

**STATEMENT OF
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**Before the House Subcommittee on
Capital Markets, Insurance, and Government Sponsored Enterprises
Committee on Financial Services
House of Representatives
Congress of the United States**

ON GOVERNMENT SPONSORED ENTERPRISES (GSEs)

June 25, 2003

Good morning Mr. Chairman, members of the committee, ladies and gentlemen. Thank you for the opportunity to comment today on Government Sponsored Enterprise (GSE) Oversight: The Need for Reform and Modernization.

I am Jay Cochran, a Research Fellow in Regulatory Studies at the Mercatus Center at George Mason University, and adjunct professor of economics at GMU. Our mission at the Regulatory Studies Program is to advance knowledge of the impact of regulations on society by conducting careful and independent analyses using contemporary economic scholarship to assess rulemaking proposals from the perspective of the public interest. Thus, the work we do does not represent the views of any particular affected party or special interest group, but rather is designed to evaluate the effects of government policies on overall consumer

welfare. *I would like to emphasize that the views I express today are my own and do not represent an official position of George Mason University.*

I, along with Catherine England, professor of finance at Marymount University, authored a study in 2001 that covered the history, regulatory structure, as well as the costs, and benefits of the big three GSEs in housing finance—Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. Our study was titled, *“Neither Fish Nor Fowl: An Overview of the Big-Three Government Sponsored Enterprises in the U.S. Housing Finance Markets.”* I ask, Mr. Chairman, that the 2001 study be incorporated into the record as part of my remarks here today.

Our aim then, as now, in writing that study was to bring a measure of objectivity to a subject that, as I am sure everyone on this committee is well aware, can be quite contentious. Along those lines, I have three main goals today: (1) to update some important parts of our study, (2) to discuss some of the risks presented by the GSEs, and (3) to briefly discuss oversight and regulatory issues. In covering these three areas, it is my intent to shed some additional light on the ways in which we choose as a society to finance home purchases and thus to help this committee as it considers various policy options.

Updates to the 2001 Study

In assessing the costs and benefits provided by the GSEs, my coauthor and I essentially followed the methodologies of previous studies by the CBO, GAO, and

other (non-government) authors. As in those studies, we estimated the value of the GSEs' charter-conferred privileges, such as SEC filing exemptions, state and local income tax exemptions, US Treasury lines of credit, and the ability to borrow in capital markets at rates lower than AAA-rated corporate borrowers. We treated the value of these charter-conferred privileges as approximations of the social costs of the present GSE mortgage finance setup. On the benefit side of the ledger, we estimated the savings in mortgage finance costs that the GSEs' operations confer on home buyers, and this figure is approximated by the difference between rates available on conforming mortgages and the rates paid on jumbo mortgages. Then, the difference between our cost and benefit estimates gives an estimate of the net social benefits (or costs) the GSEs provide to the US economy as a whole.

Mr. Chairman, between 1995 and 2000, we estimated that the GSEs' operations conferred net social benefits ranging from a high of slightly more than \$10.0 billion in one year, to a low of just under \$2.0 billion in another. Using the same methodology and data sources as in our original study, it is possible to update our estimates to include 2001 and 2002. Doing so and using the more conservative methodology employed by CBO, shows that GSE net benefits declined to roughly \$1.0 billion in 2001, and fell again in 2002, to just above break-even. These updated estimates reveal that the net benefits margin has continued an essentially

downward trend that has been in place now since 1998. (Figure 1, attached at the end of this statement, shows the pattern of our costs and benefits estimates.)

Increasing Size, Increasing Risk

On this latter point of rapidly growing balance sheets, the big three GSEs' on-balance sheet assets have grown at compound annual rate of more than 18% since 1995—going from \$726 billion in 1995, to just under \$2.4 billion by the end of 2002. Freddie Mac was the fastest grower, going from \$137 billion in assets in 1995 to more than \$721 billion by 2002 (27% annual growth), while Fannie Mae went from \$316 billion in assets in 1995 to \$887 billion by 2002 (16% annual growth). By comparison, real GDP over the same period grew by roughly 3% per year, while the overall US residential mortgage market grew by 9% per year.

By itself, rapid growth is not necessarily troublesome so long as general principles of financial safety and soundness are followed. And one of the most important principles of sound finance is diversification—not having all of one's eggs in one basket. For the last several years, though, Fannie Mae and Freddie Mac have been placing more of their own eggs in their own baskets. Since 1995 in fact, the volume of their own mortgage-backed securities the two firms have elected to hold in portfolio has grown from a combined \$125 billion in 1995 to nearly \$850 billion in 2002—a growth rate of better than 30% a year on average.

In this connection, it is well to recall that Congress's original aim in creating the GSEs was to help the banking and thrift industry offload and spread the risks of mortgage finance and in so doing, lower financing costs and thereby encourage home ownership. By creating an active secondary market in mortgages, Congressionally chartered GSEs developed an outlet through which banks could conveniently liquidate mortgage loans and thus better match their asset and liability maturities. Moreover, by acting as a conduit between mortgage borrowers and mortgage investors, the GSEs also helped to spread the risk of housing finance to those most willing and able to bear it. If, however, as suggested above, the GSEs are now increasingly holding more of their own mortgage-related products in portfolio rather than selling them to investors, mortgage-lending risks may again be concentrating in one place in the economy rather than dispersing throughout it. (Figure 2, attached to the end of this statement, shows the trend in mortgage-backed securities held in Fannie Mae and Freddie Mac's portfolios.)

In answer to the claim of increasing risk concentration, to their credit, the GSEs cite adequate risk protection through hedging activities using swaps and other derivative-related instruments, as well as through private mortgage insurance and other means. However, their claims beg the question of counterparty risk. In other words, are the institutions on which the GSEs are relying for risk sharing financially sound, and are they likely to remain so during less than ideal economic

conditions? And even beyond that basic question of financial soundness, if banks are important counterparties to the hedging and risk control operations of the GSEs, then in an important if less obvious way, the risks attendant with mortgage finance may be quietly re-entering the banking system, only this time through an off-balance sheet side door.

GSE Oversight

With respect to oversight, the federal government regulates the GSEs for two reasons. First, GSE debt represents a potential liability to the federal government. The GSEs have explicit lines of credit with the Treasury, and many market participants behave as if the federal government would guarantee GSE debt in the event of default. Federal supervision is also needed to protect private competitors from undue expansion by the GSEs. Their relationship with the government can give GSEs a competitive advantage that can enable them to crowd out private firms especially when the GSEs are allowed to move into already-occupied market segments. Because market discipline of the GSEs in terms of risk-taking and competitive inroads may be muted, and in some cases reversed altogether, regulatory oversight is required if the present market structure in housing finance is to be preserved.

In the remainder of my remarks on oversight, I will focus on the Office of Federal Housing Enterprise Oversight (OFHEO), and lay aside oversight questions

regarding the Home Loan Banks. With respect to Fannie Mae and Freddie Mac's safety and soundness regulation, I am confident that the staff of OFHEO is well intentioned and doing the best job they can, given the economic and political constraints they face. To their credit, their work on safety and soundness over the past decade has not upset the capital markets, and the housing finance markets, from all outward appearances, have functioned smoothly throughout the period.

However, no realistic assessment of GSE oversight can ignore the fact that OFHEO consists of just over 100 people operating on a \$30 million annual budget. Yet this small organization is expected to oversee the operations of two enterprises that, combined, held over \$1.6 trillion in assets at the end of 2002, and produce business volumes on a monthly basis in the billions of dollars. This vast disparity in size and resources may explain in part why, for example, OFHEO gave Freddie Mac and its audit procedures an unqualified endorsement in its most recent report to Congress, only to have that endorsement undermined by recent events. It may be pertinent, therefore, for the committee to ask whether the agency can continue to attract the best talent with the latest skills that match those of the GSEs they are expected to monitor.

It is also noteworthy that it took the agency nearly 10 years to develop a risk-based capital (RBC) standard for the GSEs. To be sure, from the descriptions of it in OFHEO's annual report to Congress, the RBC standard is built on a

sophisticated and complex model. It models, for example, the projected future cash flows of over 200,000 different instruments in the GSEs' portfolio and subjects those projections to a variety of interest rate and housing price shocks. Still, I can't help but be concerned, given my earlier remarks about diversification for example, that we have substituted modeling sophistication for adherence to basic principles of sound finance.

Nevertheless, even accepting that the RBC accurately models GSE risk over a variety of scenarios, there remains a possibility that a narrowly focused agency like OFHEO can be (or can become) too parochial. That is, from its relatively narrow vantage point in the economic system, it may not be especially well equipped or properly situated to consider the overall or systemic consequences of GSE operations on the broader capital and credit markets for example.

Conclusion

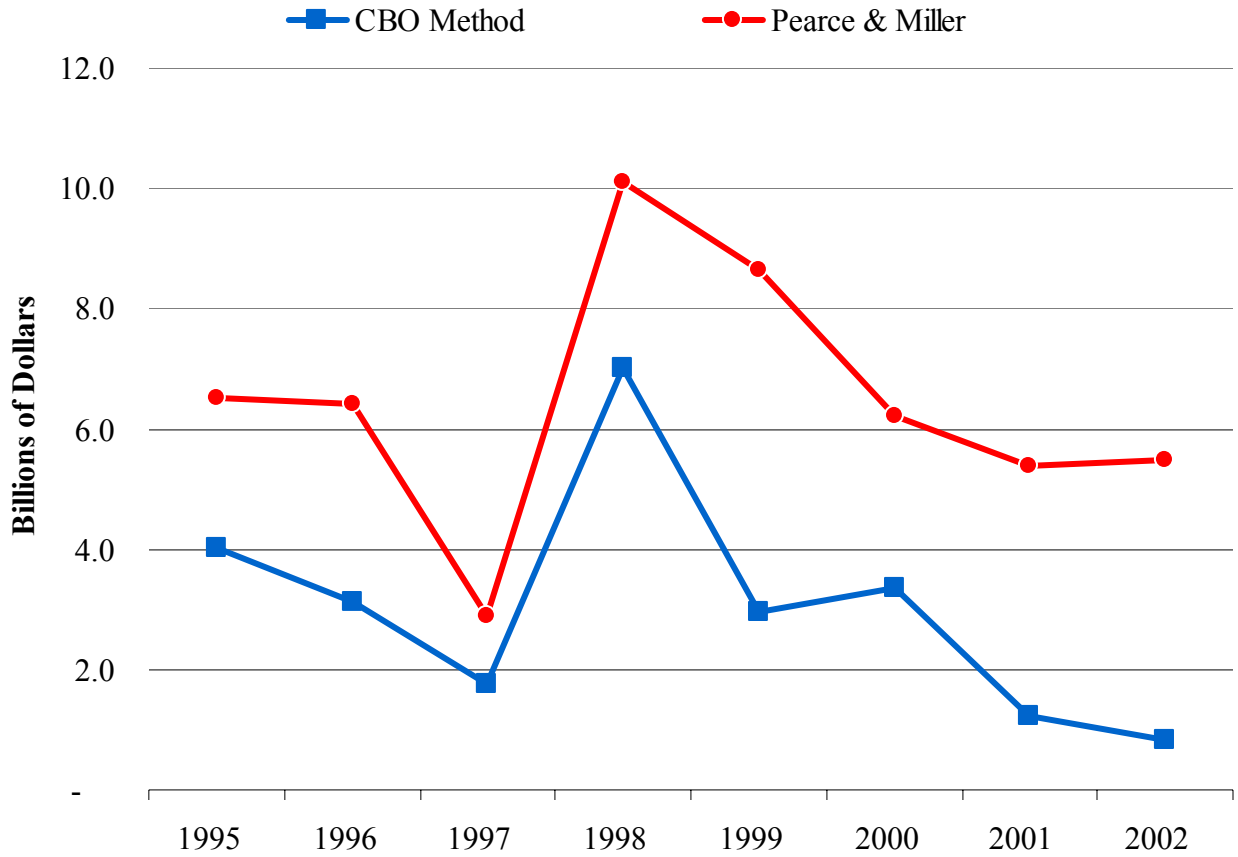
In conclusion: Clearly, the three housing GSEs have delivered benefits, not only to their owners, but also to homebuyers and lenders. The GSEs, for example, helped to pioneer long-term amortized mortgages. Moreover, GSE efforts to create a secondary mortgage market and to standardize loan contracts have simplified comparisons and reduced transactions costs throughout the life of a mortgage loan. Furthermore, increased liquidity of mortgage loans as well as better tools to spread

risks across investors have contributed to reduced mortgage interest rates compared to what they would have been otherwise.

Despite these innovations, however, one must always keep in mind that the GSEs are neither fully responsive to market forces nor to government control. To the extent GSEs' cost structures do not reflect market-driven costs and their operating venues are protected from competitive encroachment, GSEs face muted market discipline. Nor are the GSEs government agencies and thus subject to the budgeting process and other institutional controls. Government oversight of the GSEs is thus limited. Being neither fish nor fowl—neither fully private nor fully public enterprises—prudence and rational public policy dictate that the GSEs undergo regular scrutiny by government and market participants. With respect to this latter point in particular Mr. Chairman, I would like to applaud you and the members of this committee for your steadfast willingness to undertake this difficult but necessary responsibility.

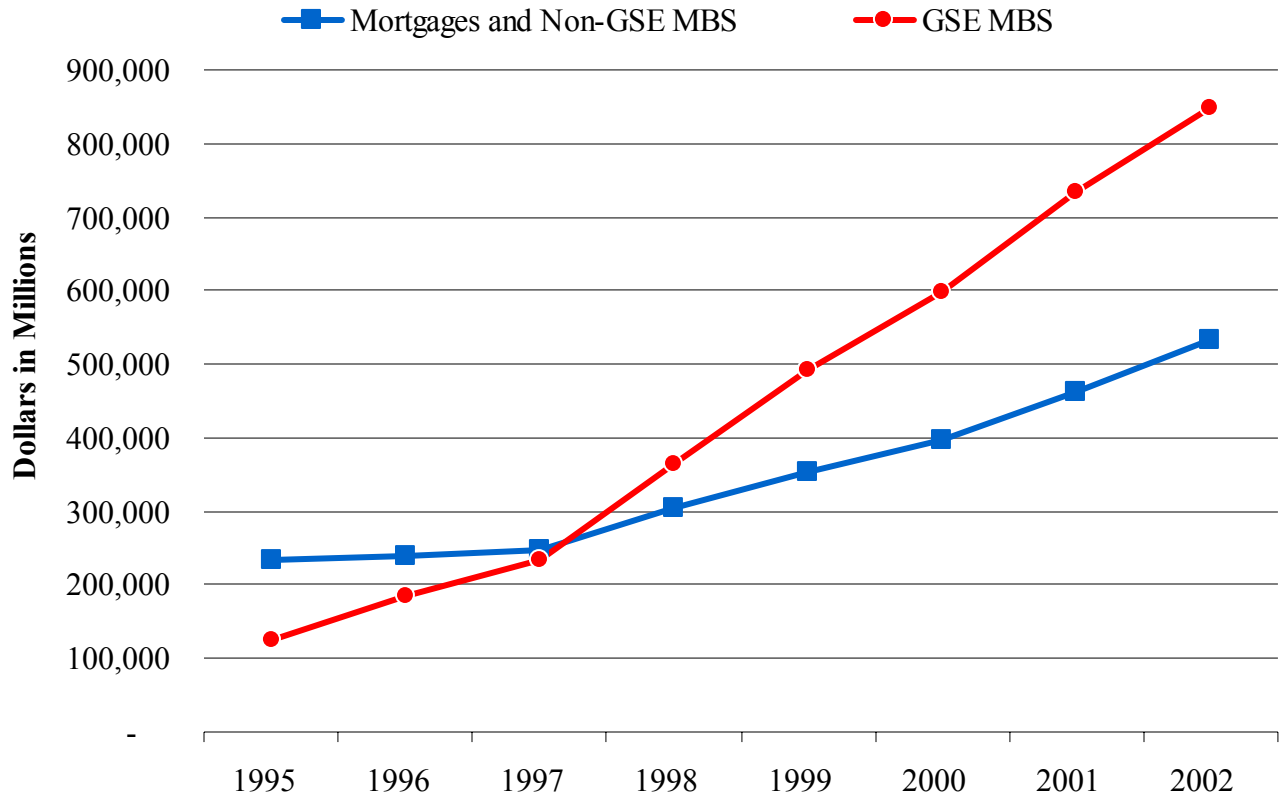
Thank you.

Figure 1
Estimates of Net Social Benefits Conferred by GSEs



Source: “Neither Fish nor Fowl: An Overview of the Big-Three Government Sponsored Enterprises in the U.S. Housing Finance Markets,” (2001), Mercatus Center at George Mason University, and the citations to data sources and studies incorporated therein.

Figure 2
Mortgages and MBS Held in Portfolio
by Fannie Mae and Freddie Mac



Source: GSEs' Annual Reports, various years.

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NEITHER FISH NOR FOWL:

*An Overview of the Big-Three Government-Sponsored Enterprises in the
U.S. Housing Finance Markets*

Jay Cochran, III and Catherine England

November 15, 2001

ABSTRACT

This paper provides an overview of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks—the “Big Three” government-sponsored enterprises, or GSEs—in the U.S. housing finance markets. We begin with the history and evolution of these enterprises. Then we discuss how the GSEs’ congressional charters confer privileges on their operations and what those privileges might be worth. We conservatively estimate that the GSEs have tended to confer net benefits to U.S. housing markets generally, but that such benefits are uneven over time (and might prove be illusory with more detailed estimates). Moreover, since the GSEs are not fully responsive to market forces or to government control, such social benefits as they have conferred in the past can be erased in the future if their business plans and practices—including their willingness to accept more risk—do not pan out as the GSEs expect.

Neither Fish nor Fowl:

An Overview of the Big-Three Government-Sponsored Enterprises in the U.S. Housing Finance Markets

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NEITHER FISH NOR FOWL:

An Overview of the Big-Three Government-Sponsored Enterprises in the U.S. Housing Finance Markets

Jay Cochran, III and Catherine England*

INTRODUCTION

Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation) have certainly attracted their share of controversy during the past few years. On the one hand, there is little doubt that Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System (the third housing GSE) have contributed to one of the most dynamic mortgage markets in the world. At the end of June 2001, 67.7 percent of the U.S. population owned their own homes.¹ These homeownership rates are as high as they have ever been in the United States, and they are among the highest in the world.

On the other hand, critics point with alarm to the rapid growth of these government sponsored enterprises, both in terms of their total assets and in terms of their outstanding debt. To put their expansion into perspective, from 1995 to 2000, growth of the U.S. mortgage market averaged just 8.2 percent per year.² Meanwhile, growth of the GSEs was at least double, if not triple, that amount.

Table 1

Average Annual Growth of the Housing GSEs, 1995-2000

	Fannie Mae	Freddie Mac	FHLBS
Total Assets ^a	16.4%	27.3%	19.1%
Total Debt ^b	16.5%	28.9%	19.6%

^a Growth rates in assets of the three housing GSEs were determined using data from their various annual reports.

^b Details regarding the outstanding debt for each GSE are available below in Table 2 and Figure 5.

From 1995 to 2000, Fannie Mae's outstanding debt more than doubled while Freddie Mac's debt grew by more than 3.5 times. The less controversial Federal Home Loan Bank System expanded its outstanding debt by 2.4 times between 1995 and 2000. Taken together, Fannie Mae, Freddie Mac, and the Federal

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¹ Census Bureau, Table 5, "Homeownership Rates for the United States: 1965 to 2001."

² Federal Reserve Board of Governors, *Statistical Release Z.1*, Table L.2, Line 12 "Credit Market Debt Owed by Nonfinancial Sectors—Home Mortgages," dated September 2001.

Home Loan Bank System accounted for 90 percent of the total federal agency and federally sponsored agency debt outstanding at the end of 2000.³

As government sponsored enterprises, Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System enjoy a special, if sometimes ambiguous, relationship with the federal government because of their congressional charters. Many observers believe, rightly or wrongly, that if one of the GSEs encountered financial difficulties, the federal government would assume responsibility for repaying the debt of the enterprise. This attitude among investors may free the GSEs to take more risks than they would if subject to more robust competition and more intense market-based discipline.⁴ The swelling debt of the housing GSEs has thus raised concerns among several observers, both within and outside the government.

Banks, securities firms, and other financial institutions with which the housing GSEs compete have also objected to their rapid expansion.⁵ For their exceptional growth rates to continue, the GSEs must seek new opportunities, as their existing businesses will soon be limited by the slower growth rate of the mortgage markets generally.⁶ Expansion of the housing GSEs into other markets must almost certainly squeeze other providers. If the past is indicative of the future in this regard, the GSEs competitors' concerns may be well founded.⁷

³ Bond Market Association table, "Federal and Federally Sponsored Credit Agency Debt Outstanding 1985-2000." www.bondmarkets.com/Research/O5.shtml. The remaining 10 percent of agency debt comes from the Farm Credit System, Student Loan Marketing Association, Tennessee Valley Authority, credit agencies within the Defense Department, the Export-Import Bank, Federal Housing Administration, Ginnie Mae certificates of participation, the Postal Service, U.S. Railway Association, Financing Corporation, and Resolution Funding Corporation.

⁴ Consider for example Carnahan's (2001, p. 46) description in a recent *Forbes* article of the new Location-Efficient Mortgages (LEMs). "Under this new scheme, the purchaser of a house or condo near a subway or bus stop can qualify for a mortgage as much as 45% bigger than his income would normally allow. And he has to put only 3% of the purchase price down. . . . Fannie Mae has agreed to buy \$100 million of LEMs now offered in San Francisco, Seattle, Los Angeles, and Chicago." This program can magnify risk by allowing homebuyers to increase their debt burdens, which may backfire in an economic downturn. Furthermore, the homebuyer need not use the public transportation to qualify for the special terms, thereby negating the social benefits said to motivate the program. Although \$100 million is a trivial amount within the context of Fannie Mae's \$675 billion in total assets, the LEM program illustrates the GSEs' willingness to pursue more marginal business as they encounter the limits of their existing charters.

⁵ Barta and Wilke (2001, p. A2) and Barta (2001, pp. A1, A10).

⁶ As Knight (1996, p. F27) noted in the *Washington Post*, Fannie Mae and Freddie Mac instituted share repurchase plans "because they can make more money than they can reinvest in their businesses, whose expansion possibilities are limited by their congressional charters."

⁷ Each of the GSEs has seen its charter expanded from time to time, as we will discuss below. Recent activity indicates this trend is likely to continue. For example, the Bloomberg News service reported (1997) that "Fannie Mae was weighing a plan to give insurance to homeowners that would pay off their mortgagees if they died or became disabled." A Digest report in the *Washington Post* (1999) indicated that Fannie Mae had established an experimental program "to help disabled people retrofit their homes to meet their special needs . . . that combines a conventional first mortgage loan with a second mortgage loan." More recently, Barta (2000) noted that Fannie Mae and Freddie Mac "have pioneered 3 percent-down mortgages and a slew of other programs for lower-income borrowers." Our intent is not to criticize these programs, but to indicate that the GSEs are actively

Washington policymakers have also joined the debate. Representative Richard Baker (R-Louisiana) has conducted hearings asking how Fannie Mae and Freddie Mac should be regulated and what their relationship with the federal government should be. Rep. Baker recently proposed making the Federal Reserve Board the safety and soundness regulator of Fannie Mae and Freddie Mac.⁸ Alan Greenspan, Chairman of the Federal Reserve's Board of Governors, has questioned the GSEs' use of their government ties to increase profits and benefit their shareholders.⁹ Amid growing concerns about the expanding economic presence of Fannie Mae and Freddie Mac, the two institutions have vigorously defended their roles in maintaining a healthy mortgage market.¹⁰

Ultimately, the questions swirling around the GSEs—about their influence on the mortgage markets, their increasing debt, and their size—will require congressional answers. Having been created by Congress, Congress must determine the GSEs' futures. Amendments to the GSEs' charters could limit future growth or allow for expanded activities. Or Congress could stand by and let GSE regulators continue to interpret and reinterpret the charters. We do not intend to address specific congressional policies in this paper, however.

We do want to demystify the housing GSEs. We hope to provide analysis that will be useful to policymakers, pundits, and students of the financial markets attempting to understand the consequences of choosing one future or another for Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System. In pursuit of that goal, this paper might be viewed as the compilation of three distinct essays.¹¹

The first section or essay sets the stage. In it, we define government-sponsored enterprises. We identify the risks facing mortgage lenders and provide a short history of the development of mortgage markets. We seek to answer basic questions: Why were the GSEs created? How do they differ from one another?

The second section of the paper considers the risks resulting from GSE activities. If there is any truth to the market perception of a government guarantee, government agents should understand and be prepared to limit the risks assumed by Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System. Finally,

seeking new business opportunities. This ongoing expansion of GSE activities is bound to attract the attention of competitors serving markets into which the GSEs hope to expand.

⁸ Congressman Baker's proposed legislation is H.R. 1409. This bill would leave the Department of Housing and Urban Development responsible for mission regulation. Currently, safety and soundness regulation is the responsibility of the Office of Federal Enterprise Housing Oversight (OFHEO) within HUD.

⁹ Guidera (2000, p. A6).

¹⁰ See, for example, "A Message from Henry Kaufman and George Gould," an advertisement published in the *Washington Post*, March 28, 2001, p. A5.

¹¹ We believe that the current role of the GSEs is best understood as the sum of their history, their current regulation, and their privileges. We recognize this makes for a rather lengthy story, however. So for those with a basic knowledge of the mortgage market risks and history, we have attempted to prepare each section of the paper so that it can also stand alone.

we describe the regulation of the Federal Home Loan Bank System on the one hand and Fannie Mae and Freddie Mac on the other. By answering questions about where the GSEs have been and where they are now, we hope to shed light on the road ahead.

The third and final section of the paper begins by considering the size of the GSEs within the mortgage market. We then describe the privileges the GSEs enjoy by virtue of their congressional charters, and we attempt to value these privileges. Finally, we examine the benefits the GSEs provide to their shareholders as well as to mortgage market participants.

As the title suggests, this paper is meant to serve as an introduction to the housing GSEs for interested parties who are unfamiliar with the background or details of the current debates. Our hope is to bring objective analysis to bear on this important policy question.

THE GSEs AND THE U.S. MORTGAGE MARKETS

Government sponsored enterprises, or GSEs, are hybrid financial institutions that were created by Congress for a specified, limited purpose. GSEs are privately owned, but their ties to the government lead many market participants to assume that the debt of the GSEs enjoys an implied federal guarantee. In addition to Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System, the Farm Credit System, including the Federal Agricultural Mortgage Corporation (Farmer Mac), the Financing Corporation (FICO), and the Resolution Funding Corporation (REFCorp) are all GSEs.¹²

The subject GSEs of this study are congressionally chartered financial institutions. Congress designed them, created them, and then asked private investors to participate.¹³ Even though Congress created these GSEs, they are privately owned. GSEs are not part of the consolidated federal budget. They are free, within the constraints of their charters, to earn a profit and to serve the interests of their stockholders. Indeed, GSE executives often have all the incentives of other corporate CEOs, including bonuses and stock options.¹⁴

GSEs were created for a relatively limited public purpose specified in their charters.¹⁵ In establishing GSEs, Congress has generally pointed to some presumed market failure. The advantages enjoyed by GSEs because of their congressional charters are then justified as necessary to correct this failure. In the case of the housing markets, the argument has been that, in the absence of the GSEs, interest rate risk and liquidity risk, in particular, would discourage lenders from entering the market. With fewer lenders, interest rates would be higher than they are, and home ownership would be less affordable.

With respect to the implied government guarantee, it is important to distinguish between what the government says and what the markets assume. Prospectuses that accompany GSE stock and bond issues carry disclaimers indicating that GSE securities are not obligations of the federal government. Many market participants and government officials continue to assume, however, that bondholders would be protected in the event of a GSE default. The market's assumption of this implied guarantee arises from the privileges enjoyed by GSEs through their congressional charters. We will discuss these charter-conferred privileges in more detail below, but among them are the GSEs' line of credit with the Treasury Department, their exemption from SEC registration requirements,

¹² The Student Loan Marketing Association (Sallie Mae) also began as a GSE, but has since given up its GSE status. The Government National Mortgage Association (Ginnie Mae) is not a GSE because it is not privately owned but rather a department within HUD.

¹³ The exception is Freddie Mac, which was created by the Federal Home Loan Bank Board with the permission of Congress. See the discussion below.

¹⁴ Federal Home Loan Bank executives do not receive stock options.

¹⁵ FICO and REFCorp represent extreme examples of this limited purpose. Both were created during the 1980s to help pay for the S&L debacle in a way that would not appear as part of the federal budget. When the bonds issued by these organizations are repaid, they will (presumably) cease to exist.

and their access to the Federal Reserve as a transfer agent supporting the markets for GSE debt. As we will describe later, the market's perception of an implied government guarantee has played an important role in the GSEs' ability to fuel their recent growth with increased debt.

Clearly, the housing and mortgage markets have received the lion's share of congressional attention when it comes to the GSEs. To understand why, it is helpful to understand something about the mortgage market, generally, and the savings and loan associations as specialized mortgage lenders.

Evolution of the U.S. Mortgage Markets

The S&L industry has its roots in cooperative organizations created during the 19th century by groups of individuals well known to one another. Neighbors would agree to pool their savings and make loans to individual members in turn. Borrowers would thus be able to purchase a home or start a small business. They maintained the good will of their families and friends by repaying their loans quickly so that others of the group could access the funds. Out of these cooperative efforts grew the savings and loan industry. In fact, many S&Ls were still owned by their depositors well into the 1980s, while a few remain mutual institutions to this day.

Beginning in the early 20th century, and certainly by the latter stages of the Roosevelt New Deal, government decision-makers had concluded that promoting home ownership was good public policy. Widespread home ownership was expected to increase political stability, and a vibrant housing market was believed to provide a powerful stimulus to other sectors of the economy.¹⁶ Standard financial practice during the 19th and early 20th centuries viewed it as too risky for banks to make loans backed by real estate, however.¹⁷ As the U.S. government embarked on its policy of promoting home ownership, it turned to the S&Ls as conduits for mortgage lending.

The mortgage market in the 1930s was very different from today's market. Mortgage loans were often for terms of six years or fewer, and none were for more than 11 years. Down payments were typically for 40 percent or more of the purchase price of the property, and principal was not amortized, as it is with today's mortgage loans. Consequently, borrowers often faced a large final

¹⁶ The general policy of promoting widespread home ownership has been one of the most consistent and successful (in terms of achieving stated goals) policy initiatives of the federal and state governments. The means to this end show up in the tax code as well as in numerous policies affecting the terms of mortgage contracts and the regulation and oversight of financial institutions, not to mention the creation of the GSEs discussed in this paper.

¹⁷ As noted financial historian Benjamin Anderson (1949, p. 233) put it, "The first principle of commercial banking [was] to know 'the difference between a bill of exchange and a mortgage.' Second and third mortgages were notoriously improper documents in a bank's portfolio or as collateral to its loans." Thus, the "real bills" doctrine of banking held that bank loans should be backed only by collateral that was "self-liquidating," e.g., commercial bills drawn against the inventories of merchants. This attitude reflected the bankers' desire to minimize (or at least control) liquidity and interest rate risks, discussed below.

payment of principal when the loan matured.¹⁸ Typically, borrowers refinanced their loans as they matured. During the 1930s, however, increasing unemployment led to rising defaults, causing many institutions to curtail new lending. The refusal by lenders to refinance mortgages as they came due increased defaults further, thus reinforcing a vicious cycle in which mortgage lending was sharply reduced.

Policies aimed at reviving mortgage lending and making housing more affordable encouraged longer-term and fixed-rate loans. In fact, the Federal Land Banks (a GSE established in 1916) pioneered 20- to 40-year amortized loans backed by real property.¹⁹ The Home Owners Loan Act of 1933 established the Home Owners Loan Corporation to purchase mortgages in default and convert them to long-term amortizing loans.²⁰ The National Housing Act of 1934 created the Federal Housing Agency (later renamed the Federal Housing Administration) to insure lenders against default on mortgages and thereby encourage more lending. FHA-insured mortgages were amortized loans, could have maturities of 20 years or more, and could be made with down payments as low as 20 percent of the purchase price.²¹

As the country emerged from the Great Depression, S&Ls were expected to fund the new 30-year, fixed-rate mortgages with passbook savings accounts. Using short-term deposits to fund long-term loans can be profitable as long as three conditions are met. First, depositors as a group must remain willing to leave their funds with S&Ls for long periods (i.e., withdrawals must be matched or exceeded by new deposits). Second, interest rates on short-term financial instruments must be lower than interest rates on long-term instruments (i.e., S&Ls need a normal yield curve). Finally, the structure of interest rates generally must remain stable. Rapidly changing interest rates, particularly rapidly increasing rates, dramatically increase the risks faced by mortgage lenders. Even before the economic and financial conditions of the 1970s and 1980s violated all these conditions, policymakers understood that the mortgage market needed institutional support if savings and loans were to serve as its core. Before describing the congressional response, however, it is helpful to examine the risks facing mortgage lenders.

¹⁸ See Bosworth (1987, pp. 48-50). By contrast, with amortized loans, principal is repaid along with interest throughout the life of the loan, so for a fixed-rate loan the last payment due is no larger than earlier payments.

¹⁹ The Federal Land Banks' goal was to support farmers' purchases of land. See Stanton (1991, p. 86). Extending the period over which a mortgage could be repaid made it possible for more families to own a home. Furthermore, before 1979, federally chartered savings and loan associations were required to make only fixed-rate mortgages. See White (1991, p. 72). Policymakers reasoned that adjustable rate loans could endanger home ownership if interest rates, and hence mortgage payments, rose.

²⁰ Bosworth (1987, p. 49). The Home Owners Loan Corporation thus helped demonstrate the soundness of fully amortizing, longer-term loans.

²¹ See Bosworth (1987, pp. 49-50). The FHA also encouraged standardization of underwriting and loan terms, thereby reducing transactions costs.

Mortgage Lending Risks

Lenders holding mortgages in their loan portfolios are subject to three important risks: credit risk, liquidity risk, and interest rate risk.²²

Credit (Default) Risk

Credit risk exists because borrowers may not repay their debts on time and in full. Assessing credit risk is, however, one of the primary reasons depository institutions (such as banks and S&Ls) exist. Indeed, mortgage originators are proficient at assessing the default risks posed by borrowers. They rely on credit histories, business relationships, and credit scoring models, among other tools, to evaluate the probability that a borrower might default on a given loan.

Credit risk also includes the risk that a widespread economic downturn may adversely affect the ability of borrowers to repay according to a loan's original terms.²³ Historically, however, mortgage loans have experienced the lowest default rates among consumer loans, whatever the economic climate.²⁴

Interest Rate Risk

Changes in interest rates can adversely affect the value of investments (including loans) and/or the debts of a financial institution, thereby giving rise to interest rate risk. Interest rate risk can be further subdivided into refinancing risk and reinvestment risk.

Refinancing risk occurs when an institution's assets have longer lives than do its liabilities. As a result, the firm's returns on its investments change more slowly than its cost of funds. This is good news when interest rates are falling, but rising interest rates can reduce profits or generate losses.

Reinvestment risk occurs when an institution's liabilities have longer lives than its assets. In such cases, the cost of the firm's obligations changes more slowly

²² Financial economists also identify a number of other risks—management risk, political risk, and technological (or operational) risk, to name a few. The GSEs, as well as depository institutions, are subject to political risk especially. What Congress grants, Congress can take away. Indeed, sensitivity to political concerns may explain why Fannie Mae and Freddie Mac maintain their headquarters in Washington, D.C. in addition to offices in more than half the states. The three risks identified above—credit, interest rate, and liquidity risk—are ever-present for mortgage lenders, however.

²³ We were completing work on this paper on September 11, 2001. The terrorist attacks had obvious (and not so obvious) economic repercussions. Among those affected are mortgage lenders. At least one lender, Washington Mutual Home Loan, announced a special program to defer monthly mortgage payments for up to one year for families that had lost members during the September 11 attack. See "A Special Message to Washington Mutual Home Loan Customers."

²⁴ See the Federal Reserve Board's statistical release on charge-offs and delinquencies for comparisons among consumer loans. Since 1991, residential mortgage loans have had an average delinquency rate of 2.45 percent and a charge-off rate of 0.15 percent of all loans outstanding. Over the same period, other types of consumer loans have had an average delinquency rate of 3.51 percent and a charge-off rate of 2.19 percent of loans outstanding. The Fed defines delinquent loans as those 30 or more days past due. Charge-offs are those loans recognized by the lender as unrecoverable.

than do the returns earned on its investments. These institutions benefit from increasing interest rates, but falling interest rates create profitability problems.

For depository institutions, refinancing risk is generally the more important risk because deposits typically have shorter maturities than loans. When interest rates rise, interest expenses—what depository institutions must pay customers for deposits—increase more quickly than interest income—what depository institutions charge borrowers. The greater the mismatch, the greater the interest rate risk.²⁵

Mortgage lenders face both refinancing and reinvestment risk, however. When interest rates increase, mortgage lenders face refinancing risk. Home sales slow as homeowners hold on to their lower rate loans. The average age of loans in mortgage portfolios increases, and spreads between the lender's cost of funds and its earning assets narrow at the same time business volume contracts. In the face of falling interest rates, reinvestment risk is present, however. When interest rates decline, homeowners refinance or purchase new homes in larger numbers, thereby replacing older, higher yielding loans with lower yielding ones. Lenders have plenty of funds available, but they can only invest in new loans at lower interest rates than the loans that were repaid.

Liquidity Risk

Liquidity risk exists when an asset cannot be sold (i.e., liquidated) in a timely manner without incurring a loss. Liquidity risk arises for depository institutions because deposits typically can be withdrawn on short notice, often on demand. Meanwhile, the loans funded by those deposits often cannot be liquidated as quickly. Even solvent firms subject to liquidity risk may owe money to creditors that they cannot repay except by selling assets at a loss.²⁶

Of the three fundamental risks facing mortgage lenders, only liquidity risk can be mitigated or eliminated. An active secondary market in which mortgages can be easily bought and sold reduces liquidity risk. When individual and institutional investors purchase mortgages from lenders, both sides reduce their liquidity risk by supporting the resulting secondary market. In contrast, credit risk and interest rate risk can only be shifted to another investor, whether an individual or institution. This shifting activity can occur because some institutions or individuals are better able to handle the interest rate and credit risks associated with mortgages. Life insurance companies and pension funds, with their long-term liabilities, are well suited to hold long-term mortgage loans, for example.

²⁵ Federal authorities tried to address interest rate risk for S&Ls in 1966 by subjecting them (along with banks) to Regulation Q, which limited the interest rates thrifts and banks could pay depositors. In time, however, this regulation magnified liquidity risk instead. Whenever interest rates rose above established ceilings, S&Ls experienced outflows of funds. During such periods, the Federal Home Loan Bank System would borrow at market rates, providing funds through advances to thrifts that had lost deposits. See Stanton (1991, p. 99). Deposit rate ceilings were eliminated in 1986 to alleviate severe liquidity problems.

²⁶ We are defining a “solvent” firm as one with assets worth more than its liabilities assuming the firm has the opportunity to liquidate its assets in an orderly fashion.

Enter the GSEs

Congress created the housing GSEs to address these risks, especially liquidity risk. The Federal Home Loan Bank System was created in 1932, followed by the forerunner of Fannie Mae, established in 1938. Freddie Mac is the relative newcomer, having been chartered by Congress and, at first, wholly owned by the Federal Home Loan Bank System in 1970.

The Federal Home Loan Banks

In 1932, the Federal Home Loan Bank Act created the Federal Home Loan Bank System to provide a source of direct federal support for savings and loan associations and mutual savings banks.²⁷ The Federal Home Loan Bank System was modeled after the Federal Reserve System (the Fed) created in 1913.

Twelve regional Federal Home Loan Banks make up the System, just as 12 district banks make up the Federal Reserve System.²⁸ Originally, the Federal Home Loan Bank Board in Washington established system-wide policies and supervised the FHLBs. Like the regional Federal Reserve Banks, the FHLBs are owned by their financial institution customers. The FHLBs support member institutions by providing advances (i.e., loans), accepting assets of the borrowing institution as collateral, just as the Fed uses the discount window to provide liquidity to depository institutions.²⁹

For all their similarities, there are also important differences between the Federal Home Loan Bank System and the Federal Reserve System. The Federal Home Loan Bank System has a more focused mission than the Fed. When the Federal Reserve makes discount window loans, it prefers Treasury bills and other high-quality, readily marketable securities as collateral. Furthermore, the Fed provides liquidity to the financial markets generally, exhibiting little or no concern about particular segments of the economy that may benefit. By contrast, the Federal Home Loan Banks were created to promote home ownership. Mortgages on one- to four-family housing units are by far the most common collateral used by institutions securing FHLB advances.³⁰

The Federal Reserve and the Federal Home Loan Bank System also differ in their attitudes toward lending. The Fed is the lender of *last* resort, providing discount window loans to member institutions only after they have exhausted other sources of liquidity. Depository institutions are discouraged from borrowing from their regional Federal Reserve Bank on a regular basis, and Federal Reserve

²⁷ Mutual savings banks are state-chartered, mutually owned institutions, located primarily in the northeast.

²⁸ The twelve regional FHLBs are located in Atlanta, Boston, Chicago, Cincinnati, Dallas, Des Moines, Indianapolis, New York, Pittsburgh, San Francisco, Seattle, and Topeka.

²⁹ Similar to the Federal Reserve, the Federal Home Loan Banks “discount” the loans they accept as collateral. That is, a mortgage loan with a face value of \$1,000, for example, might support an advance from the member institution’s regional FHLB of, say, \$800.

³⁰ FHLBs also accept Treasury securities and mortgage-backed securities (MBS) as collateral. In addition, the 1999 legislation broadened the range of acceptable collateral beyond housing-related lending. See the discussion below.

officials expect discount window advances to be repaid quickly. By contrast, the Federal Home Loan Bank System describes itself as a “lender of *first* resort for its members,” offering funds at a lower cost than member institutions are likely to obtain elsewhere.³¹ In fact, FHLB advances can have maturities of up to 20 years, and the FHLBs must impose prepayment penalties on all long-term advances.³²

Finally, as the monetary authority, the Federal Reserve creates the money it lends to member institutions.³³ The FHLBs, by contrast, must go to the financial markets and borrow the money they lend to their members, creating debt obligations that are the joint and several responsibility of the System.³⁴

Fannie Mae

In addition to the direct support provided to the S&Ls by the Federal Home Loan Bank System, Congress also sought to encourage development of a secondary market for mortgage loans during the Great Depression. Without GSE support, lenders holding mortgages might find buyers by searching for investors willing to purchase and hold such loans. Such a search could be costly and time-consuming, however. First, the lender faces the difficulty of finding suitable buyers. Second, potential investors are naturally interested in verifying the quality of the loans available for sale.³⁵ Indeed, initial congressional attempts to encourage development of a secondary market were less than fully successful.

The National Housing Act of 1934 authorized federal charters for national mortgage associations or pools that would purchase mortgages from the thrift

³¹ Emphasis added. From the Federal Housing Finance Board web site, www.fhfb.gov/fhlbank.htm.

³² Office of Finance, p. 34. The prepayment penalties are designed to protect the FHLBs from interest rate risk. If debt issued by the System to fund long-term advances cannot be prepaid while the advances can be paid early, the System could find itself forced to invest in new, lower-yielding assets funded by old higher-cost debt. Prepayment fees charged to member borrowers are designed to mitigate this reinvestment risk.

³³ There are no Federal Reserve “bonds.” The liabilities of the Federal Reserve System are the monetary base, consisting of Federal Reserve Notes that serve as U.S. currency and the reserves held by the regional Federal Reserve Banks for depository institutions. When a Federal Reserve Bank extends a discount window loan, the Federal Reserve Bank adds the discount window loan to the asset side of its balance sheet and increases the borrower’s reserves on the liability side of its balance sheet.

³⁴ “Joint and several liability” means that all FHLBs are equally responsible for repaying any or all of the debt issued by any part of the System. Therefore, rather than each FHLB issuing its own debt, the Office of Finance, part of the Federal Housing Finance Board, issues debt for the entire System. (Office of Finance, pp. 12, 33.) The Office of Finance is thus able both to take advantage of economies of scale by issuing debt for several FHLBs simultaneously and to monitor the total debt issued by the System.

³⁵ Buyers might fear that an S&L would be tempted to sell the lower quality loans in its portfolio while holding on to the higher quality assets. This “lemon problem” (or information asymmetry) can be addressed when the buyer and seller agree on a third party to verify the quality of the asset being sold and/or the seller provides some guarantee of quality. See Akerlof (1970). Fannie Mae and Freddie Mac often play the role of third party guarantors.

institutions that originated the loans.³⁶ Private individuals and firms were generally unwilling to accept the risks associated with establishing such mortgage pools, however, given the credit conditions prevailing in the 1930s and the limited benefits associated with national mortgage association charters. In 1938, therefore, Congress created the Federal National Mortgage Association (FNMA, the forerunner of today's Fannie Mae) to buy mortgages insured by the FHA.

In 1944, FNMA received the first of many charter extensions when it was authorized to purchase mortgages insured by the Veterans Administration (VA). Ten years later, FNMA took a first step toward privatization by becoming a mixed ownership corporation, encompassing both government and private owners. By 1968, President Johnson, faced with budget constraints stemming from the Vietnam War and expenditures on the Great Society programs, sought to move FNMA off budget. With the 1968 Housing and Urban Development Act, President Johnson split the existing Federal National Mortgage Association into a private shareholder-owned firm of the same name and a government agency called the Government National Mortgage Association (or Ginnie Mae).³⁷ Two years later, President Nixon signed legislation allowing Fannie Mae to purchase uninsured, conventional mortgages.³⁸

Although Fannie Mae was initially established to support thrift institutions, it was not limited to purchasing mortgages from banks and S&Ls. Any lender writing mortgages of an acceptable size and quality could sell the mortgages to Fannie Mae, making mortgage lending a more attractive activity. Liquidity risk was reduced as Fannie Mae provided an active secondary market. Now a financial institution writing a mortgage loan could sell (i.e., liquidate) its asset on competitively determined terms in a market composed of hundreds of potential buyers. Search costs were reduced, and interest rate and credit risks could be shifted to investors purchasing the mortgages (and later mortgage-backed

³⁶ The National Housing Act also established the Federal Savings and Loan Insurance Corporation to provide deposit insurance for S&Ls. See White (1991, p. 54). Federal deposit insurance was deemed necessary if S&Ls were to compete effectively with federally insured banks for deposits to fund their mortgage lending activities.

³⁷ See Stanton (1991, pp. 21-22).

³⁸ A conventional mortgage is a loan secured by real property that is not insured or guaranteed by the federal government. A conforming loan is one that conforms to Fannie Mae's and Freddie Mac's purchasing criteria. Conforming loans may be federally insured or conventional loans, but the mortgage balance must be below \$275,000, and its loan-to-value ratio cannot exceed certain parameters. In certain high-cost housing areas (Alaska, Hawaii, Guam, and the U.S. Virgin Islands), the conforming loan limit is 50 percent higher, or \$412,500 for 2001.

securities, or MBS).³⁹ The resulting development of the mortgage banking industry created an important new source of competition for the thrift industry.⁴⁰

Freddie Mac

By 1970, members of the savings and loan industry, through the Federal Home Loan Bank Board, wanted to enter the market developed by Fannie Mae. The Emergency Home Loan Act of 1970 granted the Federal Home Loan Bank Board permission to establish the Federal Home Loan Mortgage Corporation (Freddie Mac) as a third housing GSE with powers similar to those of Fannie Mae. The members of the Bank Board constituted Freddie Mac's board of directors, and initially, Freddie Mac was wholly owned by the FHLBs.⁴¹ In 1988, Congress permitted S&Ls to sell their Freddie Mac stock to the public, thus increasing the liquidity of Freddie Mac stock held by cash-strapped S&Ls. The 1989 Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) abolished the Federal Home Loan Bank Board and gave Freddie Mac a stockholder-controlled board of directors similar to Fannie Mae's.⁴²

The Different Roles of the GSEs

Although the broadly defined mission of all three housing GSEs is to support housing finance, the role of the Federal Home Loan Bank System is different from that of Fannie Mae and Freddie Mac. The Federal Home Loan Banks support the depository institutions that make mortgage loans, while Fannie Mae and Freddie Mac support the mortgage markets more generally.

The differences between the FHLB System and Fannie Mae and Freddie Mac begin with the differing ownership structures of the GSEs. The owners of the regional Federal Home Loan Banks are the financial institution customers of the System. Indeed, ownership of FHLB stock is restricted to financial institutions

³⁹ Mortgage-backed securities (MBS) are securities issued by the GSEs that represent an undivided interest in a group or pool of mortgages. Principal and interest payments from the individual mortgages are pooled and then paid out to investors. Fannie Mae and Freddie Mac increase the marketability of MBS by guaranteeing the timely payment of interest and principal, thereby assuming the credit risk. Investors purchasing MBS assume the interest rate risk. Freddie Mac refers to its MBS as "Participation Certificates" or PCs.

⁴⁰ Mortgage *bankers* raise money in the capital markets and make mortgage loans, unburdened by branch networks, deposit customers, or deposit insurance premiums. Mortgage bankers then sell their loans in the secondary markets, receiving fee income for originating and/or servicing the loans. Mortgage *brokers* do not even raise money to fund their loans. Brokers use Fannie Mae's and Freddie Mac's on-line automated underwriting systems to identify homebuyers whose mortgages Fannie and Freddie will purchase. The broker *then* goes to a bank with a pre-approved package. The bank pays the broker for the loan, sometimes by sharing the origination fee charged to borrowers. See Barta (2001). As Eichler (1989, p. 49) noted, "When anyone could originate loans and sell them to the agencies and other conduits, . . . the ability to acquire deposits, aided by government insurance, was of little, if any, benefit."

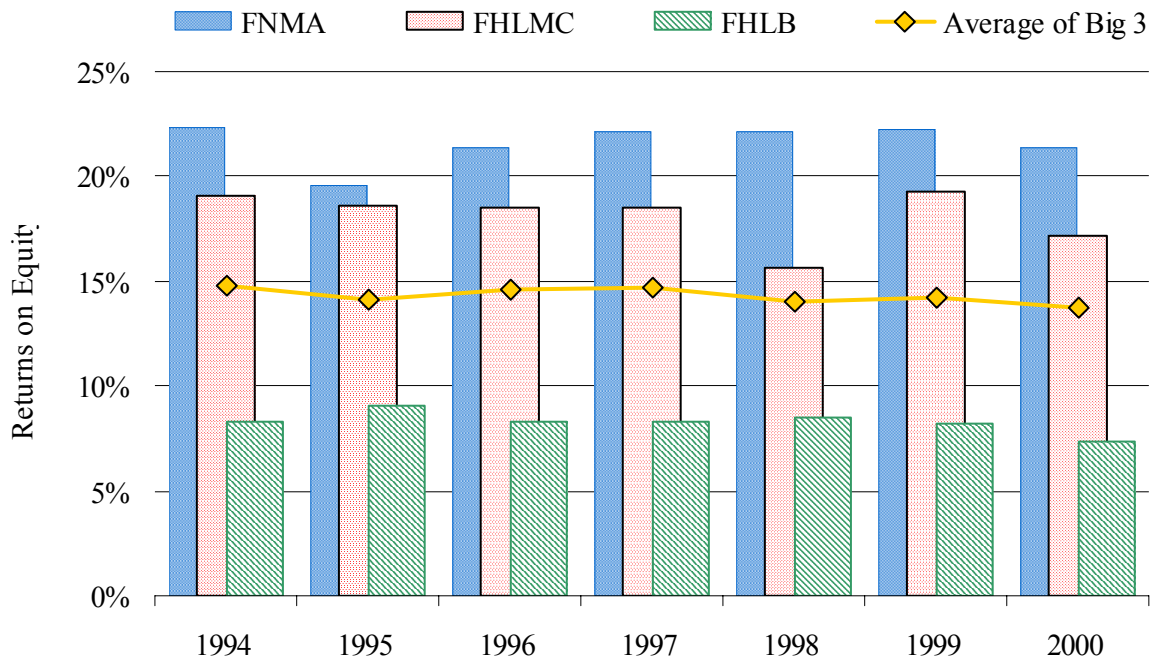
⁴¹ See Eichler (1989, p. 46).

⁴² See Stanton (1991, p. 22). FIRREA was Congress's solution to the S&L crisis of the 1980s. The Bank Board was abolished as part of that solution and replaced by the Federal Housing Finance Board (FHFB). For a more complete description of FIRREA, see White (1991). For further discussion of the FHFB and other changes wrought by the 1989 legislation, see the regulatory section that follows.

that qualify for System services. There is no similar requirement that the customers of Fannie Mae and Freddie Mac services own stock in either firm. Nor are there any restrictions on the individuals or institutions that may purchase Fannie Mae or Freddie Mac stock.

Their different ownership structures lead to different financial performance for the housing GSEs. Comparing the three firms' returns on common equity (ROE) illustrates this point. The Federal Home Loan Bank System's return on average equity in 2000 was 7.3 percent, while the returns on average common equity of Fannie Mae and Freddie Mac were 25.6 percent and 23.7 percent, respectively.⁴³ Figure 1 shows the trends in the GSEs' returns on average outstanding common equity over the past seven years.

Figure 1
Returns on Average Common Equity, Housing GSEs



Because the FHLBs are owned by their customers, part of the returns to ownership are provided through lower interest rates on advances made by the FHLBs. Indeed, Stanton describes the “healthy tension” between the institutions that own FHLB stock to secure access to a relatively inexpensive source of funds and those institutions that own FHLB stock in the hopes of receiving dividend returns.⁴⁴

⁴³ ROE calculated as end of year net income divided by average common equity (beginning of year plus end of year divided by 2). Source: Annual reports of the firms, various years.

⁴⁴ Stanton (1991, p. 68). The 1999 legislation discussed below made membership in the Federal Home Loan Bank System voluntary for all savings and loan associations. (Before 1999, federally-chartered S&Ls were required to join.) It will be interesting to see if the “healthy tension” described by Stanton survives the change in ownership requirements.

Furthermore, the FHLBs provide a broader range of services to their customer/owners than do Fannie Mae and Freddie Mac. The FHLBs facilitate members' securities activities by acting as agents and by providing custodial facilities, for example. FHLBs provide advisory services to their members and furnish statistical and financial research reports. FHLBs collect and settle checks, supply data processing and correspondent banking services, and provide letters of credit to member institutions.⁴⁵ The FHLB System was designed to support the savings and loan industry whose members were historically kept small and focused on local markets through a variety of regulations and restrictions.⁴⁶

Fannie Mae and Freddie Mac do not play a similar role in supporting specific institutions. Indeed, they buy mortgages from any lenders whose loans meet pre-specified quality and size standards. Although the activities of all three housing GSEs address liquidity risk, their differing approaches have different implications for the distribution of credit and interest rate risks associated with mortgages. In the case of FHLB advances, the mortgage remains an asset of the borrowing institution, while the amount owed to the Federal Home Loan Bank is a liability of the S&L or bank. FHLB advances are thus substitutes for deposits, the most common form of S&L and bank liabilities. Because S&Ls and banks that borrow from the FHLB System still own the mortgages they use as collateral, credit and interest rate risks remain with the depository institution that originates the loan.⁴⁷

By contrast, when a depository institution sells a loan to Fannie Mae or Freddie Mac, the loan is no longer an asset of the institution. It is replaced by cash, which can then be used to make additional loans. The selling institution sheds both the credit and the interest rate risks along with the liquidity risk. An S&L that chose to sell its entire mortgage loan portfolio would change fundamentally the nature of its business. Rather than creating value and earning a profit by assuming the risks associated with the loans it writes, such an institution would generate profits instead through fee income. This is what mortgage bankers do. The mortgage-banking model was made possible by the creation of the secondary mortgage markets, but it severs the relationship between mortgage lending and deposit-taking.⁴⁸

⁴⁵ See Stanton (1991, p. 57).

⁴⁶ Primary among these were restrictions on branching. Another long-time regulation prevented S&Ls from making loans secured by real property more than 50 miles from the institution's home office.

⁴⁷ This traditional role of the FHLBs as lenders is changing. Under new programs, such as the Mortgage Partnership Finance Program, developed by the Federal Home Loan Bank of Chicago, the FHLBs assume ownership of mortgages while paying member institutions a fee to service these loans and guarantee repayment. See www.fhlbc.com/mpf.htm. We will return to a more detailed discussion of the FHLBs new programs below.

⁴⁸ This is not to argue that either the FHLB model or the Fannie Mae/Freddie Mac model is a superior means of supporting the housing market. Our intent is only to highlight the differences between the two approaches.

Recent Changes for the GSEs

The three housing GSEs have all seen their charters and their roles in the mortgage markets expanded since they were first created. For the FHLB System, membership and the collateral acceptable for advances has been expanded as have their obligations to repay the costs of cleaning up the S&L crisis.

Originally, only savings and loan associations and mutual savings banks could join the Federal Home Loan Bank System. Beginning in 1989 however, banks, credit unions, and insurance companies with 10 percent of their assets in residential mortgages were also allowed to join the System—although limits were imposed on the total advances the FHLBs could provide to these non-“qualified thrift lender” (QTL) institutions.⁴⁹

The 1999 Gramm-Leach-Bliley Financial Services Modernization Act further extended membership opportunities to all “community financial institutions,” including institutions holding less than ten percent of their assets in home mortgages or mortgage-related securities. “Community financial institutions” were originally defined as banks, thrifts, or credit unions with less than \$500 million in assets, but the definition is indexed to inflation. For 2001, community financial institutions with less than \$517 million in assets qualify for FHLB membership.⁵⁰ Gramm-Leach-Bliley also removed limits on advances to non-QTL members.

Finally, Gramm-Leach-Bliley made membership in the FHLB System voluntary for all eligible institutions. Federally chartered S&Ls are no longer required to join. Members may exit the System with six months notice, but members leaving the System may not rejoin it for five years.⁵¹

The Gramm-Leach-Bliley Act also made more types of loans eligible collateral for FHLB advances. Advances to member financial institutions can now be backed by small business, small farm, and small agri-business loans as well as by the residential mortgage loans that have traditionally served as collateral for FHLB advances.⁵²

In 1989, in response to the savings and loan crisis, Congress authorized \$50 billion in borrowing to deal with the costs of disposing of insolvent thrift institutions. The Treasury Department borrowed \$20 billion on-budget, while the

⁴⁹ To be a qualified thrift lender, a financial institution must hold 65 percent of its assets in housing-related loans or securities, known as “qualified thrift investments.” There are tax advantages to being a qualified thrift lender.

⁵⁰ Office of Finance, p. 8. Insurance companies, as holders of long-term mortgages, may also become members of the FHLB System. At the end of 2000, insurance companies accounted for fewer than 1 percent of the System’s total members, claimed less than 1 percent of total advances, and provided just 1.3 percent of the System’s total capital. The relative importance of insurance companies within the System has not changed much since at least 1997. (Office of Finance, pp. 14, 15, and 18.)

⁵¹ Before 1999, members exiting the System could not rejoin for 10 years.

⁵² To qualify for advances on small business and agriculture loans, member institutions must have fewer than \$500 million in assets.

remaining \$30 billion was borrowed through the Resolution Finance Corporation (REFCorp) and made an obligation of the thrift industry and the FHLBs. The FHLBs were required to transfer \$2.5 billion in retained earnings to REFCorp immediately.⁵³ The System was then assessed \$300 million annually to meet REFCorp interest and principal payments.⁵⁴ The \$300 million flat fee was changed in 1999 by the Gramm-Leach-Bliley legislation to 20 percent of each FHLB's remaining annual earnings after its Affordable Housing Program contributions are paid.⁵⁵ For the System as a whole, REFCorp contributions in 2000 were \$553 million.⁵⁶

During the late 1970s and early 1980s, Fannie Mae and Freddie Mac also saw their charters expanded, as they were allowed to purchase two- to four-family housing unit mortgages in 1978 and adjustable rate mortgages in 1981. In 1983, Fannie Mae began purchasing multifamily housing loans, and in 1987, Fannie Mae issued its first Real Estate Mortgage Investment Conduits (REMICs).⁵⁷ By 1992, Fannie Mae had become the largest issuer of mortgage-backed securities, surpassing the Government National Mortgage Association (Ginnie Mae) and Freddie Mac. By the end of 2000, Fannie Mae and Freddie Mac held combined mortgages in portfolio and MBS outstanding of more than \$2.3 trillion, equivalent to 44.2 percent of all U.S. household mortgage debt.⁵⁸

⁵³ GAO (1998, Chapter 1, Section 6, footnote 19).

⁵⁴ White, p. 178.

⁵⁵ Affordable Housing Program (AHP) contributions are described under "Mission Requirements" in the next section.

⁵⁶ Office of Finance, p. 6. The additional payments to REFCorp during 2000 had the effect of bringing four years closer the date at which the System's REFCorp obligations will be fulfilled. (Office of Finance, p. 24.)

⁵⁷ According to Fannie Mae, a REMIC is "a security that represents a beneficial interest in a trust having multiple classes of securities. The securities of each class entitle investors to cash flows structured differently from the underlying mortgages." See www.fanniemae.com/news/media/glossary. Some investors may thus choose to receive interest payments only, which decline over time, while others may choose principal payments, which increase as the loans age. Investors can also manage prepayment risk with REMICs by choosing to be among the first—or last—tranches repaid.

⁵⁸ Figures for U.S. household mortgage debt outstanding are taken from the Federal Reserve Statistical Release Z.1, "Flow of Funds of the United States," Table L.2, Line 12, dated September 2001. Data include jumbo and sub-prime loans in addition to the conforming mortgages that Fannie Mae and Freddie Mac purchase. Figures on Fannie Mae and Freddie Mac portfolios and MBS outstanding taken from their respective annual reports.

THE GSE REGULATORY ENVIRONMENT

The federal government regulates the GSEs for two reasons. First, GSE debt represents a potential liability to the federal government. The GSEs have an explicit line of credit with the Treasury, and many market participants believe that the federal government would guarantee GSE debt in the event of default.⁵⁹ Federal supervision is also needed to protect private competitors from undue expansion by the GSEs. Their relationship with the government can give GSEs a competitive advantage, enabling them to crowd out private firms especially when the GSEs are allowed to move into new, already-occupied market segments. Because market discipline of the GSEs in terms of risk-taking and competitive inroads may be muted, and in some cases reversed altogether, regulatory oversight is required.

The Risk of GSE Operations

In efficient financial markets, pursuing higher returns requires accepting greater risks. In their bids to increase returns for their owners, the housing GSEs have increased their risk-taking in two important ways. They have increased their use of debt to fund operations, and they have expanded their income-generating activities.

GSEs' Use of Debt

Returns to owners of a profitable firm rise as the debt level of the firm increases, holding the firm's size and operating profits constant.⁶⁰ Absent other considerations, this would create a strong preference among corporate managers to fund expansions and ongoing activities with debt rather than equity. For private borrowers, however, the market responds to increased debt in ways that counter such incentives. As a firm's debt increases, not only its debt holders, but also its owners require a higher rate of return on their investments. Shareholders recognize that while more debt increases the returns to shareholders, it also increases their risks. A firm with a higher debt ratio is more likely to be forced into bankruptcy during a downturn than a similar firm that uses less debt.⁶¹ A rising cost of funds thus provides a natural, market-driven limit on the debt ratios

⁵⁹ Fannie Mae and Freddie Mac each have a \$2.25 billion line of credit with the Treasury Department, while the Federal Home Loan Bank System has a \$4 billion line of credit. We will return to this issue below.

⁶⁰ "Operating profits" are earnings before interest payments and taxes. Higher debt levels are attractive to owners for several reasons. First, debt is generally less expensive than equity as a source of funds. Because debtholders are paid before equity holders, they face less risk than, and hence require a lower return than, equity holders. In addition, interest payments are tax deductible expenses while dividends are not. Finally, as debt increases, equity holders have a comparatively smaller stake in the firm's operations. Thus, any after-tax profits are spread over a smaller equity base, increasing the return on equity holders' investments.

⁶¹ Bankruptcy in the U.S. occurs when a firm can no longer meet its obligations to its creditors, and it seeks the protection of the court to gain time to reorganize or liquidate its assets in an orderly fashion. Even in reorganization, shareholders often lose a substantial portion, if not all, of their investment.

of private corporations. In the extreme, no return will be high enough, and investors will refuse to accept any more debt from a given firm.

For the GSEs, however, market discipline against the rapid accumulation of debt is muted because a significant portion of investors believes the government will protect creditors if any of the GSEs faces financial difficulties. Consequently, investors appear willing to purchase and hold substantially more GSE debt than they would hold from a private corporation of similar size. Indeed, the ambiguous nature of the GSEs' relationship to the government may reverse customary market incentives. In sharp contrast to the concerns that arise when a private corporation increases its outstanding debt, investors in GSE debt could expect that the more debt Fannie Mae has outstanding, the *less* likely the government will be to allow it to default. Some investors may thus interpret increased GSE debt as embodying less risk rather than more.

Figure 2
Average Annual Growth in Outstanding Debt, 1995–2000

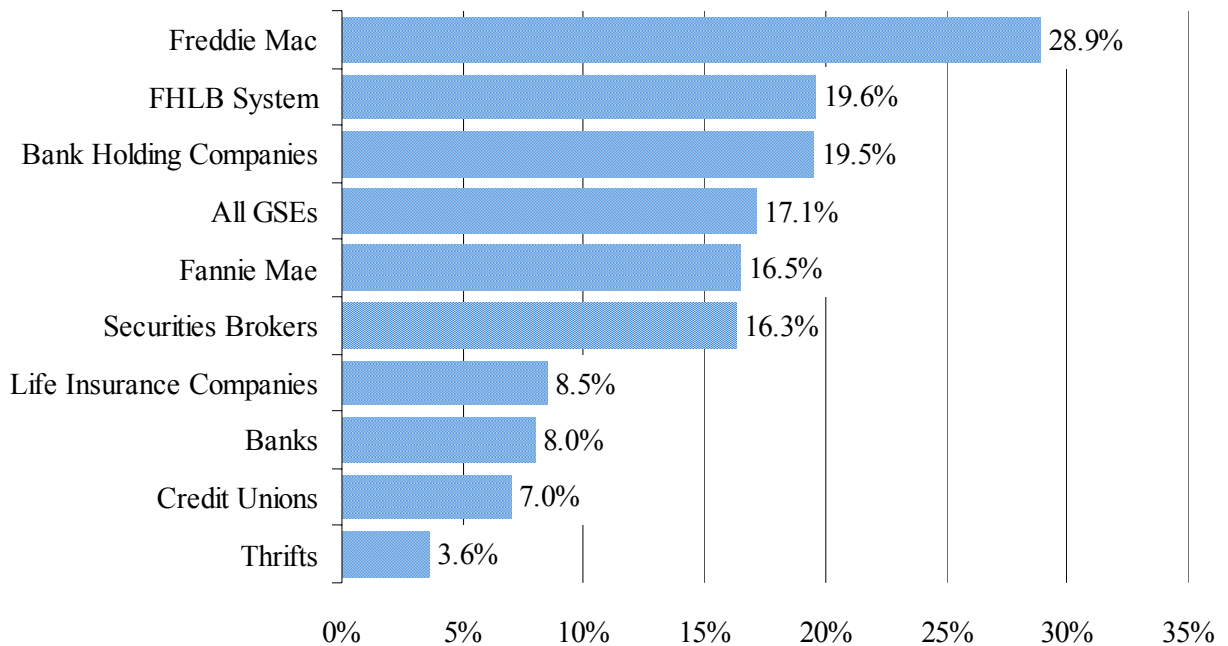


Figure 2 shows the average annual growth rates from 1995 to 2000 for the three housing GSEs and several other industries.⁶² Freddie Mac leads the GSEs and other financial institutions by a considerable margin in terms of the rate at which it has increased its outstanding debt over the past five years.

⁶² Data are taken from the Federal Reserve Board's Z.1 Flow of Funds Statistical Releases, dated June 8, 2001, Tables L.109, L.112, L.114, L.115, L.117, L.118, L.124, and L.130.

From a safety and soundness perspective, a firm's total debt outstanding is less important than the firm's debt ratio—i.e., the portion of its operations that are funded with debt as opposed to equity. Whether GSEs represent increasing risk to taxpayers will depend in large part on the relationship between their debt and their total equity. Table 2 compares the GSEs' debt ratios and their liabilities per dollar of equity with other sectors and firms of the financial services industry.

Table 2

Debt Ratios, Housing GSEs vs. Selected Financial Sectors/Firms, Second Quarter 2001^a

Sector/Firm	Total Assets	Debt Ratio^b
Freddie Mac	\$537.6 billion	97.4%
Fannie Mae	\$737.2 billion	97.4%
Federal Home Loan Bank System	\$664.9 billion	95.1%
Big 3 GSEs	\$1,939.6 billion	96.6%
JP Morgan Chase & Co.	\$712.7 billion	94.0%
Citigroup	\$953.4 billion	92.6%
Bank of America	\$625.5 billion	92.1%
Top 3 Banks	\$2,291.7 billion	92.9%
U.S. Savings Institutions	\$1,939.6 billion	91.5%
U.S. Commercial Banks	\$6,360.2 billion	91.2%

^a Data on the top 3 banks from the Federal Reserve's National Information Center database. Data on the banking and savings sectors from FDIC Statistics on Banking database. GSE data from their respective Second Quarter 2001 financial statements.

^b The debt ratio measure used here is on-balance sheet liabilities to total assets.

In terms of total assets, Citigroup, JP Morgan Chase, and Bank of America are the largest U.S. banks. Combined, they are roughly the same size as the big three GSEs. However, the GSEs hold less than half the amount of equity per dollar of assets as do the top 3 banks, and less than one-third the equity per dollar of assets of the commercial banking and thrift sectors as a whole.⁶³ Looked at differently, were we to include the total amount of off-balance sheet liabilities (excluding derivatives but including guaranteed MBS held by others), Fannie Mae's owners hold one dollar of equity for every \$76.76 of on- and off-balance sheet liabilities, while Freddie Mac's owners hold one dollar of equity for every \$80.66 of on- and off-balance sheet liabilities.

⁶³ Fannie Mae and Freddie Mac have argued that they are not unique in that depository institutions have federal insurance and access to the Fed's discount window. Few would argue that banks and S&Ls also enjoy a special relationship with the government, but that observation is largely irrelevant to the current inquiry. Furthermore, as Carnell (2001[b]) has argued, because deposit insurance is an explicit guarantee and has a specific receivership mechanism, it can be more easily limited.

GSEs' Activities

The GSEs have also been able to boost returns by undertaking riskier activities. Most apparent, in this regard, has been the increased willingness among all three housing GSEs to hold mortgages in their own portfolios. To the extent that GSEs invest in mortgages themselves, Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System increase their exposure to interest rate risk, especially.

Fannie Mae & Freddie Mac

When Fannie Mae and Freddie Mac purchase mortgages, they either hold the loans in their portfolios or package the loans into securities that appeal to other investors. When Fannie Mae and Freddie Mac create mortgage-backed securities, they guarantee timely payment of principal and interest, thereby absorbing credit risk themselves. Investors in MBS bear the interest rate risk.⁶⁴ By holding onto the mortgages they purchase rather than securitizing them, Fannie Mae and Freddie Mac thereby accept the interest rate risk as well as the credit risk associated with owning the loans.

During the 1970s, Freddie Mac and Fannie Mae chose to pursue their charters differently, so that by the 1980s, each generated significantly different returns for their owners. Freddie Mac purchased mortgages from originators and earned income primarily by securitizing the mortgages, shifting interest rate risks to investors through the creation of MBS. Fannie Mae, on the other hand, earned higher returns for a short time, at least, by holding the mortgages it purchased in its loan portfolio, thus accepting more interest rate risk.⁶⁵

As long as short-term interest rates remain lower than long-term rates and all interest rates remain fairly stable, holding loans in portfolio will earn higher returns than purchasing, securitizing, and selling loans. On average, Fannie Mae and Freddie Mac typically earn about 20 basis points from their securitization activities.⁶⁶ Fannie Mae and Freddie Mac can earn at least three times this amount by holding mortgages in their portfolios, despite the recent erosion in spreads. Table 3 describes this downward trend, where the spread between the two firms' average yield on mortgages and their average cost of funds is detailed.

⁶⁴ Liquidity risk is largely eliminated by the creation of marketable securities and by maintenance of the secondary markets.

⁶⁵ Retained mortgages still account for a larger part of Fannie Mae's total assets than for Freddie Mac. According to their annual reports, at the end of 2000, retained mortgages accounted for 90 percent of Fannie Mae's total assets and 84 percent of Freddie Mac's total assets. In viewing these numbers, remember that mortgages purchased by Fannie Mae or Freddie Mac and subsequently securitized do not appear on their balance sheets.

⁶⁶ A basis point is 1/100 of one percent.

Table 3

Spreads: Average Yield on Mortgage Portfolio less Cost of Funds
(In basis points)^a

	1995	1996	1997	1998	1999	2000
Fannie Mae	125	120	114	102	90	77
Freddie Mac	111	105	94	86	80	59

^a Data were obtained from various annual reports of the firms.

During the late 1970s and early 1980s, high inflation and the Fed's attempts to bring inflation under control caused short-term interest rates to rise above long-term rates. In addition, interest rates across all maturities rose substantially. As Fannie Mae's cost of funds rose above the returns from the fixed rate mortgages in its portfolio, its equity capital was rapidly depleted.⁶⁷ Regulatory forbearance coupled with lower inflation and lower interest rates eventually restored Fannie Mae to financial health.

Fannie Mae and Freddie Mac attempt to control their credit risk with a combination of private mortgage insurance, pool insurance, hedging activities, homeowner equity, and geographic diversification of mortgage assets.⁶⁸ In its annual report, Fannie Mae cites steadily falling default and delinquency rates as indicators of its superior ability to manage the credit risk attendant with mortgage finance.⁶⁹ Fannie Mae's credit losses, net of recoveries from foreclosure and credit insurance, have steadily declined during the past three years from \$249 million in 1998, to \$118 million in 1999, to just \$86 million in 2000. Expressed as a percentage of its retained mortgages plus outstanding MBS, Fannie Mae's credit losses declined from 2 basis points (2/100 of 1 percent) in 1998 to less than one basis point in 2000. Credit losses declined over the same period at Freddie Mac, too.⁷⁰ Certainly, the financial management practices at Fannie Mae and Freddie Mac have contributed to this superior performance, but favorable economic and interest rate conditions have also been helpful.⁷¹

⁶⁷ Marking Fannie Mae's assets and liabilities to their market value in 1981 revealed a net worth (assets less liabilities) of negative \$10.8 billion. Similarly, the S&L industry as a whole, caught in the same interest rate trap, had a net worth in 1981 of negative \$100 billion.

⁶⁸ Foreclosure and subsequent sale of the foreclosed property helps reduce credit risk too, as long as the market value of the underlying collateral exceeds the principal due on the loan. In a depressed real estate market, however, credit risk is not eliminated.

⁶⁹ In its 2000 annual report (p. 29), Fannie Mae states, "The application of various credit risk management strategies throughout a loan's life has contributed to continued reduction in credit losses."

⁷⁰ Freddie Mac's credit losses were \$268 million in 1998, \$155 million in 1999, and \$94 million in 2000. These losses represent 3 basis points, 1.4 basis points, and 0.8 basis points of Freddie Mac's retained mortgages and total participation certificates (PCs) outstanding in 1998, 1999, and 2000, respectively.

⁷¹ According to Federal Reserve data, "charge-offs" of residential real estate loans held by commercial banks fell as a percentage of outstanding loans from 1992 through 1998 before beginning to increase again. The Fed defines charge-offs as "the value of loans removed from the

While recognizing the GSEs' exemplary performance, their loan loss experience stands in sharp contrast to the overall delinquency and charge-off rates of residential mortgage lenders generally, as reported by the Federal Reserve. Despite the favorable economic conditions over the past three years, commercial banks' charge-offs of residential real estate loans increased over the 1998 to 2000 period from an average of 0.08 percent of outstanding mortgage loans (8 basis points) in 1998 to 12.5 basis points in 2000. Meanwhile, delinquent loans at commercial banks averaged 2.16 percent of outstanding mortgages in 1998 (216 basis points) before falling to 2.08 percent in 1999 and 2.10 percent in 2000.⁷²

The question is, then, whether the GSEs' superior control of credit risk can continue indefinitely. The answer will depend on how closely the GSE mortgage portfolios, including their outstanding mortgage backed securities, mirror the U.S. mortgage markets overall. If the mortgages held or securitized by Fannie Mae and Freddie Mac are of higher average quality than those in the mortgage market as a whole, the GSEs may continue to enjoy superior performance. If the GSEs mortgage portfolios come to more closely reflect the range of loans provided by the market as a whole, GSE experience with loan losses may move closer to the Fed's measure of losses nationwide.

There are also technical factors to consider. First, the denominator (total loans) against which GSE loss rates are calculated has grown rapidly over the past five years. Consequently, the average loan in the GSEs' portfolios was written more recently than is true for the average mortgage nationwide. Newer loans tend to be better credits, at least initially. Stated differently, loan losses on new loans tend to be lower than losses on more seasoned loans.⁷³ Second, Fannie Mae uses a more liberal definition of delinquency than does the Fed. Fannie Mae only considers loans seriously delinquent if they are more than 90 days past due, while the Fed considers loans delinquent after 30 days.

To estimate how important this divergence in loss experience might be, consider that as of year-end 2000, Fannie Mae had \$809 million set aside as a provision for loan losses. Were the loss experience of Fannie Mae to approximate the national averages reported by the Fed, Fannie Mae would have incurred loan losses (net of recoveries) in fiscal year 2000 exceeding \$2.1 billion. Similarly, had Freddie Mac experienced loan losses at the national average, its actual loan

books and charged against loss reserves, [and they] are measured net of recoveries as a percentage of average loans annualized." See www.federalreserve.gov/releases/ChargeOff/.

⁷² The Fed measures delinquent loans as "those past due thirty days or more and still accruing interest, as well as nonaccrual status. They are measured as a percentage of end-of-period loans." See <http://www.federalreserve.gov/releases/ChargeOff/> for current data on charge offs and delinquencies. For the quarter ended June 2001, delinquent residential mortgage loans at commercial banks averaged 2.41 percent of end-of-period loans outstanding. Charge-offs of unrecoverable residential real estate loans averaged 17 basis points of average loans outstanding.

⁷³ In its 2000 annual report (p. 28), Freddie Mac presents Table 7, "At-Risk Delinquencies by Year of Origination." The data presented there suggests that it takes 3 to 4 years for the delinquency rates on newly issued loans to approach the longer-run average rate.

loss reserve of \$784 million would have fallen substantially short of potential losses exceeding \$1.5 billion.⁷⁴

Whether the GSEs' recent exceptional performance has been due to superior management, luck, or some combination of other factors, a serious economic downturn and/or rising interest rates could lead to declining housing prices, increasing delinquency rates, and higher loan losses. GSE managers and regulators should remain aware of the potential for higher losses.

The Federal Home Loan Bank System

The Federal Home Loan Banks have long been subject to interest rate risk because of the long-term advances to member institutions. But the activities of the Federal Home Loan Banks have also expanded. Figure 3 examines the relative importance of advances, investments, and mortgages within the Federal Home Loan Bank System from 1994 to 2000.

Over the past six years, advances as a percentage of total assets have increased, while the relative importance of investments has been declining.⁷⁵ At the end of 2000, the FHLB System held \$81.3 billion in mortgage-backed securities, accounting for 43.6 percent of investments or 12.4 percent of total assets. The Federal Housing Finance Board, the Federal Home Loan Banks' regulator, imposes both quantitative and qualitative limits on FHLBs' investments in MBS. FHLBs may not hold mortgage-backed securities amounting to more than three times their capital.⁷⁶ In addition, the FHLBs face limits on acceptable changes in the expected lives of their MBS under different interest rate scenarios.⁷⁷

Mortgages held on the books of the FHLBs result primarily from the FHLBs' increasing promotion of programs like the Mortgage Partnership Finance Program, developed by the Federal Home Loan Bank of Chicago, and the Mortgage Purchase Program developed by the Cincinnati, Indianapolis, and Seattle Federal Home Loan Banks. Under the Mortgage Partnership Finance program, the FHLBs fund mortgages from member institutions, rather than just providing advances backed by the loans. The depository institution selling the loan also receives a fee to service the loan and provide credit guarantees. Thus, the mortgage becomes an asset of the Federal Home Loan Bank, which then assumes the interest rate risk while leaving the credit risk with the S&L or bank originator. In 1999, the Federal Housing Finance Board, the FHLBs' regulator, authorized all of the FHLBs to establish programs similar to the Mortgage Partnership Finance program.

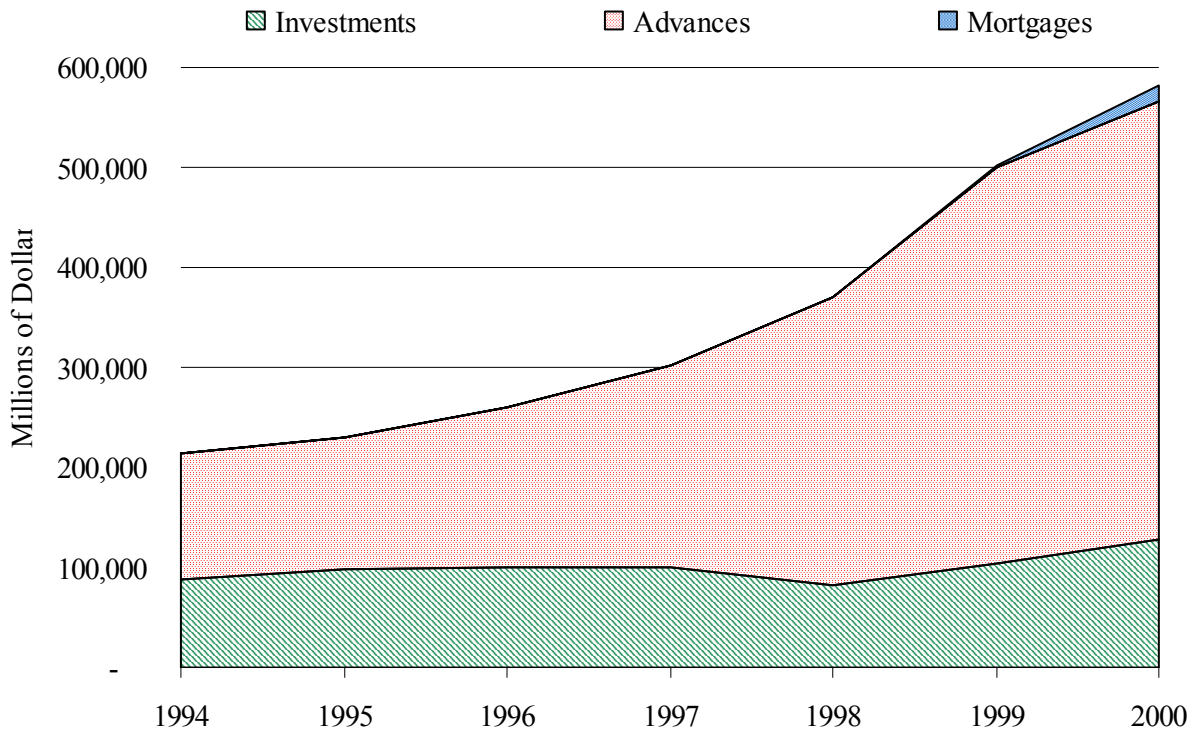
⁷⁴ These numbers reflect reported charge-offs averaging 12.5 basis points applied to Fannie Mae's and Freddie Mac's total end of year retained mortgage portfolios plus outstanding securities on which they provide guarantees.

⁷⁵ Investments include interest-bearing deposits in banks, securities purchased under resale agreements, federal funds sold, as well as mortgage backed securities.

⁷⁶ Office of Finance, p. 9.

⁷⁷ Office of Finance, p. 34. Prepayment options in mortgages mean that the expected life of a mortgage, and hence of a mortgage backed security, can expand or contract with changes in interest rates.

Figure 3
Major Assets of the FHLB System



At the end of 1999, mortgages accounted for just 0.35 percent of total assets of the System as a whole, and the Federal Home Loan Bank of Chicago held 80 percent of the \$2 billion in mortgages then held by the System. By year-end 2000, mortgages represented 2.5 percent of System assets, and a number of other regional banks had begun participating in the MPF and similar programs. By December 31, 2000, the Chicago Home Loan Bank held slightly more than 50 percent of System mortgages, despite the fact that the Chicago Bank's mortgage portfolio had grown during the year from \$1.6 billion to \$8.1 billion.⁷⁸

As noted earlier, the 1999 Gramm-Leach-Bliley legislation made small business, small farm, and small agri-business loans eligible collateral for FHLB advances. The Finance Board's final rule, implementing the new collateral provisions, became effective August 17, 2000. Before a district FHLB can provide advances against the new types of collateral, it must demonstrate the ability to determine the value of and appropriately discount these loans.⁷⁹ Clearly, expanding the types of collateral FHLBs can accept will introduce new risks, at least initially, as the Federal Home Loan Banks learn to value different types of loans.

⁷⁸ Office of Finance, pp. 102-05. Given their status as relative newcomers in this market, information is limited about credit loss experience on loans held by the FHLB System.

⁷⁹ Office of Finance, p. 13.

The Federal Home Loan Bank System often reports that, “no FHLBank has ever experienced a credit loss on any advance to a member.”⁸⁰ The System has been able to maintain this remarkable record for several reasons. FHLB claims against a failed institution have priority, even over insured depositors.⁸¹ The FHLBs further manage their credit risk by lending only to institutions in sound financial condition unless the lending FHLB can impose high collateral requirements or obtain a federal guarantee of the loan.⁸² Finally, when a borrower’s financial condition deteriorates after an advance is made, the FHLBs can often add or substitute collateral to protect against losses from default.

Managing Interest Rate Risk

All three housing GSEs are better able to manage interest rate risk than the depository institution lenders they serve. In the first place, Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System have more control over the maturity of their liabilities than do banks and S&Ls. The GSEs are free to issue long-term as well as short-term debt, and they can monitor and change the average life of their outstanding obligations as interest rates change.

Furthermore, each of the three GSEs has the size and scope of operations to use interest rate derivative products effectively. In addition to interest rate swaps, futures, forwards, caps, and floors, the Federal Home Loan Banks also embed options in their long-term advances. In addition to prepayment penalties, some long-term advances give the FHLB lender the option after a specified period to either put the debt back to the borrower (i.e., require the debt to be repaid) or change the fixed rate interest payment to a floating rate.

It is not possible, of course, to create a perfect hedge against all interest rate risk, at least not without exhausting the potential profits associated with risk-taking. The GSEs must choose, therefore, when and how much to hedge. Finally, the choice of the counterparty in any derivatives contract has the potential to add another layer of credit risk.

The Regulators

The charters of Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System, not only grant privileges, they also limit the scope of GSE activities and establish the mechanisms through which they are regulated. For Fannie Mae and Freddie Mac, the president appoints five of the 18 members of their boards of directors. Safety and soundness oversight of Fannie Mae and Freddie Mac takes place through the Office of Federal Housing Enterprise Oversight (OFHEO). Meanwhile the Federal Housing Finance Board (FHFB) replaced the Federal

⁸⁰ See, for example, Office of Finance, p. 36.

⁸¹ GAO (1998), Chapter 1, Section 5. By contrast, there are circumstances when the claims of the Federal Reserve, as a lender to a failed institution, would be subordinate to those of depositors.

⁸² Stanton (1991), p. 33.

Home Loan Bank Board as the chief regulator of the Federal Home Loan Bank System in 1989.⁸³

OFHEO

The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 established OFHEO. It is an independent regulatory entity within the Department of Housing and Urban Development, headed by a director appointed by the president for a five-year term. OFHEO is responsible for determining that the activities of Fannie Mae and Freddie Mac are pursued in a financially sound manner.⁸⁴ The Secretary of Housing and Urban Development, meanwhile, oversees the GSEs' compliance with their congressionally mandated missions. It is the responsibility of HUD to determine that the GSEs are pursuing those activities, but only those activities, specified in their charters.

As part of its safety and soundness regulation, OFHEO conducts regular examinations of Fannie Mae and Freddie Mac. OFHEO has recently released its long-awaited risk-based capital standards that employ "stress tests," designed to test the GSEs' capital adequacy under a range of interest rate and credit risk scenarios. OFHEO also confirms Fannie Mae and Freddie Mac's capital adequacy each quarter using current minimum capital standards. In addition to evaluating risks presented by Fannie Mae and Freddie Mac, OFHEO is responsible for prohibiting excessive executive compensation, issuing regulations concerning capital and enforcement standards, and taking necessary enforcement actions.

FHFB

As the regulator of the Federal Home Loan Banks, the Federal Housing Finance Board is responsible for both safety and soundness regulation and mission oversight. In its role as safety regulator, the Finance Board monitors the capital adequacy of the individual Federal Home Loan Banks and ensures their continued access to the capital markets to raise funds. The Finance Board is also responsible for seeing that the FHLBs carry out their housing finance and community development missions.

The Federal Housing Finance Board is an independent regulatory agency within the executive branch of the federal government. It consists of a five-member board, four of whom are appointed by the president for seven-year terms. The fifth board member is the Secretary of Housing and Urban Development, or the secretary's designee.

The past 12 years have been eventful ones for the Federal Home Loan Bank System. The Financial Institutions Reform, Recovery, and Enforcement Act in 1989 and the Gramm-Leach-Bliley Financial Services Modernization Act in

⁸³ The Federal Home Loan Bank Board was abolished in 1989 by Financial Institutions Reform, Recovery, and Enforcement Act, the legislation designed to address the S&L crisis. For a more complete discussion of the act itself and the events leading to its passage, see, for example, White (1991). The Board also appoints 6 directors to each Home Loan Bank.

⁸⁴ OFHEO funds its operations through assessments of Fannie Mae and Freddie Mac.

1999 significantly changed the activities of the FHLBs and the way in which they are regulated.

At year-end 2000, FHLB members were required to purchase FHLB stock equal to at least one percent of their mortgage portfolios or five percent of advances, whichever was greater.⁸⁵ Two important changes are on the horizon, however. First, the Federal Home Loan Bank System is in the process of developing new risk-based capital standards. Second, the new capital standards must be met with a new type of FHLB stock.

In the future, individual Federal Home Loan Banks will face a two-part capital adequacy test. First, each FHLB must maintain an equity capital-to-assets leverage ratio of five percent.⁸⁶ The second part of the capital adequacy test will be a risk-based capital requirement. The Finance Board has asked each FHLB to propose its own capital plan to meet the new risk-based standard by October 29, 2001. The final risk-based rules will continue to require each member institution to make a minimum investment in its regional FHLB, but the focus of the capital standards will change. In the past, a FHLB's capital depended on member institutions' total mortgage assets and their outstanding advances. This relationship will be replaced by new standards that focus on the assets on the FHLB's books and the risk associated with those assets.⁸⁷

In 1999 Gramm-Leach-Bliley also created a new type of FHLB stock. The impermanent nature of the FHLBs' capital structure has created a long-standing concern about the financial stability of the System. When a member institution wants to liquidate its investment in the FHLB System, its regional FHLB must repurchase the member's stock.⁸⁸ The member institution cannot sell its stock to another interested individual or institution. Thus, if members decide to exit the System or any individual FHLB in large numbers, problems could occur. To the extent that owner institutions can withdraw equity, that equity provides less security to creditors of the FHLBs.⁸⁹

⁸⁵ Stanton (1991, p. 66) Table 3-4; Office of Finance, p. 9.

⁸⁶ The capital-to-assets ratio for the Federal Home Loan Bank System on December 31, 2000 was 4.8 percent. (Office of Finance, p. 5.) The leverage ratios for the individual banks as of December 31, 2000 ranged from a low of 4.49 percent for the Federal Home Loan Bank of San Francisco to a high of 5.11 percent for the Federal Home Loan Bank of Cincinnati. (Office of Finance, pp. 102-03.)

⁸⁷ Office of Finance, p. 10. It will be interesting to see if this affects FHLB System membership. Under the old capital standards, members controlled the decisions that determined their required investments in their regional FHLB. The new system will move to the FHLBs control over decisions affecting required investments.

⁸⁸ Federal Home Loan Banks can only repurchase exiting members' stock if doing so will neither cause the System to fail to meet its REFCorp obligations nor cause the individual FHLB to fail to meet its capital requirements.

⁸⁹ By contrast, a publicly held corporation need never redeem any of its outstanding common stock to repay its stockholders' investments. Ms. Jones can liquidate her investment in XYZ Corporation without involving the company by selling her stock to Mr. Smith, for example.

To create longer-lived equity for the FHLBs, Gramm-Leach-Bliley introduced Class B stock. As noted, Federal Home Loan Banks' Class A stock is redeemable after six months notice, but the new Class B stock will only be redeemed after five years notice. To encourage members to purchase the less-liquid Class B shares, FHLBs may provide higher dividends, establish a more generous liquidation policy, and/or set lower minimum stock purchase terms for Class B.⁹⁰ Each FHLB will determine the exact combination of these incentives as part of its new risk-based capital plan.

The creation of the new Class B stock has also generated new capital definitions. "Permanent capital" is the FHLB's Class B stock and its retained earnings. "Total capital" consists of permanent capital, the FHLB's Class A stock, and any general loss allowance not established for specific assets. In calculating its leverage ratio, permanent capital can be given a weight of 1.5 times its dollar value as long as the FHLB maintains a minimum 4 percent leverage ratio in the absence of extra weight for its permanent capital.⁹¹

Mission Requirements

All three GSEs are also required to meet certain public policy goals including affordable housing goals and community investment goals set by their respective regulators. The goals set by the HUD Secretary for Fannie Mae and Freddie Mac specify the share of mortgages each GSE must purchase annually from low-income, moderate-income, and central-city homebuyers.

Since 1989, the FHLBs have faced two required payments—Affordable Housing Program (AHP) contributions and REFCorp payments.⁹² To meet AHP commitments, the FHLB System must set aside the greater of \$100 million or 10 percent of current income after REFCorp expenses. In addition, the Federal Housing Finance Board has established standards of community investment or service that member institutions must meet to maintain access to long-term advances. These regulations take into account the member institution's performance under the Community Reinvestment Act of 1977 (CRA) and its record of lending to first-time homebuyers, among other things.

⁹⁰ With respect to the liquidation policies applied to Class B stock, Gramm-Leach-Bliley gives member institutions holding Class B stock a more direct ownership interest in the retained earnings of their FHLB. (See Council of Home Loan Banks, p. 3.)

⁹¹ Office of Finance, p. 11.

⁹² As noted in the first section, REFCorp payments are used to retire debt incurred because of the savings and loan crisis.

THE GSEs TODAY: COSTS AND BENEFITS

At public debates regarding the future of the housing GSEs, there inevitably arises the question of whether these institutions enjoy a government subsidy. Use of the term “subsidy” has drawn criticism from GSE supporters.⁹³ These individuals note that the GSEs receive no direct taxpayer assistance, or subsidy, in the form of a Treasury-issued check. This assertion is correct, as far as it goes. However, a broader definition of the term “subsidy” might include values or benefits conferred by congressional prerogative for which other firms would be willing to pay. The GSEs receive no direct cash payments, but they do receive benefits that have value.⁹⁴

To avoid confusion, we will refer herein to any advantages the GSEs receive as charter-conferred benefits or privileges. Although the language is a bit more cumbersome, it defines more precisely the GSEs’ relationship to the government and the source of their competitive advantages. The charters confer privileges on the GSEs. Those privileges then translate into benefits for a variety of groups, including homeowners, GSE shareholders, and participants in the mortgage and housing industries.

The charter-conferred privileges raise questions about the size and distribution of these charter-conferred benefits. Have the benefits grown over time? How are the GSEs’ charter-conferred benefits distributed among GSE managers, their stockholders, and other market participants? Before addressing these questions about the costs and benefits associated with the GSEs, however, it is helpful to understand their size with regard to the U.S. mortgage markets.

Fannie Mae and Freddie Mac within the Mortgage Markets

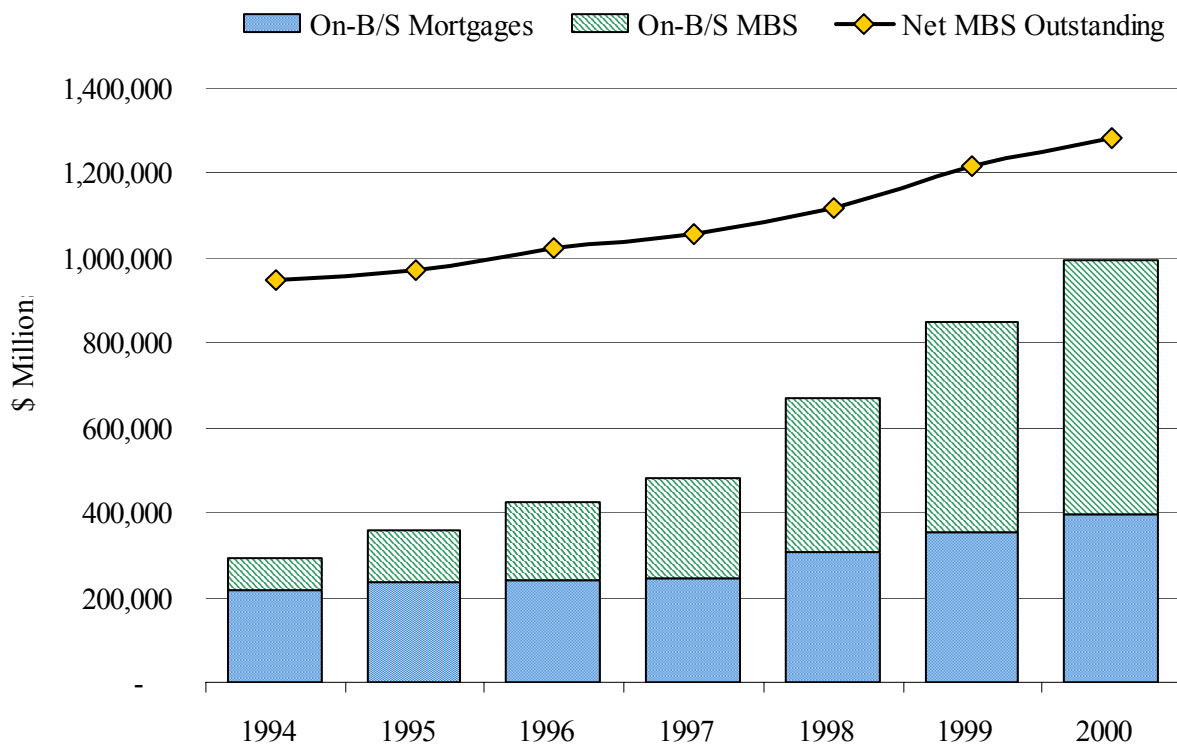
A crucial contribution of Fannie Mae and Freddie Mac to the housing market is their support of secondary mortgage market operations. By providing a deep and liquid secondary market in mortgages, the GSEs enable lenders to focus on evaluating credit risks and writing sound loans. Because they can sell their longer-term loans, depository institutions can more closely match the economic lives of their assets and liabilities.

⁹³ In his July 11, 2001 testimony before the House Subcommittee on Capital Markets, J. Timothy Howard, executive vice president and chief financial officer of Fannie Mae, stated, “The premise underlying the CBO’s [Congressional Budget Office’s] work is that it can estimate the value of a subsidy that does not exist. Clearly, we receive benefits as a result of our charter, ...but these benefits should not be equated with an outlay of taxpayer dollars.” James C. Miller, III in testimony before the same committee asked, “Would it be appropriate to term the initiation and enforcement of property rights in this instance a ‘subsidy’?”

⁹⁴ In objecting to Fannie Mae’s narrow definition of “subsidy,” law professor Richard Carnell argued in his July 11, 2001 testimony that, “Fannie’s reasoning that a subsidy involves only a tangible payment of money produces absurd results. If Congress were to exempt Fannie from ever again having to pay any corporate income tax, that would supposedly not be a subsidy because it would involve no cash payment to Fannie.”

As noted earlier, when Fannie Mae and Freddie Mac purchase mortgages from lenders, they can either hold the loans in their own portfolios, or they can repackage the loans, creating securities that appeal to capital market investors. Whether the GSEs earn profits from the difference between their interest income and their cost of funds or generate returns from credit risk guarantee fees, their unusual relationship with the federal government lowers their overall costs of operations in several important ways. In addition, GSEs are better able to match the maturity of their liabilities with the expected maturity of the assets (mortgages) they hold in portfolio. The GSEs thus face less interest rate and liquidity risk than do the depository institution originators of mortgage loans.

Figure 4
Mortgage-Related Assets of Fannie Mae and Freddie Mac Combined and Net MBS Outstanding
 (On-B/S = On-Balance Sheet)



By the end of 2000, more than \$5.2 trillion in home mortgages were outstanding in the U.S.⁹⁵ As noted earlier, total home mortgages grew at an average annual rate of 8.2 percent from 1995 to 2000.⁹⁶ Fannie Mae’s mortgages and MBS held

⁹⁵ Federal Reserve Statistical Release Z.1, Table L.2, Line 12, “Credit Market Debt Owed by Nonfinancial Sectors,” dated September 2001.

⁹⁶ To provide some perspective, this 8.2 percent growth rate was an improvement over the seven percent average annual growth rate in total home mortgages over the 10-year period, 1990 to 2000. Over the 20-year period since 1980, however, home mortgages have grown even more quickly, by an average annual rate of 8.8 percent per year.

in portfolio, combined with its net MBS outstanding, totaled \$766 billion in 1995 and \$1.3 trillion by 2000. Fannie Mae's investment in the mortgage markets thus grew at a compound annual rate of 11.4 percent per year over the same five-year period. Freddie Mac grew equally fast. Its mortgages and MBS in portfolio plus net MBS outstanding reached \$962 billion by year-end 2000 from \$566 billion in 1995, for a five-year compound annual growth rate of 11.2 percent.⁹⁷

As of year-end 2000, Fannie Mae and Freddie Mac either owned directly or sponsored securities backed by \$2.3 trillion of the \$5.2 trillion in home mortgages in the U.S.⁹⁸ Their activities thus affected 44 percent of the total U.S. home mortgage market. Combined, Fannie Mae's and Freddie Mac's activities supported roughly 75 percent of the conventional/conforming mortgage market as of year-end 2000.⁹⁹ If we consider the Federal Home Loan Banks' activities in purchasing mortgages and providing advances to members as similarly affecting the U.S. residential mortgage markets, the total figure for the GSEs' activities rises by \$454 billion to \$2.7 trillion for 2000. In sum, the three housing GSEs affected 53 percent of the U.S. residential mortgage markets during 2000.

Charter-Conferred Privileges

Understanding the GSEs' charters is an essential step toward understanding the GSEs themselves and the U.S. mortgage markets more generally. The GSEs' charters establish their existence, grant them special privileges, and protect them from encroachment by potential competitors. The more prominent charter-conferred privileges include:

- Lines of credit with the U.S. Treasury;
- Exemption from SEC securities registration requirements;
- Privileged treatment of GSE securities insofar as bank assets and capital requirements are concerned;
- Privileged treatment of GSE securities for government accounts;
- Privileged treatment of GSE securities by the Federal Reserve in the conduct of monetary policy;
- Access to the federal agency debt market;
- Exemption from state and local income taxes for Fannie Mae and Freddie Mac;
- Exemption from state, local, and federal income taxes for the Federal Home Loan Bank System, and
- A funding cost advantage that reduces GSEs' interest costs below that of high-grade corporate debt.

⁹⁷ Source: Annual reports of the two firms, 1995 – 2000.

⁹⁸ *Ibid.*

⁹⁹ Wallison and Ely (2001, Table 3-2).

Lines of Credit

Prominent among the privileges Congress conferred on the GSEs are lines of credit with the U.S. Treasury. Fannie Mae and Freddie Mac may borrow up to \$2.25 billion each from the government without any additional congressional action. The FHLB System enjoys a \$4.0 billion line of credit with the Treasury.

Although the GSEs' lines of credit are miniscule compared to their outstanding debt, the credit lines are clearly important to the firms. Fannie Mae and Freddie Mac have vigorously defended their credit lines. When then-Undersecretary of the Treasury Gary Gensler suggested in March 2000 that the lines of credit should be severed, Timothy Howard, Fannie Mae's chief financial officer, referred to Gensler's testimony as "irresponsible," and Sharon McHale, spokeswoman for Freddie Mac, said the remarks "showed contempt for the nation's housing and mortgage markets."¹⁰⁰ Neither Fannie Mae nor Freddie Mac has ever drawn on its credit line, but its mere existence serves to reinforce the notion that an implied government guarantee stands behind GSE-issued debt.¹⁰¹

SEC Exemption

The GSEs are exempt from SEC registration and disclosure requirements applied to privately issued debt. The SEC currently charges approximately 2.8 basis points per dollar of securities registered.¹⁰² In 2000, Fannie Mae and Freddie Mac together saved an estimated \$176 million because of the SEC exemption, while the FHLB System saved approximately \$60 million.¹⁰³

Privileged Treatment

Banks and S&Ls may hold GSE securities in unlimited amounts. Normally, banks face strict limits on the amount they can lend to a single borrower. This safeguard is designed to protect the bank's solvency in the event a borrower defaults. The exceptions to these lending limits are U.S. Treasury debt and GSE debt. Furthermore, under current risk-based capital weightings, GSE debt

¹⁰⁰ See Edwards (2000).

¹⁰¹ We discuss how the Treasury lines of credit might be valued in Appendix A.

¹⁰² From the SEC's 1999 Annual Report at www.sec.gov/pdf/annrep99/ar99full.pdf. For 1997 and 1998, the SEC charged 1/33rd of 1 percent (or 0.0303 percent) for registration. The GAO (1996, p. 45) used the pre-1997 figure of 3.4 basis points per dollar to estimate savings from the SEC registration exemption. Nationally chartered banks (but not bank holding companies) are also exempt from SEC filing requirements.

¹⁰³ This estimate is based on SEC charges of 2.8 basis points per dollar of securities issued and the total long-term obligations floated by the GSEs during 2000. In their most recent financial statements, dated March 31, 2001, Fannie Mae and Freddie Mac combined reported that during 2000 they floated \$630 billion in long-term securities. (This was lower than 1999's total of \$906 billion.) The 2000 total consisted of \$203.5 billion in long-term debt, \$378.6 billion in mortgage-backed securities, and \$48.2 billion in structured securitizations (such as REMICs). Meanwhile, the Federal Home Loan Banks issued \$217 billion in long-term debt. Some short-term debt issued by the GSEs might be subject to SEC registration requirements in the absence of the charter exemption, but we were unable to separate commercial paper and other unregistered types of short-term debt from the short-term debt totals. Consequently, we ignored all newly issued short-term debt in determining the value of the registration exemption. See Appendix A for more information about our calculations, data sources, and results.

receives favorable treatment by banking regulators. Investments by depository institutions in GSE debt require just 20 percent as much equity capital as a similarly sized investment in the debt of a fully private firm. GSE paper may also be used to back public accounts, such as the Treasury's Tax and Loan Accounts, as well as to meet the investment needs of the federal retirement system.

The Federal Reserve accepts GSE debt as collateral for discount window loans, and since 1971, the Fed buys and sells Federal Home Loan Bank System issues in the conduct of its open market operations.¹⁰⁴ The Federal Reserve also acts as transfer agent on behalf of the GSEs, just as it does for the Treasury and for federal agencies.

All of these provisions—from depository institutions' ability to hold unlimited amounts of GSE debt to the GSEs access to the Federal Reserve and the federal agency debt markets—expand the market for GSE paper and enhance its liquidity relative to corporate debt of similar grade and maturity. The resulting increase in demand for GSE securities consequently reduces investors' required yields on GSE debt, all else equal. But these privileges do more than just confer a funding cost advantage on the GSEs. They also reinforce the perception of a federal guarantee on GSE debt obligations.

Tax Exemptions

GSE earnings are also exempt from state and local income taxes. Fannie Mae and Freddie Mac do pay federal income taxes on their earnings, as well as property taxes to the local jurisdictions in which they maintain offices. The Federal Home Loan Banks pay no income taxes to any level of government, although they do pay property taxes.¹⁰⁵ The FHLBs' institutional owners do not enjoy the usual corporate tax exemption on dividends paid by the individual FHLBs.¹⁰⁶ We estimated the combined value of the various tax exemptions for 2000 (net of any offsets) at \$1.3 billion for all three GSEs.

Funding Advantages

By far the most important advantage enjoyed by the GSEs is their funding cost advantage. Unlike the SEC exemption and the income tax exemption, the funding cost advantage is not the result of a specific charter provision. It arises because investors view GSE debt as incorporating less risk than does even high quality corporate debt. As noted, there is less liquidity risk to holding GSE debt. GSE securities are more easily sold than are other corporate bonds. Furthermore, the GSEs also face lower interest costs to the extent that market participants believe they will be protected in the event of a GSE default.

¹⁰⁴ Bosworth (1987, p. 64).

¹⁰⁵ As noted elsewhere, the FHLBs do face required REFCorp and AHP payments, however.

¹⁰⁶ Cash dividends were paid in 2000 by nine of the 12 district banks. Stock dividends were paid by four of the 12 FHLBs, including the three FHLBs that did not pay cash dividends. (Office of Finance, pp. 122-23.) Normally, when one corporation receives dividend-income from another, 70 percent of dividends received are exempt from taxation for the stockholder-corporation. (To receive the exemption, the stockholder-corporation must own less than 20 percent of the stock of the company paying the dividends.) This exemption offsets what would otherwise be triple-taxation of corporate profits paid as dividends.

This widespread confidence in an implied government guarantee arises in part from the charter privileges discussed here. The market's expectations have been further influenced by past government actions. When faced with the imminent failure of the Farm Credit System (FCS) in 1987, the federal government protected FCS creditors. Congress created the FCS Financial Assistance Corporation, which issued explicitly guaranteed debt, to close or reorganize failed FCS institutions.¹⁰⁷ Furthermore, the rapid growth of the housing GSEs has been unchecked by government officials. It is widely accepted that the failure, or even the serious impairment, of any one of the GSEs could pose systemic risks to the U.S. mortgage markets and, indeed, to the broader financial system if banks' investments in GSE debt lost substantial value.¹⁰⁸

We estimated the value of the funding cost advantage to the GSEs by asking what interest rates they would have paid on their outstanding debt if market investors had viewed the GSEs as fully private institutions. Details of these calculations appear in Appendix A. We concluded that during 2000, Fannie Mae enjoyed more than \$2.6 billion in interest costs savings, Freddie Mac's funding costs were \$1.9 billion lower because of its GSE status, and the FHLB System reaped almost \$2.3 billion in reduced interest expenses. In total, the funding cost advantage was worth more than \$6.8 billion to the three housing GSEs in 2000.

Estimating the Value of Charter-Conferred Privileges over Time

We conservatively estimate the value of the combined charter exemptions and funding advantages for all three GSEs to have grown from just over \$3.5 billion in 1994, to almost \$8.4 billion in 2000. This represents a compound growth rate of more than 15 percent per year. Moreover, the charter-conferred privileges for the Federal Home Loan Banks exceeded their reported net incomes in each of the years, 1994 through 2000. Freddie Mac's charter-conferred benefits were greater than reported net income in both 1998 and 1999, and over the period 1994 to 2000, Freddie Mac's charter-conferred benefits averaged almost 95 percent of its net income. Fannie Mae's charter-conferred privileges equated, on average, to roughly three-fourths (or 74 percent) of its reported net income over the same seven-year period.

Looked at from a different perspective, over the period 1994 to 2000, almost 80 percent of the value of the GSEs charter-conferred benefits came from funding advantages. For the three firms combined, funding advantages grew from \$2.8

¹⁰⁷ See Stanton (1991, p. 124). The Farm Credit System was bailed out over the strong objections of rural commercial lenders who had been harmed throughout the 1980s by the FCS's policy of providing below cost loans to farmers.

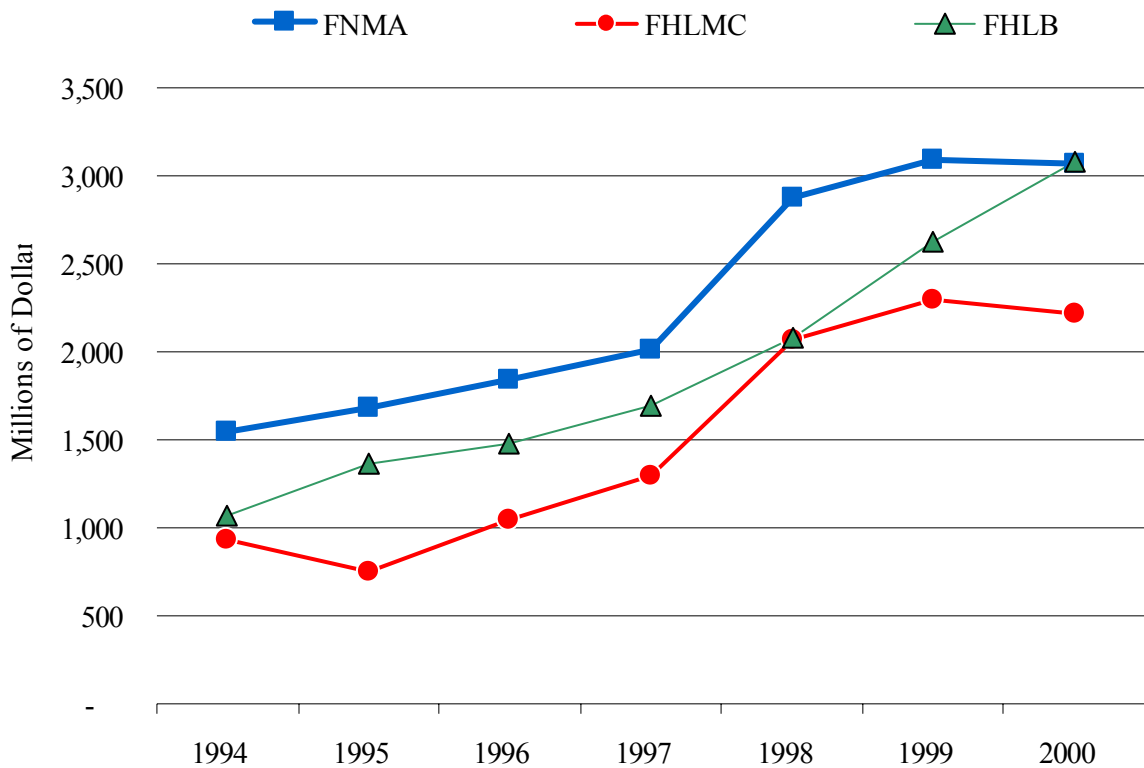
¹⁰⁸ We are not advocating a government bailout of any GSE, should the question arise. We simply acknowledge, however, that the government's record in this area may lead observers to expect government intervention. Lockheed, Chrysler, the Penn-Central railroad, and New York City all received government bailouts in the absence of a congressional charter or other specific relationship with the government comparable to that enjoyed by the GSEs. Moreover, Fannie Mae secured regulatory forbearance in the early 1980s when its capital (like that of the savings and loan industry) was depleted by rapidly changing interest rates. Although forbearance is not a bailout, the leniency shown to the then much smaller GSE does constitute a form of indirect taxpayer assistance, thus reinforcing the perception that future bailouts, if necessary, would be forthcoming.

billion in 1994 to \$6.8 billion in 2000, representing a 16 percent compound annual growth rate over the period. Charter-conferred privileges and exemptions, on the other hand, grew from \$754 million in 1994 to \$1.6 billion as of year-end 2000, or at an average rate of 12.8 percent per year. Their connection to the government has obviously proven beneficial to the three housing GSEs.

Note, finally, that Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System have a strong incentive to increase their outstanding debt. It is by financing growth with new debt that the GSEs are best able to exploit their funding advantage. Higher debt ratios also boost the firms' returns on equity, thereby satisfying stockholders. Unfortunately, this growing GSE debt also represents a potential risk to taxpayers.

Appendix A explains more fully the methodology and data sources used to estimate the value of the charter-conferred privileges to the GSEs since 1994. Figure 5 summarizes these estimates.

Figure 5
Estimated Value of GSE Charter-Conferred Privileges



GSE Benefits

Two principal groups benefit from GSE activities: (1) the GSEs' owners and (2) participants in the mortgage markets. As always, it is the charter-determined, hybrid nature of the GSEs that generates benefits for the groups the GSEs serve.

Benefits to GSE Owners

We have already described a number of the benefits that accrue to the GSEs' owners. Fannie Mae and Freddie Mac, in particular, have proven adept at translating these advantages into superior financial returns for their stockholders during recent years.

As shown earlier in Figure 1, the average return on equity (ROE) for the three housing GSEs hovered around 16 percent from 1994 to 2000. But this average is influenced by the Federal Home Loan Bank System's relatively modest returns on equity of about 8 percent. Fannie Mae and Freddie Mac, by contrast, earned returns since 1994 averaging 24 percent and 23 percent, respectively. Indeed, Fannie Mae and Freddie Mac consistently outperformed other firms in the U.S. financial services arena. The average returns on equity for large banks from 1995 to 1999 was 15 percent, while thrift institutions and large insurance companies earned an average return of 12 percent, and brokerages earned an average ROE of 17 percent.¹⁰⁹

Fannie Mae's and Freddie Mac's superior financial returns arise from at least three different sources. First charter-conferred benefits lower the GSEs' operating costs. Second, the GSEs' have been willing to use debt in funding their operations. Finally, Fannie Mae and Freddie Mac have pursued increasingly risky business strategies.

Table 4
Growth in GSE Debt Outstanding
(Dollars in Billions)

Year	Fannie Mae	Freddie Mac	FHLBS
1970 ^a	\$ 13.2	N/A	\$ 11.2
1975 ^a	28.2	\$ 5.1	20.6
1980 ^a	52.3	4.7	36.6
1985 ^b	91.7 ^a – 93.9 ^c	13.8 ^a – 11.9 ^c	73.6 ^a – 74.4 ^c
1990 ^c	123.4	30.9	117.9
1995 ^c	299.2	120.0	243.2
2000 ^c	642.7	426.9	594.4
Compound Annual Growth Rates, 1970 – 2000	13.8%	19.4%	14.2%

^a Stanton (1991, p. 35). Stanton's source is a Congressional Budget Office (CBO) report, *An Analysis of the Administration's Credit Budget for Fiscal Year 1991*, published in April 1990.

^b The data reported in Stanton (1991) and the figures reported by the Bond Market Association overlap for the years 1985-1989. We included both sources to indicate their general consistency.

^c Bond Market Association, "Federal and Federally Sponsored Credit Agency Debt Outstanding 1985-2000," www.bondmarkets.com/Research/O5.shtml.

¹⁰⁹ Industry comparisons are taken from Gensler (2000).

Table 4 shows the growth in total debt outstanding for each of the three housing GSEs since 1970, when Freddie Mac was established. As noted earlier, higher debt ratios increase stockholders' returns, all else equal, but they also magnify any losses suffered by the firm.

The housing GSEs' increased willingness to hold mortgages in their portfolios has also contributed to their recent exemplary financial performance. By holding mortgages rather than securitizing and selling them to investors, however, Fannie Mae and Freddie Mac, in particular, concentrate interest rate risk back onto their own balance sheets rather than using the secondary markets to disperse that risk. The ultimate success of this strategy will depend on borrowers' keeping their mortgage payments current and on the GSEs' keeping interest earnings matched to their interest expenses.

Benefits to Mortgage Market Participants

Standardized mortgage contracts were one of the early contributions by government agencies to the mortgage markets in the 1930s. By increasing the uniformity with which information on loan applications is gathered and presented, standardization makes comparisons of loans simpler for both borrowers and lenders. Transactions costs are thus reduced. Lower transactions costs, all else equal, attract more funds into the market, and thereby lower the cost of mortgage credit.¹¹⁰

Even among the GSEs' critics, it is widely accepted that mortgage rates today are lower than they would have been in the absence of a liquid secondary market. Lower borrowing costs almost certainly make homeownership affordable for more families. Fannie Mae has suggested that its activities save the average homeowner \$53.89 per month.¹¹¹ Fannie Mae estimates further that every \$10 reduction in monthly payments allows an additional 250,000 people to become first time homebuyers. If Fannie Mae's claims are accurate, its activities have added some 1.35 million Americans to the rolls of homeowners. Moreover, Pearce and Miller have argued that the activities of the GSEs probably lower all mortgage rates, not just those on the loans the GSEs hold or securitize.¹¹²

Lower interest rates are only half of the housing affordability story, however. Often overlooked is the fact that lower mortgage rates almost certainly increase housing prices over what they would have been otherwise.¹¹³ Thus, the reduced

¹¹⁰ There is, of course, a downside to standardized contracts. It may become more difficult to find lenders willing to customize loans to meet unique circumstances. That said, there are clearly net benefits to standardization, and the variety of standardized loans is constantly increasing.

¹¹¹ As of the week of June 26, 2000, Fannie Mae claimed on its website that its secondary market activities resulted in net savings of \$19,400 over the life of a 30-year mortgage when compared to a jumbo loan for the same amount. That estimate translates into monthly savings of \$53.89 over the 30-year life of the loan. Total interest savings will, of course, depend on the size of the initial loan.

¹¹² Pearce and Miller (2001, p. 10).

¹¹³ It is clear in the short-run that lower interest rates help boost selling prices. In the longer term, of course, construction of new homes will increase in response to the higher prices. (That is, the supply of housing becomes more elastic, i.e., more responsive to higher prices, in the longer term.) But unless the costs of construction remain constant regardless of the level of construction activity,

mortgage payment from lower interest rates is at least partially offset by the higher purchase price. The size of the increase in housing prices is a function of the relative elasticities of the supply of and demand for housing.¹¹⁴ But an effect of the housing GSEs' activities has been to improve the prices received by home sellers.

Investors in mortgage-backed securities also benefit from GSE activities. Fannie Mae and Freddie Mac, as part of the securitization process, guarantee the timely payment of principal and interest on the loans underlying their MBS.¹¹⁵ Investors are thus protected from borrower default. Fannie Mae and Freddie Mac receive a premium of roughly 20 basis points for every dollar of securitized mortgages to compensate them for assuming this risk and to cover other costs.

Estimating the Value of GSE Benefits to the Mortgage Market

Spreads between jumbo loans (i.e., those above the conforming limit) and conforming loans are often used as a basis for evaluating the benefits provided by the GSEs to housing finance and homebuyers. Advocates of this approach argue that jumbo loans are originated, bought, and sold in markets free from direct GSE influence. Consequently, they are thought to reflect an unsubsidized market price for mortgage loans.¹¹⁶ In its recently released GSE study, the CBO estimated that the average jumbo-conforming spread ranged from 18 to 25 basis points between 1995 and 2000.¹¹⁷ CBO used a point estimate of 22 basis points to calculate the benefits the GSEs confer in terms of lower financing costs.¹¹⁸

the net effect will still be an increase in housing prices over what they would have been absent the lower interest rates. (In economists' terms, lower interest rates cause the demand curve to shift, while moving along the existing supply curve. There is a change in demand, but a change in quantity supplied.)

¹¹⁴ Appendix B identifies areas for further research. One possible approach to evaluating the GSEs' influence on housing prices is discussed there.

¹¹⁵ The FHLBs do not produce MBS, although they do hold MBS as investments.

¹¹⁶ Pearce and Miller (2001, pp. 12-13) argue that rates on jumbo loans are also lowered by the activities of the GSEs. Even if this is true, it still does not necessarily follow that the *relative* spreads between jumbo and conforming loans would be significantly different from those that exist today. That is, in the counterfactual Pearce and Miller world, the removal of the GSEs would raise both jumbo and conforming loan rates. Any remaining spread between jumbo and conforming loans would likely reflect different risks. In other words, it is possible to argue theoretically that spreads would remain relatively stable, widen, or shrink in the absence of GSE activities. As a first approximation, we will continue to use jumbo-conforming spreads to estimate the benefits to homebuyers of GSE activities in housing finance. See also CBO (2001[b]).

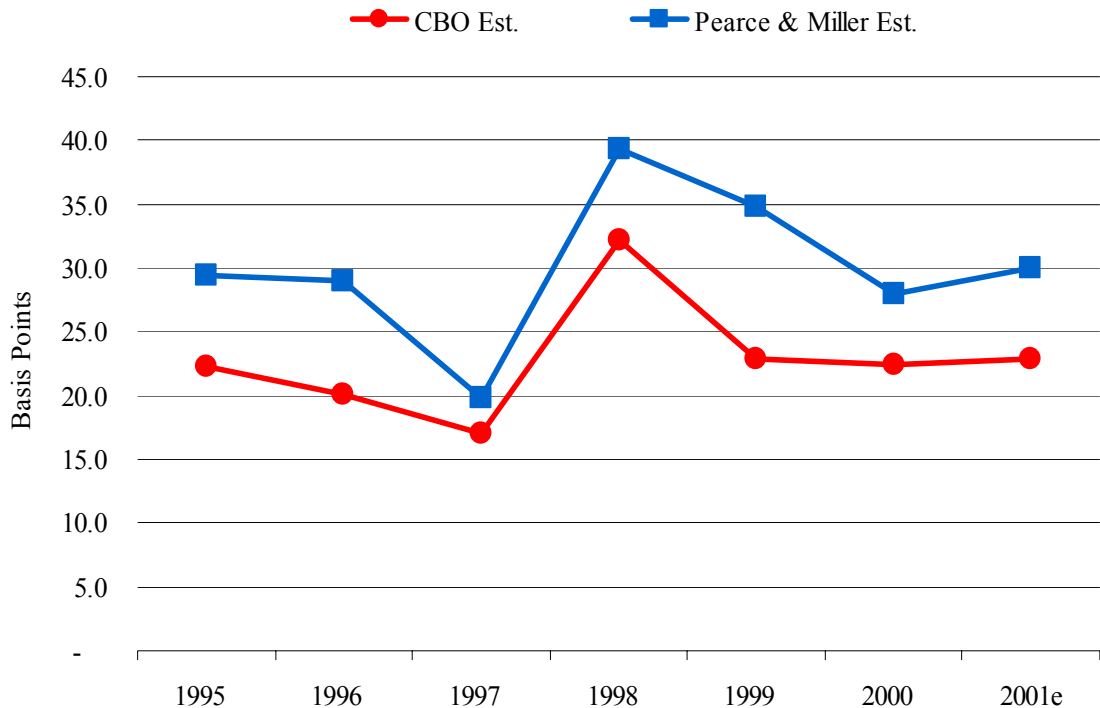
¹¹⁷ CBO (2001[a]), p. 27. The data used in this study reflected a more detailed CBO analysis of mortgage rate differentials found in CBO (2001[b]).

¹¹⁸ CBO (2001[b]) presents an extensive study of rate differentials in which CBO analysts controlled for a variety of factors. Delk (2001), senior vice president for Freddie Mac, argued before Congress that the differential should be 30 basis points, but his estimates were older and less robust.

Pearce and Miller estimated the jumbo-conforming spread at 24 to 28 basis points on conforming, fixed-rate mortgages.¹¹⁹

The use of averages and ranges over a period of years, however, tends to mask important fluctuations in rates that correspond with overall business conditions. In Figure 6, we show the jumbo-conforming spreads as estimated by both CBO (2001 [b]) and Pearce and Miller (2001) over the period 1995 to 2000.¹²⁰

Figure 6
Jumbo-Conforming Mortgage Spreads



Given these estimates for the conforming-jumbo spread and the volume of residential mortgage debt outstanding in the U.S. in each year, we have estimated the mortgage finance savings to borrowers arising from GSE activities in the mortgage markets. Table 5 summarizes these benefit estimates.

¹¹⁹ Pearce and Miller (2001, p. 28). Pearce and Miller also considered benefits of GSE activity on adjustable rate mortgages. They estimated the benefits to conforming ARMs were approximately five basis points during the period considered.

¹²⁰ See CBO (2001 [b], Table 3, p. 19) and Pearce and Miller (2001, Exhibit 8, p. 24). Data taken from Pearce and Miller are interpolated from a graphical presentation and averaged for each year. Consequently, our numbers may not correspond precisely to the actual data used by Pearce and Miller in their construction of Exhibit 8.

Table 5
Estimated Value of GSE-Provided Mortgage Finance Savings
(Dollars in Billions)

	1995	1996	1997	1998	1999	2000
Household Mortgages Outstanding ^a	\$3,507.9	\$3,717.1	\$3,969.7	\$4,353.9	\$4,783.5	\$5,200.7
Mortgage Finance Savings <i>CBO (2001[b], p. 19)</i>	7.82	7.47	6.75	14.02	10.95	11.70
Mortgage Finance Savings <i>Pearce & Miller (2001, p. 24)</i>	10.31	10.78	7.86	17.11	16.65	14.56

^a Federal Reserve Z.1 Statistical Release, Table L.2, line 12, dated September 2001.

Pearce and Miller estimated that in 2000 the GSEs provided homeowners with interest savings totaling between \$11.7 and \$13.0 billion.¹²¹ Our slightly higher \$14.56 billion estimate occurs because we applied their spread estimates to the entire household mortgage market, not just the mortgages purchased by Fannie Mae or Freddie Mac.¹²² Further, we did not separate total mortgages into fixed- and adjustable-rate contracts, adjusting for the lower rate differential for ARMs.¹²³

Using CBO estimates of rate differentials, we conclude then that interest rate savings generated by GSE activities have averaged \$9.8 billion per year since 1995. The Pearce and Miller estimates generate average annual GSE-conferred benefits of \$12.9 billion over the period.

If the rate differentials between jumbo and conforming loans adequately capture the efficiencies GSEs bring to housing finance, we can then use our estimates of annual interest cost savings as an approximation of the benefits GSEs confer on the U.S. economy.¹²⁴

In Table 6, we compare the benefits Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System provide to the mortgage markets with our estimates of the benefits they receive as government-sponsored enterprises.¹²⁵ We would be the first to acknowledge the potential shortcomings of our measures. If anything,

¹²¹ Pearce and Miller (2001, p. 28).

¹²² By considering the entire mortgage market, we also acknowledge the contribution of the FHLBs to lower mortgage rates. The FHLBs actually buy very few mortgages, and they securitize none, but their willingness to provide advances against mortgages held by member institutions lowers the risk of mortgage lending, thus lowering the rates charged on these loans.

¹²³ Pearce and Miller (2001, p. 28) estimated that conventional mortgage loans totaled \$4.3 trillion in 2000, with ARMs accounting for roughly 10 percent of the market.

¹²⁴ We recognize that the FHLBs provide benefits to their members other than just advances. We have not attempted to measure the value of those. We are implicitly assuming that these benefits are reflected, to a significant extent anyway, in lower interest rates charged to borrowers.

¹²⁵ See Appendix A.

however, we feel we have erred on the side of demonstrating a net benefit to GSE operations. As noted, we applied potential cost savings to the entire mortgage market, and as described in Appendix A, when in doubt, we consistently chose to underestimate the benefits arising from charter-conferred privileges.¹²⁶

Table 6
Net Benefits and Costs of the Housing GSEs
(Dollars in Billions)

	1995	1996	1997	1998	1999	2000
Estimated Mortgage Finance Savings (<i>Benefits of the GSEs</i>)						
CBO (2001 [b])	\$ 7.82	\$ 7.47	\$ 6.75	\$ 14.02	\$ 10.95	\$ 11.70
Pearce & Miller (2001)	10.31	10.78	7.86	17.11	16.65	14.56
Estimated Value of Charter-Conferred Privileges (<i>Costs of the GSEs</i>)						
Cochran & England (2001)	3.79	4.36	4.99	7.02	8.02	8.36
Net Benefits						
Using CBO Finance Savings	4.03	3.11	1.76	7.00	2.94	3.34
Using P&M Finance Savings	6.52	6.42	2.87	10.09	8.63	6.20

Although our calculations indicate the GSEs may provide net benefits to the economy, that should not end the discussion. Some readers will no doubt take issue with our categorizing the value of GSEs' charter-conferred benefits as the "costs" of their operations. After all, no one writes a check to provide those benefits. However, some privileges, like the tax exemptions, do impose direct costs on various levels of government.

Further, the GSEs' competitors and potential competitors are harmed by the government-sponsored advantages available only to the housing GSEs. It is impossible to know how the mortgage markets would have developed, what innovations would have occurred, if the GSEs had not been created or if their

¹²⁶ For example, we excluded *all* short-term debt from our estimates of the value of the SEC registration exemption since we could not accurately distinguish between short-term debt that would have required SEC registration and, say, commercial paper that would not have required registration. Inasmuch as the GSEs rely heavily on short-term credit instruments, this exclusion could lead to significant understatement of the estimates for charter-conferred privileges. In 2000, Fannie Mae, Freddie Mac, and the FHLB System issued \$1.13 trillion, \$2.24 trillion, and \$4.09 trillion respectively in short-term credit instruments of all kinds. If just ten percent of these short-term securities required SEC registration, the GSEs SEC registration exemption would have been worth an additional \$208 million in 2000.

In addition, Pearce and Miller's estimates of GSEs' net social benefits are larger than ours are. They compare their estimates of interest savings provided by the GSEs with an estimate of the funding advantages the GSEs enjoy. Pearce and Miller do not consider the value of other charter-conferred privileges such as income tax and securities registration exemptions, the Treasury lines of credit, and so on. Moreover, Pearce and Miller did not measure how GSE benefits wax and wane over time. Their estimates thus tend to obscure the true picture of the GSEs' costs and benefits.

role had been more limited. There is no way to measure these potential costs—or benefits—of course.

Finally, there is the potential risk to taxpayers represented by the growing stock of GSE debt. Although the housing GSEs have been financially healthy during recent years, that has not always be the case. Their fortunes may change in the future. Should any of the housing GSEs encounter financial hardship, it is unlikely that they would reduce their outstanding debt as problems mounted.

The housing GSEs have clearly fulfilled their original mission by demonstrating the viability and profitability of providing a secondary mortgage market. But U.S. mortgage markets today are far removed from what they were when the three housing GSEs were created. Is it time to ask whether they need to continue in their present government-sponsored form?

Conclusion

Concentration and expansion are two themes that occur repeatedly when examining the housing GSEs. Throughout much of their existence, Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System have concentrated their efforts within the housing market. At the same time, the housing GSEs have continued to expand their presence within the mortgage markets by interpreting their charters ever more broadly and by obtaining charter extensions. Now one of the housing GSEs is preparing to expand beyond the mortgage market as the FHLB System gears up to accept new types of loans as collateral for its advances.

Clearly the three housing GSEs have delivered benefits, not only to their owners, but also to homebuyers and lenders, whether traditional depository institutions or mortgage bankers and brokers. The GSEs helped to pioneer long-term amortized mortgages. Because of GSE efforts to create a secondary mortgage market, loan contracts were standardized, thus simplifying comparisons and reducing transactions costs throughout the life of the loan. Furthermore, increased liquidity of mortgage loans has certainly reduced mortgage interest rates from what they otherwise would have been.

Lower interest rates are only part of the housing affordability story, however. Any nominal increase in demand almost certainly drives up the prices for available housing as well. Furthermore, the current conforming loan limit of \$275,000 was 181 percent of the June 2001 median sales price of existing homes in the U.S., according to the National Association of Realtors (NAR).¹²⁷ Even in the expensive western U.S. housing market, the GSE conforming limit is 144 percent of the June 2001 median existing house price of \$190,900. These relatively high conforming loan limits have led more than one observer to wonder what share of GSE benefits is being absorbed by the “ill-housed wealthy.”

Turning to the costs of GSEs, it is important to recognize two types of benefits arising from GSE activities—efficiency gains and subsidy gains. The economic cost of GSE activities will be different, depending on whether the primary role of GSEs is to correct market imperfections or to provide subsidies.

Efficiency gains appear if there are market imperfections the GSEs can overcome. Bosworth (1987, p. 8) notes that government-sponsored enterprises may be able to demonstrate that certain loans or financial instruments can be offered profitably. GSEs can take advantage of economies of scale unavailable to private lenders in providing a new service, thus generating critical mass that can help a market develop more quickly. Further, the greater volume with which GSEs can enter the market may make it possible to obtain a more accurate picture of the risks associated with particular markets or instruments. To the extent the GSEs help overcome existing market imperfections, the supply of funds to the market should increase. Previously disadvantaged borrowers can be

¹²⁷ As of June 2001, the NAR reported that the nationwide median price for an existing home was \$152,200. This figure is not seasonally adjusted. See www.nar.realtor.com/research/home.html.

helped without affecting other borrowers or sectors of the economy, and resource allocation within the economy improves.

If subsidies are the aim (or the effect) of GSE activities, however, these institutions benefit some borrowers at the expense of others. Subsidies do not increase the total supply of funds available within the market. Rather they change who receives the limited supply of existing funds. When the borrowing of one group is subsidized by government programs, the weakest borrowers among the non-subsidized groups can be crowded out.

The housing GSEs discussed in this study almost certainly represent some combination of efficiency gains and subsidies. Bosworth (1987, p. 10) suggests that, “Such a mixing of motives can be particularly insidious when an income transfer or resource reallocation program masquerades for purposes of public discourse as a market perfecting program, directing attention away from the costs.” We have attempted to bring greater clarity and focus to the costs and benefits that arise from the activities of the GSEs.

Our analysis of costs and benefits, in fact, indicates that from 1995 through 2000, the GSEs tended to produce benefits in excess of costs, but that such benefits were uneven over time—ranging from a low estimate of net benefits of \$1.8 billion in 1997, to a high of \$10.1 billion in 1998. Our estimates of net benefits, however, must be tempered by several factors. First, our estimates were based on very conservative assumptions. Second, we were unable to quantify the value of every charter-conferred privilege, such as the SEC registration exemption for short-term debt offerings. Third, we did not consider any secondary consequences of the GSEs’ activities in housing finance, such as the potential for house price augmentation arising from lower financing costs. Finally, even with our conservative methodology, net benefits could prove illusory in the future in the event of adverse economic developments, especially given the relatively small margins by which our estimates of benefits exceeded costs.

As their expansions near the limits of the U.S. mortgage markets, policymakers will be forced to confront some basic policy questions in connection with the GSEs. For instance, have the GSEs achieved their assigned goals and outlived their usefulness? In the pursuit of higher returns, have the GSEs concentrated rather than dispersed mortgage lending risks? Should the GSEs be permitted to enter new markets? These are difficult questions with answers beyond the scope of this paper. Our hope is that the analysis in this study will help to lay a foundation on which answers to these and other similar questions can be more reliably built.

In sum, the GSEs are not fully responsive to market forces or to government control. To the extent GSEs’ cost structures do not reflect market-driven costs and their operating venues are protected from competitive encroachment, GSEs face muted market discipline. Nor are the GSEs government agencies and thus subject to the budgeting process and other institutional controls. Government oversight of the GSEs is thus limited. Being neither fish nor fowl—neither fully private nor fully public enterprises—prudence and rational public policy dictate that the GSEs undergo regular scrutiny by government and market participants.

APPENDIX A—DERIVATION OF VALUES FOR CHARTER-CONFERRED PRIVILEGES

This appendix describes the methodology used to calculate the dollar values of the privileges conferred on the three major housing GSEs by their congressional charters. In general, our estimates rely on financial data published by the GSEs and on assumptions about the impact of particular charter provisions on reported results. Our assumptions were drawn from a variety of studies of the GSEs that have appeared since 1996, including those conducted by Ambrose and Warga (1996), CBO (1996, 2001), GAO (1996), and Pearce and Miller (2001). Where different studies offer different estimates of the value of a particular charter privilege, we have used the median estimate to derive our results.

Several charter-conferred privileges result in benefits to the GSEs that have estimable dollar values. These privileges include:

- Exemptions from SEC securities registration requirements;
- Exemptions from state and local income taxes and, in the case of the FHLBs, exemption from federal income tax;
- A line of credit maintained at the U.S. Treasury, and
- The ability to borrow on advantageous terms typically unavailable to other private borrowers.

SEC Registration Exemption

The 1933 Securities Act requires firms offering securities to the investing public to register such offerings with the Securities and Exchange Commission. Both short-term and long-term obligations of most firms must be registered.¹²⁸ In addition, a sampling of the SEC's EDGAR database of registration filings indicates that private issuers of mortgage-backed securities (MBS) also register these offerings with the SEC. Most of the securities offered by the GSEs would normally have to be registered with the SEC but for the exemption privilege conferred by the GSEs charters.

In 1999, the SEC lowered its registration fee to approximately 2.8 basis points (1/36th of one percent) per dollar of securities registered from the previous level of 3.03 basis points (1/33rd of one percent) that prevailed during 1997 and 1998. The volume of long-term securities issued during a particular year is taken from

¹²⁸ Principal exceptions to the SEC's registration requirements include private offerings to a limited number of persons or institutions, offerings of limited size, intrastate offerings, offerings maturing in 270 days or less, and securities issued by municipal, state, and federal governments. Nor do short-term loans from other financial institutions require registration. Lacking sufficient information to separate short-term securities that would require SEC registration from those that would not, we have chosen to err on the side of caution. We have included only long-term debt in calculating the estimated value of the SEC registration exemption.

the respective GSEs' annual reports.¹²⁹ The volume of MBS issued during a particular year is also taken from the firms' annual reports.¹³⁰

Based on their published financial information and the estimates of registration savings, Fannie Mae, Freddie Mac, and the FHLBs reaped benefits of \$89 million, \$86 million, and \$60 million respectively during fiscal year 2000. The total value of this charter-conferred privilege to the GSEs amounted to nearly \$236 million in fiscal year 2000.

Table A.1
SEC Registration Exemption Value
(Dollars in Millions)

	1994	1995	1996	1997	1998	1999	2000
Fannie Mae	\$ 51.5	\$ 48.6	\$ 69.7	\$ 71.4	\$ 144.0	\$ 122.0	\$ 89.4
Freddie Mac	64.5	39.7	56.9	70.8	136.2	129.5	85.7
FHLB System	21.3	36.5	37.3	50.0	86.2	68.0	60.4
Total	\$ 137.4	\$ 124.8	\$ 163.9	\$ 192.3	\$ 366.4	\$ 319.5	\$ 235.5

Income Tax Exemptions

Fannie Mae and Freddie Mac are both exempt from state and local income taxes. Both are still liable, however, for federal income taxes. The Federal Home Loan Banks, by comparison, are exempt from income taxes levied by all levels of government. All three GSEs pay applicable local property taxes to the jurisdictions in which they maintain physical premises.

To calculate the value of Fannie Mae's and Freddie Mac's state and local income tax exemption, one must first determine an appropriate tax rate to apply against earnings before taxes. The GAO (1996, p. 45) study estimated that state-plus-local income taxes averaged 8 percent nationwide. Earnings remaining after deduction of state and local income taxes are then subject to federal taxes. To estimate the average federal tax rate applicable during any given year, we divided income taxes paid by earnings before taxes as reported in Fannie Mae's and Freddie Mac's annual reports. We then applied the result to our estimate of what federally taxable income would have been after state and local taxes were paid.

Based on these assumptions, for 2000 Fannie Mae would have incurred state and local income taxes of \$478 million, resulting in a corresponding offset to its federal income taxes of \$125 million. Thus, Fannie Mae's net benefit from its

¹²⁹ More specifically, this data came from the "Proceeds from issuance of long-term debt" line of the "Cash Flows from Financing Activities" section of the GSEs' Statements of Cash Flows.

¹³⁰ Each GSE publishes its MBS data in a different place within its annual report. As Fannie Mae points out in its 2000 Annual Report (p. 40), "MBS are not assets of Fannie Mae except when acquired for investment purposes, nor are the MBS recorded as liabilities. ...Fannie Mae accrues a liability on its balance sheet for its guarantee obligation based on the probability that mortgages underlying MBS will not perform according to contractual terms and the level of credit risk it has assumed." The FHLB System does not issue MBS.

state and local income tax exemption in 2000 was approximately \$353 million. Freddie Mac by comparison was exempt from roughly \$283 million in state and local taxes. After accounting for the resulting \$80 million reduction in federal taxes, Freddie Mac secured a net benefit from its tax exemption of approximately \$203 million in 2000.

To estimate the value of the FHLB System’s tax exemption, we must first make an assumption about how the Affordable Housing Program and REFCorp assessments would be treated for income tax purposes. If we treat these two required payments as deductible expenses, the FHLB System would have owed taxes on \$2,204 million reported income in 2000. Using GAO’s 8 percent state-plus-local tax estimate and the average federal tax rate of 28 percent paid by Fannie Mae and Freddie Mac, the FHLB System would have owed total taxes of about \$746 million in 2000. If the AHP and REFCorp assessments were instead used to offset taxes owed to the local, state, and federal governments, the FHLB System would have owed \$192 million in total income taxes. The estimates presented in the main body of this paper reflect treatment of AHP and REFCorp payments as deductible expenses for calculation of income taxes.

Table A.2
Income Tax Exemption Value
(Dollars in Millions)

	1994	1995	1996	1997	1998	1999	2000
Fannie Mae	\$ 171.3	\$ 172.4	\$ 220.3	\$ 245.4	\$ 275.5	\$ 313.7	\$ 353.3
Freddie Mac	82.2	87.3	100.6	111.6	136.0	177.4	203.1
FHLB System	345.7	438.9	449.0	503.7	600.3	718.4	746.4
Total	\$ 599.1	\$ 698.6	\$ 770.0	\$ 860.7	\$ 1,011.8	\$ 1,209.5	\$ 1,302.8

U.S. Treasury Line of Credit

Each of the three main housing GSEs holds a line of credit (LOC) with the U.S. Treasury on which it can draw during times of financial stress. Lines of credit are accessed when liquidity needs cannot be met through customary channels—i.e., through the money or capital markets. A chief difficulty with valuing LOCs accurately arises, therefore, from their tendency to stand idle for years, even decades, only to be used when most urgently needed.

Shortly before it encountered financial difficulties, Xerox for example, paid a syndicate of bankers 6.5 basis points of the amount committed to its line of credit.¹³¹ As the *Financial Times* points out, “[S]oon after the facility was arranged, at least one bank paid a much higher fee—23 basis points—to transfer the default risk. As Xerox’s difficulties mounted, the cost of credit default contracts soared beyond 30 basis points.”¹³²

¹³¹ “The Cost of Leading Business into Temptation,” *Financial Times of London*, March 7, 2001, London Edition 1, p. 15

¹³² *Ibid.* The *Times* used the Xerox example to illustrate a larger problem. Banks may have been deliberately under-pricing the risks attendant with lines of credit in an effort to use the little-

Based on this information, we would suggest that 6.5 basis points appears to be a *de minimis* price for lines of credit, recognizing that at this rate, risks may not be fully priced. As the *Times* article indicates, a more accurate price for a line of credit may be more in the range of 20 to 30 basis points. For this analysis, we used 20 basis points to calculate the annual value of maintaining a line of credit with the U.S. Treasury.¹³³

Since Fannie Mae and Freddie Mac hold a line of credit with the Treasury for \$2.25 billion each, this charter-conferred privilege is estimated to be worth \$4.5 million annually to each firm. The Federal Home Loan Bank System, by contrast, holds a line of credit with the Treasury for \$4 billion. Their LOC privilege is thus estimated to be worth \$8 million per year.

Table A.3
U.S. Treasury Line of Credit Value
(Dollars in Millions)

	1994	1995	1996	1997	1998	1999	2000
Fannie Mae	\$ 4.5	\$ 4.5	\$ 4.5	\$ 4.5	\$ 4.5	\$ 4.5	\$ 4.5
Freddie Mac	4.5	4.5	4.5	4.5	4.5	4.5	4.5
FHLB System	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Total	\$ 17.0	\$ 17.0	\$ 17.0	\$ 17.0	\$ 17.0	\$ 17.0	\$ 17.0

Funding Advantages

Their privileged positions in the marketplace and their perceived relationships with the government give the GSEs a funding advantage that other fully private firms do not have.¹³⁴ This advantageous debt financing may arise in part from the charter privileges that confer operational, liquidity, and profit advantages to the GSEs.¹³⁵ The funding advantage may also arise in part from a perception

accessed tools to attract other, more lucrative business from their LOC customers (such as securities underwriting, loan syndications, etc.)

¹³³ Another reason for selecting a higher value for the Treasury line of credit is its potential to convey the implication of a government guarantee for GSE securities. No bank-provided LOC adds as much value.

¹³⁴ Some have suggested that banks and thrifts, for example, enjoy similar privileges through the lender of last resort facilities and deposit insurance. These features, it is argued, insulate depository institutions from market forces, giving them certain advantages that others do not enjoy. This latter observation is clearly correct, but it is also irrelevant to our current inquiry. Our focus here is exclusively on the GSEs. For a more complete discussion of the similarities and differences between the GSEs and depository institutions, see Carnell (2001[a] or [b]). We leave to policymakers and voters considerations of the societal merits and demerits of franchising industries differently.

¹³⁵ Other privileges the GSEs receive that are not listed above include the fact that federally-insured depositories can hold GSE debt in unlimited amounts. In addition, the Federal Reserve accepts GSE debt as collateral for discount window loans and buys and sells GSE debt in the conduct of its open market operations. The Fed also acts as transfer agent for the GSEs. GSE debt is acceptable backing for Treasury Tax and Loan accounts as well as for investment purposes in the federal retirement system. All of these privileges increase the size of the market for GSE debt, thereby

among investors that GSE obligations enjoy a so-called “implicit government guarantee.”¹³⁶ GSE securities carry yields slightly above those offered on full faith and credit obligations of the U.S. government and below those of top-rated corporate obligations of similar maturities.

Several studies have attempted to gauge the value to the GSEs of their funding cost advantage. Pearce and Miller (2001), for example, estimate that the GSEs enjoy a funding advantage of 10 to 20 basis points on their short-term debt and a 10 to 40 basis point advantage on debt with maturities longer than one year. The CBO’s May 2001 study suggested GSE short-term debt enjoyed a 15 basis point advantage, while long-term debt enjoyed a 47 basis point advantage.

In addition, mortgage-backed securities issued by Fannie Mae and Freddie Mac tend to enjoy lower yields than privately issued MBS. Pearce and Miller (2001) estimated that this advantage of approximately 20 basis points arises primarily from the difference between the costs to GSEs and private firms, respectively, of issuing MBS. Pearce and Miller reason that the GSEs’ advantages in issuing MBS are efficiently dissipated by the way the GSEs price their securitization activities. The various studies’ estimates of the GSEs’ MBS funding advantage ranged from five basis points to 60 basis points. For purposes of this analysis, we used the median estimate of 30 basis points to calculate the MBS portion of the funding advantage.

Table A.4(a) summarizes the various estimates of the GSEs’ funding advantage for their short-term and long-term debt and for their MBS. In this study, we used median results of these studies, to estimate the funding advantages enjoyed by GSEs on their long-term and short-term debt.

increasing liquidity and lowering required yields. The value of these privileges should be reflected, therefore, in the funding advantage the GSEs enjoy.

¹³⁶ Despite the fact that the prospectuses issued by the GSEs contain explicit statements warning that GSE securities are not obligations of the federal government, investors behave as though the government has, in fact, provided an unstated, or implied guarantee. The bases for this belief are discussed at length in the paper. Investors’ assumption of an implied guarantee lowers the perceived risk of GSE securities and, all else equal, reduces the return GSE securities must offer to induce investors to hold them.

Table A.4(a)
Study Estimates of GSE Funding Advantages
 All Data in basis points (study page numbers in parenthesis)

Study	Short-term Debt	Long-term Debt	MBS
CBO (2001)	15 (p. 18)	47 (p. 19)	30 (p. 23)
Pearce & Miller (2001)	10–20 (p. 6)	10–40 (p. 6)	20 (p. 9)
GAO (1996)	NES*	30–106 (pp. 42-43)	5–35 (pp. 42-43)
CBO (1996)	NES*	46–105 (p. 15)	25–60 (p. 15)
Ambrose & Warga (1996)**	NES*	37–63 (GAO, p. 43)	27–37 (GAO, p. 44)
<i>Median Results</i>	<i>15</i>	<i>47</i>	<i>30</i>

* NES = Not estimated separately.
 ** As cited in the GAO (1996) study.

Our own surveys of funding spreads provide roughly comparable results. For example, we examined yields on Fannie Mae, Freddie Mac, and Federal Home Loan Bank System bonds for June 26, 2001, as published in the *Wall Street Journal*. Then we compared those to the average yield available on high quality corporate bonds for the same date.¹³⁷ The average yield on Fannie Mae bonds maturing between August 2002 and May 2011 was 5.11 percent; the average yield on Freddie Mac bonds maturing between August 2002 and March 2011 was 5.32 percent; and the average yield on FHLB System bonds maturing between August 2002 and September 2008 was 4.53 percent. The average yield on high quality corporate bonds maturing in 1 to 10 years was 5.49 percent. Assuming these yields are representative, Fannie Mae enjoys an average funding advantage of 38 basis points; Freddie Mac’s average funding advantage is 17 basis points; and the FHLB System saves an average of 96 basis points on each dollar of debt financing.¹³⁸

CS-First Boston’s Bond Desk also publishes data on long-term non-callable Fannie Mae bonds available for sale. A survey of this data indicate that spreads of 10-year Fannie Mae bonds fluctuate over time both in comparison to U.S. Treasuries and in comparison to AAA-rated corporate bonds of similar maturities. The data, though limited, are shown in Figure A.1 and indicate that while high-grade corporate bond yields relative to U.S. Treasuries have been widening over the past year and a half, Fannie Mae’s long-term spread has actually narrowed somewhat.¹³⁹ The different directions taken by AAA-rated corporate bond yields and GSE bond yields relative to Treasury bond yields

¹³⁷ Data were taken from the *Wall Street Journal*, June 27, 2001, pp. C16 and C19.

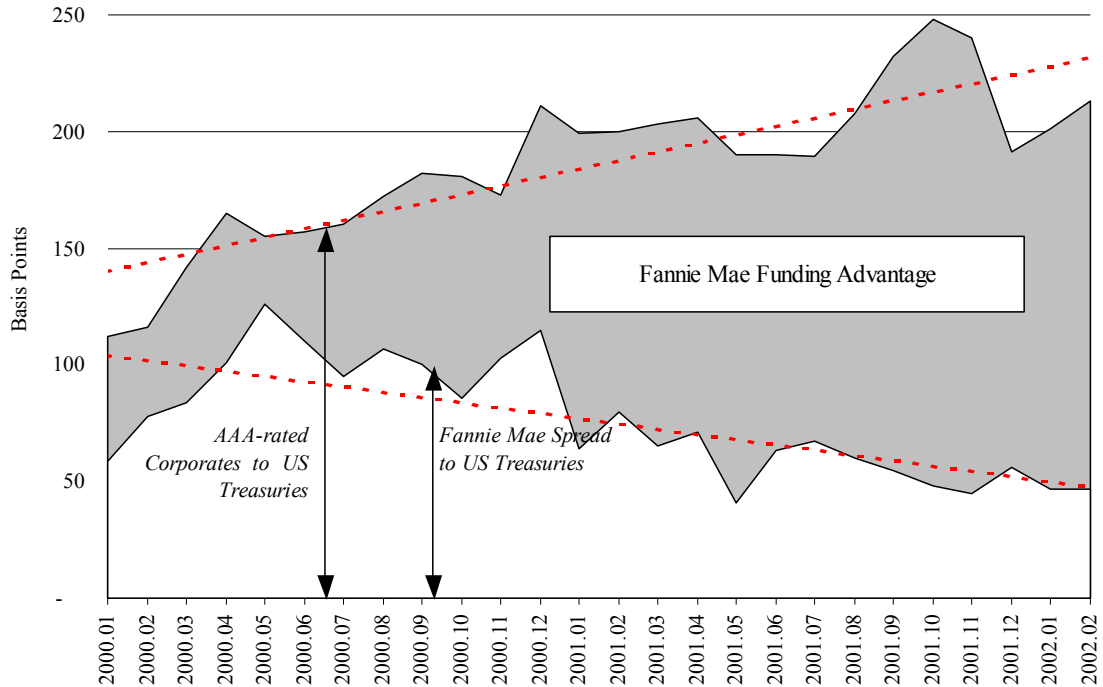
¹³⁸ We would at least note that there is also the question whether GSEs, shorn of their charter-conferred privileges, would be viewed by the markets as “high quality” corporate debt. If fully private institutions with the GSEs’ capital structure and business lines would pay a risk-based yield premium, then the calculations here underestimate the funding advantages enjoyed by the GSEs.

¹³⁹ Data on U.S. Treasury note and bond yields taken from the Federal Reserve’s H.15 Interest Rate Statistical Release.

imply that Fannie Mae's funding advantage over fully private firms has been increasing since the beginning of 2000.

Figure A.1

Recent Long-Term Fannie Mae & High-Grade Corporate Bond Spreads to U.S. Treasury 10-Year Constant Maturity Yields



To calculate the total value of the GSEs' funding advantage, we need to know the amount of debt outstanding against which any spread differential is applied. Further, the amount of debt outstanding in a given year is a function of the debt outstanding at the beginning of the year less any retirements plus any new issues. Timing of debt issues thus plays a crucial role in estimating funding advantages, especially for a capitalization approach like the one used in the CBO (2001) study. In the 1996 study, by comparison, CBO calculated the funding advantage by simply applying the spread differential on GSE debt to the total amount of debt outstanding.

To determine the value of the GSEs' funding advantage, we need to determine how much higher GSEs' interest expenses would have been had GSE debt provided yields comparable to those available on high quality corporate debt. Since we know the average volume of short-term, long-term, and total debt outstanding in a given year, multiplying the funding advantage in basis points

times the average debt outstanding provides a first approximation of the dollar value of the funding advantage.¹⁴⁰

To calculate the funding advantage on MBS, we used the median value of the study estimates for MBS funding and applied it to the total volume of MBS issued during a particular year. Since GSEs typically package MBS to sell them to investors, the funding advantage is determined by applying the GSEs' MBS spread advantage against the volume of new issues rather than the total volume of outstanding securities. This methodology suggests that the funding advantage in MBS is not a recurring benefit with any particular issue but rather is captured when the MBS are issued, in contrast to debt that remains on the GSEs' balance sheets for a number of periods.

Using the methodology described and median study values for the various funding advantages, we estimated the interest savings for the three housing GSEs. For 2000, Fannie Mae saved roughly \$380 million on its short-term debt costs, \$1,606 million on its long-term debt costs, and \$635 million on its MBS, or \$2.6 billion in total 2000 interest expenses. By comparison, Freddie Mac saved approximately \$269 million in short-term interest expenses, \$1,006 million in long-term interest expenses, and \$645 million on its MBS, or \$1.9 billion in total 2000 interest expenses. Finally, the Federal Home Loan Banks saved \$2.3 billion in total interest expenses in fiscal year 2000.

Table A.4(b)
Value of Funding Advantage
(Dollars in Millions)

Fannie Mae	\$ 1,322.0	\$ 1,460.5	\$ 1,545.2	\$ 1,684.8	\$ 2,455.7	\$ 2,652.6	\$ 2,621.1
Freddie Mac	775.7	616.1	882.1	1,104.2	1,790.7	1,989.1	1,921.0
FHLB System	690.7	876.2	979.9	1,128.3	1,382.9	1,831.3	2,267.6
Total	\$ 2,788.5	\$ 2,952.7	\$ 3,407.3	\$ 3,917.3	\$ 5,629.3	\$ 6,473.1	\$ 6,809.7

Summing Up the Value of Charter-Conferred Privileges

Overall, the value of the GSEs' charter conferred privileges has grown at more than a 15 percent compound annual rate, going from an estimated \$3.6 billion in 1994 to \$8.5 billion as of 2000. Table A.5 summarizes the preceding estimates by GSE as well as by charter exemptions and funding advantages for the years 1994 through 2000.

¹⁴⁰ We selected average debt outstanding as a compromise between precision and ease of computation. (Average debt outstanding was determined by adding beginning and ending debt and dividing by two.) Using year-end debt levels would yield slightly higher estimates of the funding cost advantage. More precise estimates would require the actual schedules of newly issued and maturing debt in the GSEs' portfolios as well as each issue's cost.

Table A.5
Estimates of Charter-Conferred Privileges—Summary
(Dollars in Millions)

	1994	1995	1996	1997	1998	1999	2000
<i>Charter Exemptions</i>							
FNMA	227.3	225.5	294.6	321.4	424.0	440.2	447.2
FHLMC	151.2	131.4	162.0	186.9	276.7	311.4	293.3
FHLB	375.0	483.4	494.3	561.7	694.4	794.4	814.8
<i>Subtotal</i>	<i>753.5</i>	<i>840.3</i>	<i>950.9</i>	<i>1,070.0</i>	<i>1,395.2</i>	<i>1,546.0</i>	<i>1,555.3</i>
<i>Funding Advantages</i>							
FNMA	1,322.0	1,460.5	1,545.2	1,684.8	2,455.7	2,652.6	2,621.1
FHLMC	775.7	616.1	882.1	1,104.2	1,790.7	1,989.1	1,921.0
FHLB	690.7	876.2	979.9	1,128.3	1,382.9	1,831.3	2,267.6
<i>Subtotal</i>	<i>2,788.5</i>	<i>2,952.7</i>	<i>3,407.3</i>	<i>3,917.3</i>	<i>5,629.3</i>	<i>6,473.1</i>	<i>6,809.7</i>
<i>Sum of Charter Exemptions & Funding Advantages</i>							
FNMA	1,549.3	1,686.0	1,839.8	2,006.2	2,879.7	3,092.8	3,068.4
FHLMC	926.9	747.5	1,044.1	1,291.1	2,067.5	2,300.6	2,214.3
FHLB	1,065.7	1,359.6	1,474.3	1,690.0	2,077.3	2,625.7	3,082.4
GRAND TOTAL	3,542.0	3,793.1	4,358.2	4,987.3	7,024.5	8,019.1	8,365.0

APPENDIX B—AVENUES FOR FURTHER RESEARCH

The preceding study raises a number of ancillary but important questions. For example, given the growth histories of the GSEs, are there likely areas into which the GSEs might be expected to request charter extensions (such as jumbo loans, non-housing related finance, etc.)? What are the consequences of a GSE failure, or the effects of GSE activities on housing prices (as against housing finance)? These are some of the questions discussed below as avenues for further research that merit careful and scholarly attention.

Possible Charter Extensions

The history of the housing GSEs has been one characterized by regular expansions of their charters. In addition to the expansions already discussed, Fannie Mae has begun a program of automated loan origination that may greatly reduce the influence of traditional lenders in the conforming market. Other significantly untapped areas related to home mortgages from which the GSEs are currently excluded include mortgage insurance, sub-prime lending, direct provision of home improvement loans through retailers, and jumbo (nonconforming) loans.

The point here is not to suggest that the GSEs should or should not be allowed to enter these areas. Certainly, current market participants can be expected to protest such expansions. To maintain high historical growth rates, however, the GSEs will need to enter untapped markets as they exhaust existing opportunities. Such policy decisions deserve careful study of the costs and benefits involved, including the impact on the GSEs, the market involved, consumers, and competitors.

Can the GSEs Create Money and/or Credit?

Because GSEs do not take deposits and lend using fractional reserves, it would seem obvious that they cannot create money and credit as banks can. There are those who argue, however, that because GSE debt is granted special status insofar as bank capital and reserve requirements are concerned, GSE debt can be used as collateral for discount window loans, and because non-bank intermediaries use GSE instruments as collateral for demand-like deposit account (money market mutual funds for example), GSEs do indirectly support the creation of money and credit. The question deserves serious scholarly consideration as control of domestic money supplies continue to challenge central bankers everywhere.

How Would GSE Debt as Benchmark Affect the Financial Markets?

If federal budget surpluses continue, the supply of outstanding Treasury debt will decrease. This is causing some concern in the financial markets as yields on U.S. Treasury debt have long served as a benchmark for setting other market rates, not only domestically, but in international markets as well. Fannie Mae, in particular, has indicated an interest in having its debt replace Treasury debt as the market benchmark. This has implications, not only for the smooth functioning of

the financial markets, but also for the role of the federal government in the event Fannie Mae encounters financial difficulties.

What Effects Do the GSEs Have on House Prices?

It is undoubtedly true that GSE activities tend to lower interest rates for conforming conventional mortgage loans. To what extent are these lower rates offset by higher housing prices? Holding the supply of housing constant, lower interest rates would lead to higher housing prices through increased nominal demand for available houses. The housing supply is not held constant, obviously, but it does not follow that housing prices are not still higher than they would have been in the absence of GSE activity. How much housing prices have increased because of lower interest rates depends on the relative elasticities of housing supply and demand.

In evaluating the benefits associated with GSE activities, this is an important question.¹⁴¹ The relationship might be tested by comparing conventionally financed with jumbo-financed home prices (controlling for significant differences in quality, location, incomes, loan-to-value ratios, and so on).¹⁴² If the test is correctly designed, the coefficient on the interest rate independent variables should vary significantly between the conventional and jumbo equation specifications.

What Are the Systemic Consequences of a GSE Failure?

As the GSEs continue to grow and concentrate risks on their balance sheets, serious consideration needs to be given to the likely systemic consequences of the failure of one or more of the GSEs. We are not suggesting that such a failure is likely, and it certainly seems unlikely in today's environment. Nevertheless, it is a possible outcome that needs to be carefully considered before it occurs, especially as the GSEs continue to grow faster than the overall mortgage market. As Congressman Baker has suggested, the time to prepare for a storm is while the sun is shining, not when the roof is leaking and the creek is rising. Prudence dictates that the systemic consequences of a GSE failure be carefully and thoughtfully studied in a period of relative calm so that appropriate responses can be prepared in the absence of panic.

How Would Mortgage Markets Change if the GSEs Were Privatized?

Finally, the possibility of privatizing one or more of the housing GSEs should be considered. Though it is possible to rationalize intervention in the housing markets during the 1930s, important questions remain. Does today's mortgage

¹⁴¹ Dwight Jaffe suggested at a May 2000 AEI-sponsored conference on GSEs that as much as 70 percent of the interest rate subsidy was transferred to home sellers through higher housing prices. Robert VanOrder, chief economist at Freddie Mac, disputed this assertion, implying there was no effect on house prices stemming from interest rate subsidies.

¹⁴² Data may be available from the Federal Housing Finance Board's periodic survey of mortgage interest rates. In addition, data are also available from HSH Associates (for purchase) that provide information on jumbo and conforming loans.

market still need a government-sponsored enterprise to promote its efficient operation? Now that the network externalities of establishing a liquid secondary market have been largely overcome, can fully private entities carry on this work efficiently? What (if any) private entities might develop along side, or even replace, the GSEs if they no longer enjoyed the competitive advantages included in their charters? If unencumbered by the restrictions embodied in their charters—and relieved of the special benefits conferred by those same charters—would the GSEs extend their services to other markets? The way in which privatization scenarios might play out should be considered and debated along with other policy options as the futures of Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System are deliberated.

REFERENCES

- Akerlof, George A., "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," *Quarterly Journal of Economics* 84, August 1970, pp. 488-500.
- Anderson, Benjamin, *Economics and the Public Welfare: A Financial and Economic History of the United States, 1914-1946*. Indianapolis: Liberty Press, 1979 [1949].
- Barta, Patrick, "Land Grab? Why Big Lenders Are So Frightened by Fannie and Freddie," *Wall Street Journal*, April 5, 2001, pp. A1, A10.
- Barta, Patrick, "Critics Snipe at Freddie Mac and Fannie Mae's Over-the-Top Success," *Wall Street Journal*, July 30, 2000, p. H1.
- Barta, Patrick and John R. Wilke, "Finance CEOs to Press for Overhaul of Fannie, Freddie," *Wall Street Journal*, March 9, 2001, p. A2.
- Bloomberg News, "Lawmaker Questions Plans of Mortgage Enterprises," *New York Times*, April 25, 1997, Section D, p. 5, col. 5.
- Bond Market Association, "Federal and Federally-Sponsored Credit Agency Debt Outstanding 1985-2000." www.bondmarkets.com/Research/O5.html.
- Bosworth, Barry P., Andrew S. Carron, and Elisabeth H. Rhyne, *The Economics of Federal Credit Programs*. Washington, D.C.: The Brookings Institution, 1987.
- Carnahan, Ira, "Green Banking: Are People Who Live Near Public Transit Better Credit Risks?" *Forbes*, August 20, 2001, p. 46.
- Carnell, Richard Scott, "Reforming the Regulation of Fannie Mae and Freddie Mac" statement before the House Subcommittee on Capital Markets, Insurance, and Government-Sponsored Enterprises, of the Committee on Financial Services, July 11, 2001[a].
- Carnell, Richard Scott, "The Structure of Federal Subsidies: Deposit Insurance versus Sponsorship of GSEs," presented at the Federal Reserve Bank of Chicago's conference *The Financial Safety Net: Costs, Benefits, and Implications for Regulation*, May 11, 2001[b].
- Census Bureau, Table 5: "Homeownership Rates for the United States: 1965-2001," www.census.gov/hhes/www/housing/hvs/q201tab5.html.
- Congressional Budget Office, "Federal Subsidies and the Housing GSEs," May 2001[a], www.cbo.gov.
- Congressional Budget Office, "Interest Rate Differentials Between Jumbo and Conforming Mortgages, 1995-2000," May 2001[b], www.cbo.gov.

“The Cost of Leading Business into Temptation,” *Financial Times*, March 7, 2001, London Edition 1, p. 15.

Council of Home Loan Banks, “A Practical Guide to the Federal Home Loan Bank System Modernization Act of 1999 (Title VI of the Gramm-Leach-Bliley Act),” June 14, 2000.

Delk, Mitchell, testimony before the House Subcommittee on Capital Markets, Insurance, and Government-Sponsored Enterprises, of the Committee on Financial Services, July 11, 2001.

“Digest,” *Washington Post*, May 19, 1999, p. E01.

Edwards, Catherine, “Home Sweet Home,” *Insight on the News*, May 1, 2000.

Eichler, Ned, *The Thrift Debacle*. Berkeley: University of California Press, 1989.

Federal Home Loan Bank Board, www.fhlb-of.com

Federal Home Loan Bank of Chicago, “Mortgage Partnership Finance Program,” www.fhlbc.com/mpf.

Federal Home Loan Mortgage Corporation, www.freddiemac.com.

Federal Housing Finance Board, www.fhfb.gov.

Federal National Mortgage Corporation, www.fanniemae.com.

Federal Reserve Board of Governors, “Charge-Off and Delinquency Rates on Loans and Leases at Commercial Banks,” *Quarterly Statistical Releases*, Washington: Federal Reserve Board, selected releases, www.federalreserve.gov/releases.

Federal Reserve Board of Governors, “Flow of Funds of Accounts of the United States,” *Statistical Release Z.1*. Washington: Federal Reserve Board, selected releases, www.federalreserve.gov/releases.

Federal Reserve Board of Governors, “Selected Interest Rates,” *Statistical Release H.15*. Washington: Federal Reserve Board, selected releases, www.federalreserve.gov/releases.

General Accounting Office, “Federal Housing Finance Board: Actions Needed to Improve Regulatory Oversight” September 18, 1998, GAO/GGD-98-203.

General Accounting Office, “Report on the Implications of Privatizing FNMA and FHLMC,” May 13, 1996, GAO/GGD-96-120.

Gensler, Gary, Under Secretary, Department of the Treasury, testimony of before the Subcommittee on Capital Markets, Securities, and Government-

Sponsored Enterprises of the House Banking Committee, March 22, 2000.

Guidera, Jerry, "Greenspan Urges More Scrutiny of Fannie Mae," *Wall Street Journal*, September 6, 2000, p. A6.

Howard, J. Timothy, testimony before the House Subcommittee on Capital Markets, Insurance, and Government-Sponsored Enterprises, of the Committee on Financial Services," July 11, 2001.

HSH Associates, www.hsh.com.

Knight, Jerry, "Wall St. Sings High Praises for Fannie, Freddie," *Washington Post*, December 2, 1996, p. F27.

"A Message from Henry Kaufman and George Gould," (paid advertisement) *Washington Post*, March 28, 2001, p. A5.

Miller, James C., III, testimony before the House Subcommittee on Capital Markets, Insurance, and Government-Sponsored Enterprises, of the Committee on Financial Services, July 11, 2001.

National Association of Realtors, www.nar.org.

Office of Federal Housing Enterprise Oversight, www.ofheo.gov.

Office of Finance, Federal Housing Finance Board, *Federal Home Loan Banks 2000 Financial Report*, www.fhfb-of/specialinterest/financials/00yrend.pdf.

Pearce, James E., and James C. Miller, III, "Freddie Mac and Fannie Mae: Their Funding Advantages and Benefits to Consumers," study prepared for Freddie Mac, January 9, 2001.

"A Special Message to Washington Mutual Home Loan Customers," (paid advertisement) *Washington Post*, September 28, 2001, p. A12.

Stanton, Thomas H., *A State of Risk: Will Government-Sponsored Enterprises Be the Next Financial Crisis?* New York: HarperCollins Publishers, Inc., 1991.

VanOrder, Robert, "A Microeconomic Analysis of Fannie Mae and Freddie Mac," *Regulation* 23, 2000.

Wallison, Peter J. and Bert Ely, "Updating *Nationalizing Mortgage Risk*," American Enterprise Institute, June 4, 2001.

Wallison, Peter J. and Bert Ely, *Nationalizing Mortgage Risk: The Growth of Fannie Mae and Freddie Mac*. Washington, D.C.: The AEI Press, 2000.

White, Lawrence J., *The S&L Debacle: Public Policy Lessons for Bank and Thrift Regulation*. New York: Oxford University Press, 1991.

Zuckerman, Gregory and Patrick Barta, "Fannie Mae Sells \$11.5 Billion in Bonds, Fueling Its Efforts to Become Benchmark," *Wall Street Journal*, August 3, 2000, pp. C1, C23.