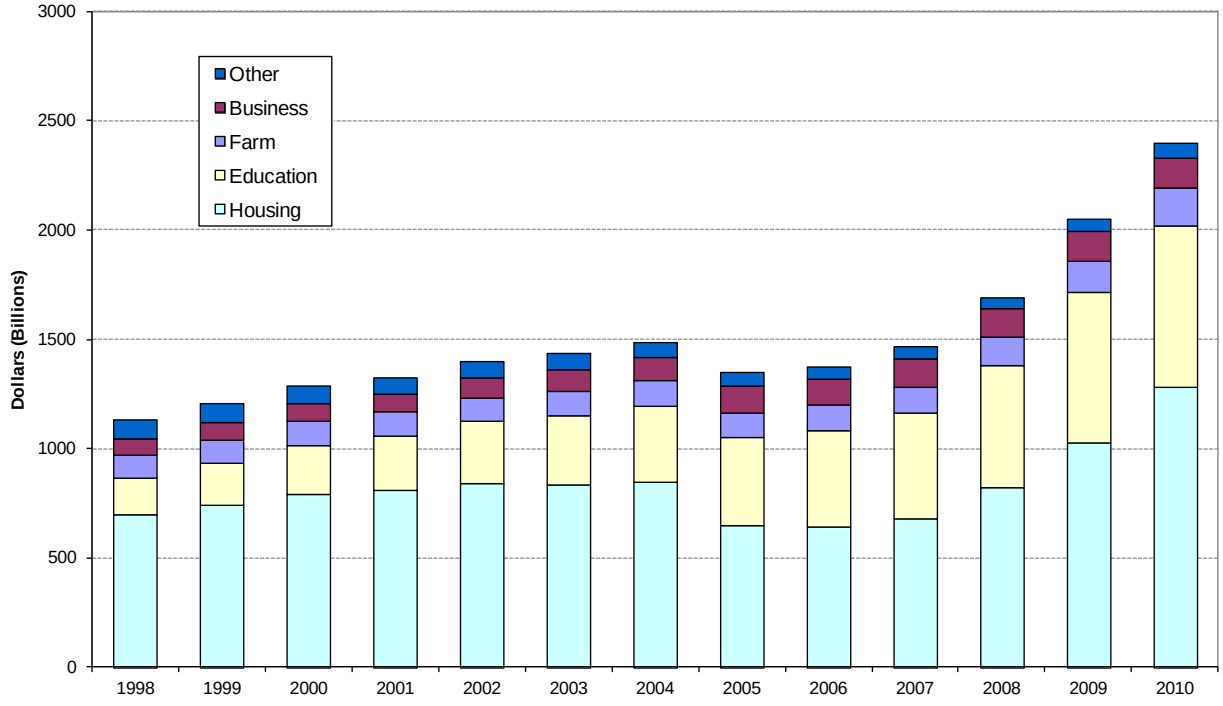
[4] The government's credit activities give rise to both assets and liabilities; its risk exposure would be better measured by the value of its net contingent liabilities.

2.1 Traditional federal direct loan and loan guarantee programs

A narrow measure of the federal government as a financial institution is the size of its traditional direct lending and loan guarantee programs. The 2010 Credit Supplement to the Federal Budget shows that the government runs over 150 loan programs which are administered by various federal agencies and bureaus. Figure 1 shows the outstanding balances of federal direct loans and loan guarantees originated over the period 1998 to 2010 (excluding emergency lending associated with the financial crisis), grouped by major loan type: housing, education, agriculture, business or other. Housing is the single largest category in all years, but its relative size has varied over time. The federal student loan programs have undergone the most rapid growth, particularly since the mid-2000s. The total amount of federal guaranteed and direct loans outstanding roughly doubled over the period, reaching about $2.3 trillion in 2010.

Figure 1: Total Non-Emergency Federal Loans Outstanding (Direct and Guaranteed) by Category: 1998-2010

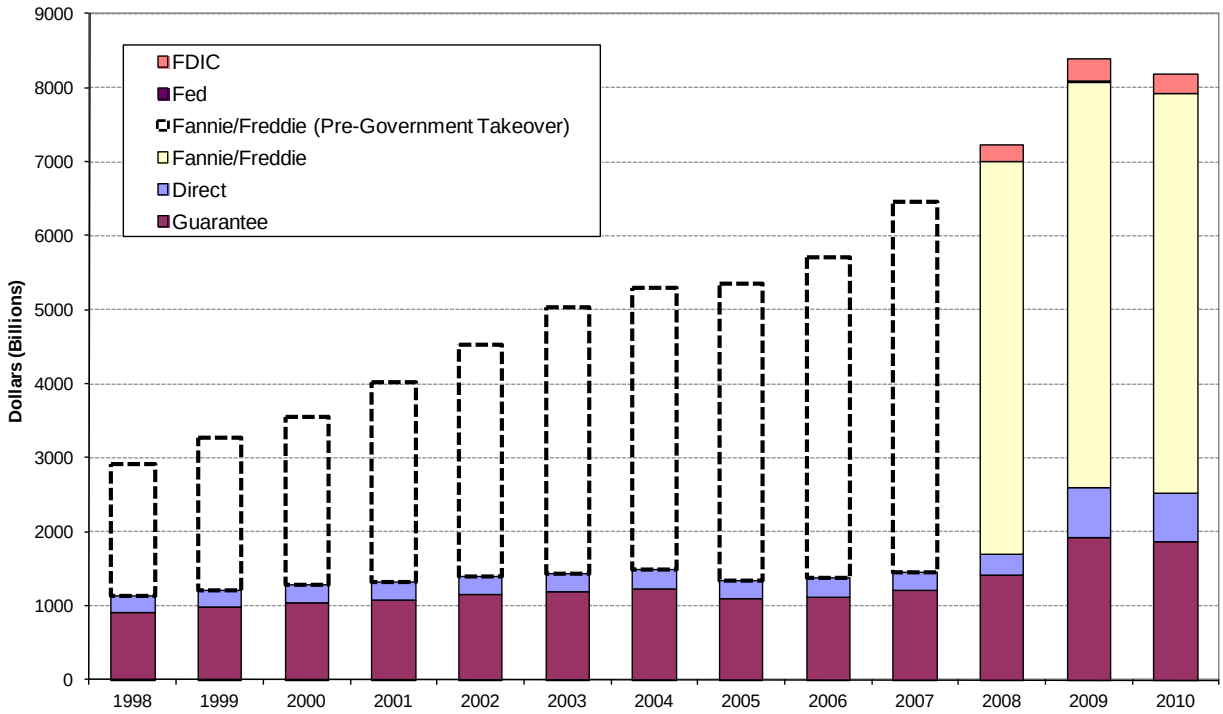
Source: Budget of the U.S. Government, Analytical Perspectives, FY2001-2012, as reported in Uncle Sam in Pinstripes, by Doiuglas Elliott.



2.2 Federal loan programs including Fannie Mae and Freddie Mac

The federal government's direct involvement in credit markets has increased dramatically as a result of its responses to the financial crisis. The biggest change is due to its takeover of Fannie Mae and Freddie Mac. That action converted those two government-sponsored enterprises (GSEs) from private companies with implicit government guarantees to entities that are fully owned by the government and whose loses the government has a legal obligation to absorb. Figure 2 shows the totals for federal credit programs that include the credit obligations of Fannie Mae and Freddie Mac, and also some of the emergency programs of the FDIC and the Federal Reserve.[5] Including those activities brings total federally-backed credit outstanding to over $8 trillion in 2010.

Figure 2: Total Federal Loans and GSE Obligations Outstanding (Direct and Guarantees): 1998-2010



Source: Budget of the U.S. Government, Analytical Perspectives, FY2001-2012, as presented in Bankers in Pinstripes by D. Elliott.

[5] The amounts in Figure 2 for the FDIC are emergency programs only and do not include its regular deposit insurance program.

2.3 Broader measures of federal credit

The tabulations in Figures 1 and 2 include loan programs where the federal government has a fairly direct role in determining eligibility and underwriting standards for the credit it backs. Broader measures of obligations where the federal government assumes credit risk and influences the incentives of others for risk-taking might also include:

- *Insured deposits*. The FDIC, an independent federal agency, insured $6.2 trillion of deposits in 2010.
- *Pension guarantees*. The Pension Benefit Guarantee Corporation (PBGC) is an independent federal agency that insures benefits for 44 million workers in defined benefit pension plans. Munnell et. al. (2008) estimate that private defined benefit plans had liabilities of about $2.8 trillion in 2007, most of which are covered by the PBGC.
- *Implicit guarantees to the Federal Home Loan Banks and the Farm Credit System.* The FHLBs and FCS are GSEs that channel funds to commercial banks and other financial institutions which in turn make loans for housing, agriculture, and other activities. The FCS also does some direct lending. The perception of federal credit backing lowers those institutions' funding costs. In 2010 the liabilities of the FHLBs totaled over $800 billion, and those of the FCS totaled about $200 billion.
- *Troubled Asset Relief Program*. Financial assets acquired through the TARP, including its purchases of preferred stock in financial and non-financial institutions, also expose the federal government to financial risk. Those purchases peaked at about $540 billion in 2009, but have since declined as companies have repurchased the shares.
- *Federal Reserve*. The Federal Reserve held $2.4 trillion of assets on its balance sheet as of year-end 2010, of which only about $1.1 trillion were Treasury securities.

2.4 Comparisons to aggregate debt measures and private financial institutions

The tabulations presented above show that by the narrow measure of the direct loans and loan guarantees that it supports through its established credit programs, the federal government was a $2.3 trillion financial institution in 2010. A broader accounting that also includes the mortgages owned or guaranteed by Fannie Mae and Freddie Mac brings the total to about $8 trillion.

Including in addition credit exposures from deposit insurance, private defined-benefit pensions, implicit guarantees of GSEs, TARP and the Federal Reserve increases the tally to over $20 trillion.

How do those figures compare to aggregate measures of different types of credit? Flow-of-funds data for 2010 indicate that home mortgage debt outstanding of $10.0 trillion, other consumer credit of $2.4 trillion, business (corporate and non-corporate) debt of $10.8 trillion, state and local government debt of $2.4 trillion, and federal debt of $9.4 trillion. By comparison, the market capitalization of the U.S. stock market stood at about $17 trillion in 2010 according to the World Bank.

Another way to roughly scale the size of the federal government as a financial institution is by comparison to large bank holding companies. Table 1 shows the assets of the top five U.S. bank holding companies. That comparison suggests that even by the narrowest measure of the government's financial activities, the federal government is among the largest financial institution in the country.[6]

Table 1: Largest Bank Holding Companies in the U.S. (6/30/2011)

Rank	Institution Name	Total Assets ($000s)
1	BANK OF AMERICA CORPORATION	$2,264,435,837
2	JPMORGAN CHASE & CO.	$2,246,764,000
3	CITIGROUP INC.	$1,956,626,000
4	WELLS FARGO & COMPANY	$1,259,734,000
5	GOLDMAN SACHS GROUP, INC.	$937,192,000

Source: National Information Center. http://www.ffiec.gov/nicpubweb/nicweb/top50form.aspx

[6] Inclusion of the banks' off-balance-sheet exposures would of course increase their relative size.

3. The Government as a Source of Systemic Risk

"Systemic risk" can be defined in various ways, but here it is defined broadly to mean the risk that the activities of one market participant will have adverse repercussions on other market participants and on the wider economy due to the interlocking nature of financial markets.[7]

A list of attributes that make a financial institution a candidate source of systemic risk would include first and foremost its size--both in absolute terms and relative to key sectors of the economy where it has a large influence; and also interconnectedness; lack of transparency; and inadequate supervision. In this section I consider the extent to which the government exhibits each of those attributes, and discuss some of the systemic risks that those characteristics of the government may give rise to.

Although the characteristics that make the government a source of systemic risk are similar to those that raise concerns about private-sector financial institutions, there are differences between the government and the private-sector that cause the nature of the systemic risks they create to be different as well. Special attributes of the government that need to be taken into consideration include that it makes the rules (and exempts itself from many of them, including some that foster transparency); that it is motivated by political considerations rather than by a more predictable profit motive (Acharya, 2011); and that it is generally slow in its ability to react or make changes. Furthermore, because different government financial institutions have different missions and mandates, it is possible that their actions interact in a way that has unintended systemic consequences (see for example, Khandani et. al., 2009).

Unlike private-sector institutions, the government tends to be a low-frequency contributor to systemic risk through the incentives created by its rules and regulations, and through its influence on the allocation of credit. Importantly, it does not engage in rapid trading of derivative contracts. In fact, apart from the Federal Reserve's open market operations, the government rarely trades in financial markets. Because the government's financial activities tend to occur at a much less frenetic pace than those of private financial institutions, the systemic risks that it creates are likely to build up more gradually over time, which may make them less likely to

[7] This is a slight modification of the definition offered by the CFTC in their glossary of financial terms.

attract notice. A final difference perhaps worth noting is that the government it is usually not considered to be a source of counterparty risk.

3.1 Size

The statistics presented earlier suggest that the government qualifies as a systemically important financial institution on the basis of its size alone. It is the dominant provider of credit for housing, student loans, and agriculture, which amplifies its systemic importance in those sectors.

In theory, a financial institution could be very large but have little systemic importance if it acted as a passive conduit of funds and didn't influence prices, allocations or incentives. As noted by Gale (1991), extensive lending activity does not necessarily imply that federal credit policies have important effects on the economy. However, Gale finds that through its major credit programs, the government significantly influences both the allocation and price of credit. Furthermore, as many economists have emphasized, government credit programs can have a significant effect on incentives; for example, through its large-scale provision of deposit and pension insurance, as well as its implicit guarantees to GSEs and too-big-to-fail private institutions, the government is thought to increase the incentives for risk-taking by systemically important institutions.[8]

[8] See for example Pennacchi (2006).

3.2 Interconnections through the financial infrastructure

The government is directly interconnected with other financial institutions through the "financial infrastructure" as well as its credit and insurance activities. Bodie and Merton (1995) define financial infrastructure as "the legal and accounting procedures, the organization of trading and clearing facilities, and the regulatory structures that govern the relations among the users of the financial system." Those government activities and policies have a major effect on the interconnections between financial institutions and on the risk exposure of the entire system.[9]

The government's accounting rules—both the reporting rules that it sets for the private sector and self-imposed rules—are an important part of the financial infrastructure, and can have significant effects on systemic risk. An example is the interaction of regulatory capital requirements and fair value accounting standards. Those, separately and together, have been identified as possible contributors to systemic risk through at least two channels: downward liquidity spirals; and capital requirements that are less stringent in booms than in busts. Those channels are briefly described here to illustrate how the government's choices about the financial infrastructure can affect systemic risk, although the question of what combination of accounting rules and capital requirements would best promote financial stability remains unresolved.

Downward liquidity spirals have been suggested as amplification mechanisms for financial shocks by a number of researchers (see Brunnermeier and Petersen, 2009, and references therein). The basic idea is that a fall in asset prices causes capital and margin requirements to become more binding on banks, further reducing their demand for assets or even triggering fire sales, which causes prices to drop further. Kiyotaki and Moore (1991) demonstrate how such price spirals could occur even in the absence of distortionary government policies, but some have argued that requiring banks to use more fair value accounting exacerbates that type of feedback mechanism (e.g., Wallison. 2008). Others, however, find that fair value rules do not appear to have contributed to the recent crisis, and that they may in fact mitigate problems of systemic risk (Laux and Leuz, 2010). Fair value reporting requirements for banks are also sometimes faulted

[9] Whitehead (2011) points out that regulations intended to control financial risk have the effect of promoting coordination across financial institutions and greater uniformity among market participants. That coordination could have the paradoxical consequence of increasing systemic risk.

for causing bank capital to be inadequate in good times and excessive in bad times. However, as discussed in Heaton et. al. (2010), the problem can be viewed as reflecting shortcomings in the regulatory definition of capital requirements: by redefining capital standards to take into account the effects of fair value accounting, the government could maintain the advantages of fair value accounting and avoid the adverse consequences from the interaction of fair value accounting rules and poorly designed capital requirements.

3.3 Transparency

Government financial institutions are not particularly transparent, but whether or not they are more opaque than their counterparts in the private sector is difficult to evaluate. While various factors influence transparency, here I focus on the quality of the government's financial disclosures, and briefly discuss a number of factors that limit the usefulness of those disclosures for evaluating the systemic risks posed by the government:

- The quality and scope of financial disclosures vary markedly across government agencies.
- Accounting standards differ across government entities, and between the public and private sectors.
- Market price or fair value information is generally not available for government financial activities.
- Government accounting--both for the valuation of state and local pension liabilities, and for budgetary cost of credit programs--generally does not incorporate the price of market risk.

Government agencies release audited annual financial reports that describe their operations and provide selected financial data. Additional information may be obtained through Freedom of Information Act requests (although that process is onerous and not widely used). Agency disclosures tend to emphasize mission-oriented metrics, such as the number of loans made to target populations. Little information tends to be released that can be used to assess systemic risk, such as measures of credit quality, delinquency rates, and loss experience. Whereas the structure and content of the periodically-mandated filings (e.g., annual reports) of publicly traded

financial institutions are uniform enough to facilitate comparisons across institutions, there is no similar standardization of reporting of credit quality metrics across federal agencies. There is also no central electronic repository of financial information like the SEC's Edgar, which has greatly increased the accessibility of financial information about publicly traded firms.

The purposes and uses of public-sector and private-sector financial disclosures are not identical, and it would not make sense to require identical reports from every financial institution. Nevertheless, best practices for financial reporting tend to evolve over time, and similar considerations would be expected to apply to both the government and private-sector. However, there appears to be no formal mechanism to compel harmonization of accounting standards or practices, either across government agencies, across different levels of government, or between the government and the private sector.

The differing accounting standards that apply at various levels of government, and the differences between government and private sector accounting standards, make it quite difficult to evaluate performance or risk on a consistent basis. Achieving coordination of rules is complicated by the large number of standard-setters: Federal financial accounting standards are influenced by the Federal Accounting Standards Advisory Board (FASAB); federal budgetary accounting is governed by statute and by the administrative practices of the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO); the Federal Reserve System follows its own accounting rules; state and local governments often follow the guidelines of the Government Accounting Standards Board (GASB); and private financial institutions are subject to the disclosure rules governed by the Financial Accounting Standards Board (FASB), and to various regulatory accounting requirements.

Market price signals serve as a check on risk-taking by private-sector financial institutions. For example, excessive risk-taking may come to light when an institution's stock price drops sharply; and decisions about whether to bring new financial products to market are informed by market-based estimates of cost. For the government, however, market price signals are rarely available or relied upon. Instead, accounting numbers are used to assess the costs and risks of the government's financial activities. When those accounting numbers are systematically different than market prices or fair values, distortions can result that give rise to systemic risks. Two

examples are given here: The rules for valuation of state and local government defined benefit pension liabilities; and the rules for calculating the budgetary cost of federal direct loans and loan guarantees.

Most state and local pension plans for retired government workers are underfunded. Those funding shortfalls are considered a potential source of systemic risk because they could lead to state and local fiscal crises and to pressure for federal bailouts. Government accounting rules affect the perceived size and urgency of addressing those underfunding problems, and also the incentives of pension fund managers to invest in risky assets. Most states and localities follow GASB guidelines for pension accounting. The GASB approach significantly understates the value of pension liabilities relative to a fair value estimate (which can be thought of as the upfront payment a well-capitalized insurance company would require to assume full responsibility for meeting those obligations). By contrast, FASB's rules have moved in the direction of requiring fair value reporting for pensions on corporate balance sheets. In 2009, underfunding by state and local pension plans stood at about $700 billion as measured on a GASB basis. Novy-Marx and Rauh (2011) estimate the underfunding to be more than twice as large--between $2 trillion and $3 trillion--on a fair value basis. Some have argued that the GASB approach also encourage greater risk-taking by pension fund managers because it allows them to effectively book the equity premium as profit (rather than treating it as a revenue with an offsetting risk cost). Specifically, GASB prescribes that projected liability payments be discounted at the expected return on assets, which means that holding a riskier portfolio with a higher average rate of return could be used to justify a lower reported value for liabilities.[10]

The full cost to the government of its federal direct loan and loan guarantee programs is made less transparent by the rules that govern the budgetary accounting for most federal credit programs (Lucas and Phaup, 2010). By law, budgetary costs are calculated by discounting the expected future net cash flows associated with the loan or guarantee at Treasury interest rates, thereby treating market risk as costless to the government.[11] The effect is to make government credit provision appear relatively cheap; in fact the federal budget recorded the government as

[10] See Bodie (2011) for a more complete discussion of this and related issues.

[11] Although the government can borrow at Treasury rates, its cost of capital for a risky loan also includes the cost of insurance provided by taxpayers, who are exposed to the market risk that the loan entails.

making money on its credit programs in 2009 and 2010. Distorted signals about the cost of federal credit assistance encourage lawmakers to rely more heavily on credit than on other forms of subsidy as a policy tool, particularly at a time of severe budgetary pressures, which has the effect of increasing the size of government credit programs and the systemic risks that they entail.

3.4 Inadequate supervision

The Federal Reserve, as the systemic risk regulator for private financial institutions, has three major tools: disclosure requirements, supervision and regulation, and setting capital standards. It uses none of those tools, however, to control risks arising from government financial institutions.

Because government financial institutions are designed to achieve public purposes and their activities are overseen both internally by inspectors general and other executive branch agencies as well as by the legislature and the judiciary, it may seem odd to describe them as inadequately supervised. Yet, similarly to private firms, the objectives of government institutions tend to be narrowly mission-focused and their managers generally do not take into consideration the effect of their activities on the stability of the broader financial system or the economy (with the notable exception of the Federal Reserve). Hence the reasoning that justifies the creation of a new systemic risk regulator to oversee already-regulated private financial institutions also suggests why there is a need for additional oversight of the government's financial activities.

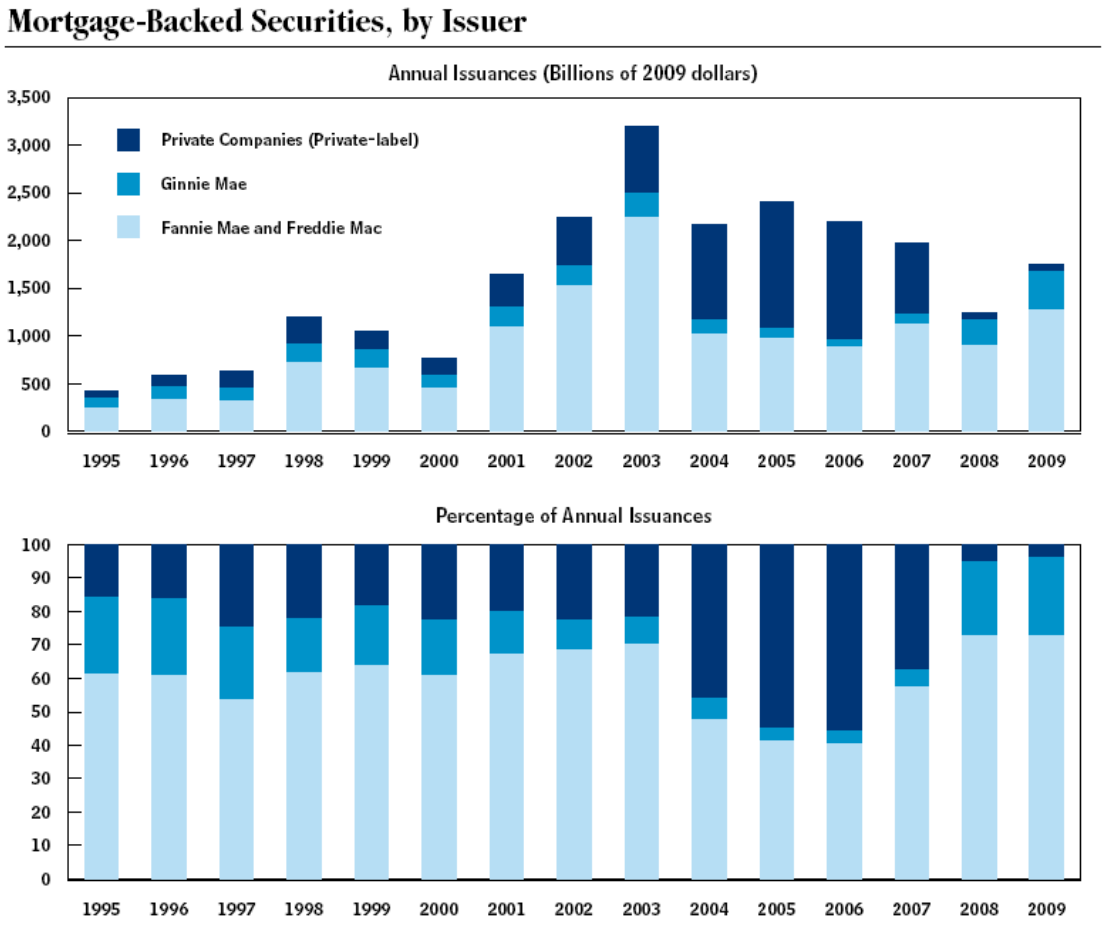
4. Systemic Risk from Federally-backed Residential Mortgages

The case for the government being a source of poorly monitored systemic risk in the mortgage market is straightforward: The government is the main source of mortgage credit for U.S. households. Its rules influence whether too much (or too little) credit is channeled to the housing market, and whether the allocation of credit creates excessive risks. Its mortgage-related activities have given rise to large losses to taxpayers. Although many of its policies may enhance social welfare, no regulator is charged with monitoring their overall effect on the stability of the U.S. financial system.

The government assumes the credit risk on residential mortgages through credit programs run by the Federal Housing Administration (FHA), the Department of Veterans Affairs (VA), and other

smaller agencies like the Rural Housing Administration, as well as through Fannie Mae and Freddie Mac. In 2010, Fannie Mae and Freddie Mac owned or guaranteed roughly half of all outstanding mortgages in the United States, and they financed 63 percent of the new mortgages originated that year. Including the 23 percent of home loans insured by federal agencies such as FHA and VA (which are securitized by Ginnie Mae), about 86 percent of new mortgages made in 2010 carried a federal guarantee. In the first half of 2011 the federal share rose further to 95 percent of originations. Figure 3 (reproduced from CBO, 2010) shows MBS issuance amounts and market share for government and non-government originators between 1995 and 2009. Over that period the majority of mortgages originated had some type of federal backing, but private label issuers had been gaining ground on the GSEs, and particularly on the FHA, prior to the crisis.

Figure 3:



Source: Congressional Budget Office (2010).

The federal government's major role in housing finance dates back to the Great Depression.[12] FHA was created in 1934 to provide mortgage insurance in response to the extraordinarily high rates of foreclosure and default at that time. In its current incarnation, the FHA's largest program—which offers single-family mortgage insurance—extends access to home ownership to people who lack the savings, credit history, or income to qualify for a conventional mortgage. Under that program, FHA insures 15-year and 30-year fixed-rate and adjustable-rate amortizing mortgages for home purchases or for refinancing, in exchange for an up-front fee and annual premiums. By design it deals in risky mortgages: guarantees are available to poor credit quality

[12] Some of this discussion is drawn from CBO (2010), which provides a more detailed account of the history of federal housing institutions and analysis of the weaknesses of the pre-crisis system.

borrowers with down payments as low as 3.5 percent of a property's appraised value. Similarly, VA provides federal guarantees on residential mortgages for qualifying active and retired military personnel, without requiring a down payment,. The volume of VA mortgages outstanding has been fairly stable over the last decade. Mortgages carrying FHA or VA guarantees are securitized by Ginnie Mae, a fully-owned government corporation that bundles the mortgages and guarantees timely payment of principal and interest.

Fannie Mae was established in 1938 as a fully government agency to support the secondary mortgage market. It was partially privatized more than 40 years ago, when Fannie Mae and Freddie Mac were chartered as GSEs by Congress with a mandate to provide a stable source of private funding for residential mortgages across the U.S., including for low- and moderate-income households.

4.1 Too-big-to-fail

Until recently, the GSEs' debt securities and MBSs that funded those mortgages were not officially backed by the federal government. Nevertheless, most investors believed that the government would not allow Fannie Mae and Freddie Mac to default on those obligations. That perception of an implicit federal guarantee allowed Fannie Mae and Freddie Mac to borrow to fund their portfolio holdings of mortgages and MBSs at lower interest rates than those paid by fully private financial institutions of otherwise comparable risk, and investors valued the GSEs' credit guarantees more highly than those issued by fully private guarantors; those and other regulatory advantages allowed them to establish and maintain a dominant market share in the segments of the market in which they were allowed to participate, reinforcing their systemic importance.

The GSEs' low levels of capital reserves and lack of diversification outside of the housing sector left them highly exposed to housing price and prepayment rate shocks. That exposure posed a risk to the larger financial system because the consequences of letting Fannie Mae or Freddie Mac fail could have been extremely damaging to the housing market. It also would threaten investors in agency debt and MBSs. Those investors include numerous U.S. banks and foreign central banks. Although banks are somewhat restricted by regulation in the amounts of credit exposure to a given company they can take on, such limits do not apply to agency debt. If Fannie

Mae or Freddie Mac defaulted on its obligations, the solvency of other financial institutions would be threatened. Moreover, the willingness of foreign central banks to hold Treasury securities could be compromised if they saw such a default as a signal of greater willingness of the U.S. government to default. That situation is an example of how relatively lax oversight of financial transactions involving government-backed institutions can create systemic risk.

4.2 Taxpayer rescue

The supposition that the government-backed mortgage institutions were too big-to-fail was proved true in the recent financial crisis. With falling housing prices and rising delinquencies threatening the solvency of Fannie Mae and Freddie Mac and their ability to issue debt, the federal government assumed control of the two GSEs in September 2008. Using the authority provided in the newly enacted Housing and Economic Recovery Act, their regulator placed them in conservatorship and the Treasury guaranteed their obligations through 2012. In addition, the Federal Reserve supported Fannie Mae and Freddie Mac by purchasing $1.25 trillion of their MBSs and more than $100 billion of their debt. Those actions gave the government control over the two institutions and effectively made the government's backing of their debt securities and MBS guarantees explicit.

Between November 2008 and the end of March 2011, the government provided about $154 billion in capital to Fannie Mae and Freddie Mac and received more than $24 billion in dividends on its preferred stock, resulting in net payments to the GSEs of $130 billion.[13]

The financial crisis and downturn in housing also led to large losses for FHA as default rates climbed and recovery rates fell.[14] While the infusion of federal dollars into Fannie Mae and Freddie Mac was widely perceived as a federal bailout, it is less well known that the FHA received considerably more money from Treasury than was originally budgeted for. Over the 1999–2011 period, estimated subsidy costs for FHA's single-family program were revised

[13] "The Budgetary Cost of Fannie Mae and Freddie Mac and Options for the Future Federal Role in the Secondary Mortgage Market," Statement of Deborah Lucas before the Committee on the Budget U.S. House of Representatives, June 2, 2011.
[14] See CBO (2011).

upward by a net total of $44 billion (CBO, 2011).[15] An explanation for how such a large cost overrun could go largely unnoticed is the opacity of how federal credit programs are budgeted for: Indefinite budgetary authority covers reestimates of the cost of federal credit programs, which means that no legislative action is necessary to provide funds to cover unanticipated shortfalls. Pressure to control the FHA's risk exposure also may be muted because the program appears to make money for the government; despite the elevated risks in the housing market, the budget deficit was shown to be reduced by the activities of FHA in 2009 and 2010 because budgetary accounting does not take into account the price of market risk. (The FHA did raise its fees in response to the crisis, but the fees are still at highly subsidized levels in comparison to the fair value of the guarantees provided.)

4.3 Systemic imbalances arising from mortgage credit

The government influences the pricing, allocation, and risks associated with mortgage credit through its credit and regulatory policies: It sets eligibility standards; down-payment requirements; underwriting standards (e.g., loan-to-value ratios, minimum credit scores); guarantee pricing and thereby subsidy levels; and determines the types of mortgage products offered (e.g., fixed, floating, prepayment options) and how they are financed (e.g., via securitization or on bank balance sheets). More indirectly it sets the capital requirements for banks on their holdings of agency and other mortgage securities, and regulates mortgage-related derivatives.

Many commentators have pointed to those government policies as contributing to the housing bubble that precipitated the financial crisis.[16] For instance, the affordable housing goals that regulators set for Fannie Mae and Freddie Mac are often cited as the reason for the credit-risk buildup in their portfolios; since 2001, slightly more than half of the loans purchased or guaranteed by the GSEs have counted toward those goals. More generally, those observers assert that the goals may have helped fuel the housing bubble by accommodating the increasing demand for housing. However, others have countered that excessive risk-taking was even more

[15] The $44 billion is not directly comparable to the $130 billion net cash infusion reported for the GSEs because the FHA cost estimates are reported on an accrual basis.
[16] For example, see Levine (2010).

prevalent among private-sector institutions, and that although the GSEs and other federal housing policies contributed to the problems they were not the root cause (see for example Avery and Brevoort, 2011). Furthermore, the glut of credit and unsustainable rise in housing prices was an international phenomenon, which could not have been brought about primarily by flaws in U.S. regulatory policy.[17] While that debate is unlikely to be resolved with additional information, the views of both sides are consistent with the need for increased and ongoing scrutiny of the systemic consequences of government policies in the mortgage market (and in other markets where it similarly may distort private incentives).

5. Some Suggestions for Initiatives and Analyses

This section concludes with a few specific examples of how the OFR, through its initiatives and analyses, could help to mitigate some of the systemic risks arising from the government's financial activities that were identified earlier.

The first suggestion is to initiate a "regulatory audit" whereby the OFR undertakes a systematic evaluation of federal financial regulations across agencies to identify unintended consequences that could give rise to systemic risk. The goal would be to address concerns about government regulations causing or exacerbating systemic risks--for instance through the interaction of bank capital requirements and fair value accounting requirements; or because prohibitions on an activity may cause financial institutions to use alternative mechanisms that are even riskier.[18]

Several other possible initiatives would aim to increase the transparency of government financial institutions, thereby making it easier for policymakers, researchers and the general public to identify emerging risks and imbalances:

- **Commence a study that compares government and private sector accounting standards and assesses best practices.** GASB's rules for pension accounting were

[17] See the Report of the Financial Crisis Inquiry Commission (2011), for lively arguments on both sides of this debate.

[18] This suggestion is related to the idea put forth by Merton and Bodie (1995) that functional regulation is necessary to avoid unintended consequences. They give the example of forcing marked-to-market collateral requirements on OTC derivatives but not on loans and other "traditional" investments, which could cause a shift back to structures like parallel loans that actually increase the systemic exposure of the system by increasing counterparty exposure.

discussed earlier as an example of government accounting practices that generate potentially misleading information, and which deviate from FASB and international accounting standards. Such a study could identify other areas where there are significant differences across accounting standards, and evaluate what is likely to represent the best practice for government reporting across jurisdictions. The analysis could serve as an input and impetus to more rapid harmonization of accounting standards and practices.

- **Improve and standardize financial disclosures.** As discussed in Section 3.3, unlike the private sector, which is subject to SEC and other disclosure requirements, financial reporting across government financial institutions of risk-related metrics is not standardized, nor is there a central website that serves as an accessible repository for such information. The OFR could help to address those shortcomings by working with federal financial institutions, and with academic and private accounting experts, to develop more uniform and informative reporting standards. The goal would be to ensure that the information available about the financial condition and prospective risk exposures of government financial institutions would be at least as informative as for private-sector financial institutions. The OFR could also house a website that would make those disclosures readily available to the public.
- **Encourage the provision of fair value disclosures.** To help address the lack of market price information that could help signal the risks involved in the government's financial activities, the OFR could also work with government financial institutions to develop standard approaches to producing fair value estimates for their credit-related assets and liabilities (and for their off-balance-sheet obligations) and to encourage the public disclosure of that information. Fair value accounting could also make costs more transparent in the legislative process, when the government is affecting the allocation of credit because it would more clearly reveal the size of subsidies than under current budgetary rules for credit subsidy calculations.

Another set of possible initiatives would involve data collection, dissemination, and analysis:

- **Evaluate unmet data needs for assessing systemic risk from federal credit programs**. Government credit programs collect from borrowers the information that is necessary to

evaluate their program eligibility, but that information may be insufficient for the purposes of assessing the systemic risks arising from the program. A potentially important example arises from the federal student loan program, which collects almost no information on borrower credit quality. Underwriting is not necessary because student loans are a categorical entitlement and eligibility does not depend on assessed ability to repay the loan. Nevertheless, student loans can be a source of systemic risk: The rapid growth of lending under those programs in recent years has added significantly to household debt levels, and some observers have expressed concern about whether the loans were creating unmanageable debt levels that could have adverse effects for individuals and for the economy.

- **Create data sets that combine information on federal and private credit at the household level.** Household indebtedness often involves a combination of government-backed and private loans. Assessing the amount of financial stress households are experiencing, and the likelihood that they will default, requires data on both types of obligations. An example of where that type of matching would greatly improve the ability to assess stresses currently would be to combine loan-level or household level data on first and second mortgages.
- **Disseminate data on federal credit programs**. Loan level data from federal credit programs is generally not released by federal agencies, although it may be obtained through Freedom of Information Act requests. (The exception is data on home mortgages, which can be purchased, albeit at a steep price, from private data services such as CoreLogic.) Greater availability of data would encourage more research on federal credit programs, which in turn could increase transparency and encourage agencies to improve the quality of their data and the attention they pay to it. The data could also be informative for private financial institutions in evaluating the riskiness of their own products and of the financial system. Releasing that data raises fewer concerns than for data from private institutions about protecting proprietary information. Borrower privacy concerns could be addressed by removing identifying information and other standard methods. It is costly and time-consuming to make data available in an easily usable form, and there is little incentive for individual federal agencies to devote their limited

resources to doing so. However, it seems in keeping with the objectives of the OFR to devote some of its resources to that task, and there may be efficiencies in having a single agency coordinating such efforts.

References

Acharya, Viral V. (2011), "Governments as Shadow Banks: The Looming Threat to Financial Stability," manuscript, NYU-Stern.

Acharya, Viral V. and Matthew Richardson, editors (2009), Restoring Financial Stability, How to Repair a Failed System, John Wiley and Sons, Hoboken, New Jersey.

Avery, Robert B. and Kenneth P. Brevoort. (2011), "The Subprime Crisis: Is Government Housing Policy to Blame?" Federal Reserve Board Finance and Economics Discussion Series, 2011-36

Bodie, Zvi (2011), "Mismatch Risk, Government Guarantees, and Financial Instability: The Case of the U.S. Pension System," manuscript, Boston University

Brunnermeier, Markus K. and Lasse Heje Petersen (2009), "Market Liquidity and Funding Liquidity," *The Review of Financial Studies*, Vol. 22, No. 6.

Congressional Budget Office (2010), Fannie Mae, Freddie Mac, and the Federal Role in the Secondary Mortgage Market, A CBO Study, December.

Congressional Budget Office (2011), "Accounting For FHA's single-Family Insurance Program on a Fair-Value Basis," letter to the Honorable Kent Conrad, May.

Elliott, Douglas (2011), Uncle Sam in Pinstripes, The Brookings Institution.

Financial Crisis Inquiry Commission (2011), *The Financial Crisis Inquiry Report*, GPO

Gale, William (1991), "Economic Effects of Federal Credit Programs," *American Economic Review*, Vol. 81, No. 1, p. 133-152.

Heaton, John, Deborah Lucas, and Robert McDonald (2010), "Is Mark-to-Market Accounting Destabilizing? Analysis and Implications for Policy," *Journal of Monetary Economics*

Khandani, Amir, Andrew W. Lo, and Robert C. Merton (2009), "Systemic Risk and the Refinancing Ratchet Effect," MIT Sloan Research Paper No. 4750-09

Kiyotaki, Nobuhiro, and John Moore. (1997), "Credit Cycles." *Journal of Political Economy* 105:211–48.

Laux, Christian and Christian Leuz, (2010), "Did Fair Value Accounting Contribute to the Financial Crisis?" *Journal of Economic Perspectives*.

Levine, Ross (2010), "An Autopsy of the U.S. Financial System," Working Paper 15956 (Cambridge, Mass.: National Bureau of Economic Research, April, www.nber.org/papers/w15956.

Lucas, Deborah and Marvin Phaup, "The Cost of Risk to the Government and Its Implications for Federal Budgeting" (2010), in Measuring and Managing Federal Financial Risk, edited by D. Lucas, University of Chicago Press

Merton, Robert C. and Zvi Bodie (1995), "Financial Infrastructure and Public Policy, A Functional Perspective," Chapter 8 in The Global Financial System, A Functional Perspective, Harvard Business School Press.

Munnell, Alicia, Jean-Pierre Aubry and Dan Muldoon (2008), "The Financial Crisis and Private Defined Benefit Plans," Center for Retirement Research at Boston College Brief.

Novy-Marx, Robert and Joshua Rauh (2011). Public Pension Promises: How Big Are They and What Are They Worth?. *Journal of Finance*. 66(4): 1207-1245.

Office of Management and Budget, *Credit Supplement to the President's Budget*, various years.

Office of Management and Budget, *Budget of the U.S. Government, Analytical Perspectives*, various years.

Pennacchi, George (1996), "Deposit Insurance, Bank Regulation, and Financial System Risks," *Journal of Monetary Economics*, vol. 53, no. 1, pp. 1-30.

Wallison, Peter J. (2008). "Fair Value Accounting: A Critique." American Enterprise Institute for Public Policy Research Outlook Series, July.

Whitehead, Charles K. (2001). "Destructive Coordination," Cornell Law Faculty Publications, Paper 183. http://scholarship.law.cornell.edu/facpub/183