

**Fannie Mae, Freddie Mac, and Housing Finance:
Why True Privatization Is Good Public Policy**

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Executive Summary

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are the two dominant entities in the secondary residential mortgage markets of the U.S. They are an important and prominent part of a larger mosaic of extensive efforts by governments at all levels to encourage the production and consumption of housing.

Fannie Mae and Freddie Mac are a unique part of this effort. Though they appear to be "normal" corporations, each with shares that trade on the New York Stock Exchange, they in fact have federal government origins and entanglements that make them quite special. Indeed, a common description of them is that they are "government sponsored enterprises" (GSEs). Their specialness is a two-edged sword: On one side, they do cause interest rates on many residential mortgages to be lower than would otherwise be the case; on the other, their size and mode of operation have created a significant contingent liability for the federal government and ultimately for taxpayers. In addition, the size and prominence of the two GSEs has recently led to concerns about systemic risks: about the larger consequences for the U.S. economy if either were to experience financial difficulties.

There is good economic theory, and a mounting body of evidence to support the theory, that points to the idea that home ownership has positive spillover ("externality") effects for society and thus that targeted policies to encourage home ownership (by those who would otherwise rent) can improve a society's allocation of economic resources. However, the broad policies that encourage home ownership do not address those spillover effects in a focused way (and policies that encourage more rental housing, of course, are contrary to the goal of encouraging home ownership). Instead, they simply encourage the consumption of more housing -- at the expense of other things -- by those who would have bought anyway, with the consequence that our society's resources are less efficiently allocated rather than more efficiently allocated. The encouragement that is provided through Fannie Mae and Freddie Mac is largely of this broad-based nature and thus suffers from this same distortionary consequence.

My conclusion is that the special governmental links that apply to Fannie Mae and Freddie Mac yield little that is socially beneficial, while creating potential social costs. Consequently, the appropriate "first-best" policy would be to privatize them completely -- i.e., to sever all governmental links and convert them to truly "normal" corporations -- as well as to pursue other measures that would better address the positive externality of home ownership and efficiently reduce the cost of housing. In the event that this true privatization does not occur, suitable "second-best" policies -- stronger statements by Treasury officials that the federal government has no intention of supporting the two companies, improved safety-and-soundness regulation of the two companies, the application of limits on the amounts of their debt that can be held by regulated depository institutions, and increased efforts to focus the GSEs on the segment of the housing market where their social benefits would be greatest -- are advocated as well.

I. Introduction

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are the two dominant entities in the secondary residential mortgage markets of the U.S. They are an important and prominent part of a larger mosaic of extensive efforts by governments at all levels to encourage the production and consumption of housing.

Fannie Mae and Freddie Mac are a unique part of this effort, however: Though they appear to be "normal" corporations, each with shares that trade on the New York Stock Exchange, they in fact have federal government origins and entanglements that make them quite special. Indeed, a common description of them is that they are "government sponsored enterprises" (GSEs). Their specialness is a two-edged sword: On one side, they do cause interest rates on many residential mortgages to be lower than would otherwise be the case; on the other, their size and mode of operation have created a significant contingent liability for the federal government and ultimately for taxpayers. In addition, the size and prominence of the two GSEs has recently led to concerns about systemic risks: about the larger consequences for the U.S. economy if either were to experience financial difficulties.

There is good economic theory, and a mounting body of evidence to support the theory, that points to the idea that home ownership has positive spillover ("externality") effects for society and thus that targeted policies to encourage home ownership (by those who would otherwise rent) can improve a society's allocation of economic resources. However, the broad policies that encourage home ownership do not address those spillover effects in a focused way (and policies that encourage more rental housing, of course, are contrary to the goal of encouraging home ownership). Instead, they simply encourage the consumption of more housing -- at the expense of other things -- by those

who would have bought anyway, with the consequence that our society's resources are less efficiently allocated rather than more efficiently allocated. The encouragement that is provided through Fannie Mae and Freddie Mac is largely of this broad-based nature and thus suffers from this same distortionary consequence.

This paper will expand upon these themes.¹ My conclusion is that the special governmental links that apply to Fannie Mae and Freddie Mac yield little that is socially beneficial, while creating potential social costs. Consequently, the appropriate "first-best" policy would be to privatize them completely -- i.e., to sever all governmental links and convert them to truly "normal" corporations -- as well as to pursue other measures that would better address the positive externality of home ownership and efficiently reduce the cost of housing. In the event that this true privatization does not occur, suitable "second-best" policies are advocated as well.

II. Some Background

A. What they do.

Fannie Mae and Freddie Mac each operate two related lines of business: They issue and guarantee mortgage-backed securities, and they invest in mortgage assets. Both businesses warrant further explanation.

1. Issue and guarantee mortgage-backed securities. A typical transaction in today's mortgage markets involves a swap of a pool (bundle) of residential mortgages that have been originated by a commercial bank, a savings and loan (S&L) association, or a mortgage bank² for a set of mortgage-backed securities (MBS) that have been issued by Fannie Mae or Freddie Mac and that represent a claim on the interest and principal payments on the same mortgage pool. The two

companies guarantee timely payment of principal and interest to the MBS holders and, for this guarantee, charge about 20 basis points (0.20 percentage points) annually on the outstanding principal amounts. The originators, in turn, have a liquid security that they can hold on their balance sheets (with a substantial regulatory advantage for commercial banks and S&Ls over holding the underlying mortgages themselves) or sell in secondary markets (which mortgage banks immediately do). As can be seen in Table 1, as of year-end 2003 the two GSEs together had over \$2 trillion in outstanding MBS.

2. *Invest in mortgage-related assets.* Instead of swapping MBS for mortgages, Fannie Mae and Freddie Mac may buy the mortgages outright and hold them in their portfolios (or sometimes securitize them and sell the MBS to the public). The two companies also repurchase their MBS through transactions in the secondary market, and most of their mortgage-related assets are now repurchased MBS. As can be seen in Table 1, the two companies' mortgage-related assets at year-end 2003 totaled almost \$1.8 trillion. The two companies fund their mortgage-related asset holdings overwhelmingly through the issuance of debt.

B. Some history.

Fannie Mae was created in 1938, under the authority of the National Housing Act of 1934. Until 1968, it was a unit within the federal government. Its function was to expand the availability of residential mortgage finance, by buying mortgages from originators and holding the mortgages; these purchases were funded through debt issuances that were direct obligations of the federal government.

As part of the Housing and Urban Development Act of 1968, Fannie Mae was spun off from the federal government and became a publicly traded corporation, but it retained an array of special government features (which will be discussed below).³ Its function continued to be that of

expanding the availability of residential mortgage finance through mortgage purchases, largely from mortgage banks, that were funded overwhelmingly by debt. Also, Fannie Mae was replaced within the federal government in 1968 by the Government National Mortgage Association (Ginnie Mae), an entity within the Department of Housing and Urban Affairs (HUD) that guarantees MBS that represent claims on pools of mortgages that are insured by the Federal Housing Authority (FHA) or the Veterans Administration (VA).

Freddie Mac was created in 1970 also to expand the availability of residential mortgage finance, primarily through the securitization of mortgages purchased from S&Ls. Though the first MBS were issued by Ginnie Mae in 1970, Freddie Mac was a fast second with its initial MBS issuance in 1971. Through the 1970s and 1980s, Freddie Mac was owned solely by the twelve banks of the Federal Home Loan Bank (FHLB) system and by the S&Ls that were members of the FHLB system. Freddie Mac became a publicly traded company in 1989, but with the same ties to the federal government as is true for Fannie Mae.⁴

Through the 1970s and 1980s the business strategies of the two GSEs were somewhat divergent, as can be seen in Table 1. Fannie Mae tended to focus on mortgage purchases for its own portfolio (it issued its first MBS only in 1981), while Freddie Mac tended to focus on MBS issuances. Since 1990, however, the two companies' business strategies have been largely similar: rapid growth of both their portfolio businesses and their MBS businesses. Indeed, their growth rates since 1990 -- especially for Freddie Mac -- have been breathtaking. As Table 1 also indicates, their growth rates have been far faster than that of the overall mortgage markets. As of 1980, the two companies' mortgage holdings plus MBS accounted for only 7% of the total of all residential mortgages. By 2003 their aggregate involvement in the mortgage market came to 47%.

More detailed data on the two companies' shares of various slices of the mortgage markets are available for 2000.⁵

- 39% of the \$5.6 trillion total⁶ of all residential mortgages;
- 40% of the \$5.2 trillion total of all single-family (one-to-four units) mortgages (excluding multi-family);
- 48% of the \$4.4 trillion total of all single-family conventional mortgages (which excludes FHA- and VA-insured mortgages);
- 60% of the \$3.5 trillion total of all single-family conforming mortgages (which also excludes jumbo mortgages);
- 71% of the \$2.8 trillion total of all fixed-rate single-family conforming mortgages (which also excludes adjustable-rate mortgages).

C. Current sizes.

As is indicated in Table 1, as of year-end 2003, Fannie Mae had \$1,010 billion in assets and Freddie Mac had \$803 billion in assets, making them the second- and third-largest companies in the U.S. when ranked by assets. In addition, Fannie Mae had \$1,300 billion in outstanding MBS (i.e., net of the MBS that it had repurchased and was holding in its asset portfolio), and Freddie Mac had \$769 billion in outstanding MBS. They are the largest and second-largest issuers (and guarantors) of MBS in the U.S.

III. The Special Status of Fannie Mae and Freddie Mac, and the Consequences

Fannie Mae and Freddie Mac are not ordinary corporations. They differ from all other corporations in the U.S. in a large number of ways. These differences are best illustrated by listing them under the categories of advantages and disadvantages.

A. Advantages

- They were created by Congress and thus hold special federal charters (unlike virtually all other corporations, which hold charters granted by a state, often Delaware);
- The President can appoint five of the eighteen board members of each company;⁷
- Each company has a potential line of credit with the U.S. Treasury for up to \$2.25 billion;
- Both companies are exempt from state and local income taxes;
- They can use the Federal Reserve as their fiscal agent;⁸
- Their debt is eligible for use as collateral for public deposits, for purchase by the Federal Reserve in open-market operations, and for unlimited investment by commercial banks and S&Ls;
- Their securities are exempt from the Securities and Exchange Commission's registration and reporting requirements and fees;⁹
- Their securities are explicitly government securities under the Securities Exchange Act of 1934; and
- Their securities are exempt from the provisions of many state investor protection laws.

This "package" of special benefits directly lowers their costs and has also created a "halo" of implied federal government protection for the two enterprises. This halo has been reinforced by the past government forbearance when Fannie Mae was insolvent on a market-value basis in the late 1970s and early 1980s and by a taxpayer bailout of the Farm Credit System (which had similar benefits) in the late 1980s.¹⁰ They are frequently described as "government sponsored enterprises" (GSEs).¹¹ Perhaps most importantly, because the financial markets believe that the special GSE status of Fannie Mae and Freddie Mac implies that the federal government would come to their (and their creditors') rescue in the event of financial difficulties -- despite specific language on every security that they issue that declares that the securities are not guaranteed by or otherwise an

obligation of the federal government -- their debt is treated favorably by the financial markets:¹² They can borrow on more favorable terms (i.e., at lower interest rates) than their credit ratings as stand-alone enterprises would otherwise justify. Typically, they can borrow at rates that are more favorable than those of a AAA-rated corporation (though not quite as favorably as the rates on the debt of the U.S. Government itself), even though their stand-alone ratings would be about AA-minus or less; this translates into about a 35-40 basis point advantage.¹³ Similarly, they enjoy about a 30 basis-point advantage in issuing their MBS as a consequence of their special GSE status.¹⁴

B. Disadvantages

- Their special charters restrict them to residential mortgage finance.
- They are specifically forbidden to engage in mortgage origination.
- They are subject to a maximum size of mortgage (linked to an annual index of housing prices) that they can finance;¹⁵ for 2004 that limit for a single-family home is \$333,700.¹⁶
- The mortgages that they finance must have at least a 20% down payment (i.e., a maximum loan-to-value ratio of 80%) or a credit enhancement (such as mortgage insurance).
- They are subject to safety-and-soundness regulation -- e.g., minimum capital requirements and annual examinations -- by the Office of Federal Housing Enterprise Oversight (OFHEO).¹⁷
- They are subject to "mission oversight" by the Department of Housing and Urban Development (HUD), which approves specific housing finance programs and sets social housing targets for the two companies.

C. The Effects on Residential Mortgages

The presence of Fannie Mae and Freddie Mac in the secondary mortgage market influences rates in the primary mortgage market. Their activities cause the rates on the "conforming"

mortgages that they can buy to be about 20-25 basis points lower than the rates on "jumbo" mortgages.¹⁸ In addition, their presence may well bring greater stability to the mortgage markets,¹⁹ and historically they were able to bring greater uniformity and unification to what otherwise would have been localized and disconnected markets, since regulatory restrictions on interstate banking and even intra-state bank branching in some states persisted for most of the twentieth century and prevented banks and S&Ls from bringing this unification. Also, the two companies may have been focal points for market-wide standard setting with respect to the technological advances in the processes of mortgage origination.²⁰ And, historically, they were important in the development of MBS and of mortgage securitization generally as an alternative efficient mechanism for residential mortgage finance.

IV. The Policy Issues

Fannie Mae and Freddie Mac do not, of course, exist in a vacuum. There are at least six larger issues that surround them and that deserve greater exploration, so as to evaluate the special position and role of the two companies. Those larger issues are: (a) the widespread public policies in the U.S. that encourage the construction and consumption of housing; (b) the safety-and-soundness regulation of financial institutions where there are concerns about the social consequences of the insolvency of those institutions; (c) the possible systemic consequences of their size and behavior; (d) the question who should bear the interest-rate risks that are concomitant with the long-term debt instrument that is the modern mortgage in the U.S.; (e) the question of the efficient transmission to homebuyers of the benefits bestowed on Fannie Mae and Freddie Mac as a consequence of their special GSE status; and (f) the question of possible inherent efficiencies or

inefficiencies of the two companies' activities. We will address each in turn.

A. Housing

U.S. public policy, at all levels of government, embraces extensive policies to encourage the construction and consumption of housing. These policies (some are largely historical; many still apply) include:

- Tax advantages: the exclusion of the implicit income from housing by owner-occupiers for income tax purposes, while allowing the deduction of mortgage interest and local real estate taxes; the exemption of owner-occupied housing from capital gains taxation; accelerated depreciation on rental housing; special tax credits, exemptions, and deductions;

- Rent subsidization programs;

- Direct government provision of rental housing ("public housing");

- Mortgage insurance provided by FHA and VA;

- Securitization of FHA and VA mortgages by Ginnie Mae;

- Securitization of conforming mortgages by Fannie Mae and Freddie Mac;

- Purchases of mortgages for portfolio holdings by Fannie Mae and Freddie Mac;

- Separate depository charters for savings institutions (thrifts) with mandates to invest in residential mortgages;

- Favorable funding for thrifts and other depository institutions that focus on mortgage lending through the FHLB system; and

- Federal deposit insurance for thrifts and for other depositories whose portfolios contain some residential mortgages.

It may be only a modest exaggeration to describe government policy toward housing as one where, "Too much is never enough!"

The motives underlying public policy actions frequently are varied and diverse, and the housing policies just enumerated are no exception. In-kind redistributions of income toward lower-income households are one component (though that motive cannot justify the various income tax exclusions, exemptions, and deductions, which primarily benefit higher-income households). The beneficial effects for revenues and employment in the residential construction industry and its complementary industry allies are another. The encouragement of home ownership is a third (at least for those policies that are not focused on encouraging the provision of rental housing).

There is a reasonable theoretical basis for the existence of positive externalities that would support government policies to encourage home ownership. A standard set of contracting and asymmetric information problems exist between landlord and tenant, which are internalized when the tenant becomes an owner-occupier. Though many of the gains from the solving of those problems accrue to the parties themselves, there may well be positive externalities for the neighbors: To the extent that an owner-occupier takes better care of her residence (especially the exterior) than does the landlord-tenant combination, the neighbors surely benefit as well. Further, to the extent that the owner-occupier cares more about the neighborhood (because of the positive externalities for herself and her property values) and has a longer-run perspective than does the tenant (or the landlord, who may not live in the neighborhood and is unlikely to be as involved), again there will be positive externalities from home ownership. Finally, even if the household itself is a major beneficiary from the conversion to home ownership, the community may still benefit from the household's improved status (e.g., the household may become more socially minded because of its improved status), again implying externalities.²¹

There is now a modest but growing empirical literature that provides some documentation for the existence of these positive externalities for neighborhoods and positive effects on owner-occupier families themselves.²²

The logical linkage to policy from this externality would be to have tightly focused programs that would encourage low- and moderate-income households, who may be on the margin between renting and owning, to become first-time home buyers. Such programs could provide explicit subsidies for reducing down payments²³ and reducing monthly payments.²⁴

Tightly focused programs are not the norm in housing, however. Far more common are broad-based programs that encourage more housing construction and consumption throughout the income and social spectrum. For example, the income tax benefits from home ownership are broad-based and, because they largely operate as exemptions and deductions rather than as refundable tax credits, tend to favor higher-income households in higher marginal tax brackets.²⁵

The Fannie Mae and Freddie Mac structure is of this broad-based nature. Though the two companies' mortgage purchases and swaps are subject to the ceiling of the conforming loan limit, that limit is substantially above the 80% mortgage on the median-priced home in the U.S. For example, in 2002, the conforming loan limit for Fannie Mae and Freddie Mac was \$300,700. In that same year, the median price of a new home that was sold was \$187,600; an 80% mortgage on that sale price would have been \$150,080. Also in that year the median price on the sale of an existing home was \$158,100, and an 80% mortgage on that sale price would have been \$126,400.

Thus, the conforming loan limits allow Fannie Mae and Freddie Mac to purchase residential mortgage loans that are far beyond the range that would encompass the low- or moderate-income first-time buying household.²⁶ Though HUD does set goals for Fannie Mae and Freddie Mac with respect to "affordable housing,"²⁷ which the two companies have met, the bulk of their mortgage purchases do not involve the group that ought to be the target of ownership-encouraging activities.²⁸ Consistent with this, it appears that their activities have not appreciably affected the rate of home ownership in the U.S.²⁹

Such broad-based programs mean that most beneficiaries would have bought anyway, and

the marginal effects are largely to cause them to buy larger and better-appointed homes, on larger lots, and/or to buy second homes (that are larger and better appointed). But the positive externalities likely arise primarily from the ownership phenomenon itself and only modestly (if at all) from the size of the home (or from second homes).

In turn, this broad-based encouragement means that the U.S. has invested in an excessively and inefficiently large housing stock and that its stock of other physical (and perhaps human) capital is too small. Edwin Mills has estimated that the U.S. housing stock is 30% larger than would be the case if these encouragements were absent and that U.S. income is about 10% lower than it could otherwise be.³⁰ Patric Hendershott has estimated that, as of the mid 1980s, tax considerations alone encouraged a 10% larger housing stock.³¹ Martin Gervais has found that the taxation of the implicit rents on owner-occupied housing (accompanied by a compensating adjustment in tax rates) alone could cause general consumption levels to increase by almost 5%.³² Lori Taylor has found that the over-investment in housing persisted over the period 1975-1995: "... the unmeasured benefit to housing would have to top \$220 billion per year (or \$300 per month for each owner-occupied home) to support the current allocation of resources."³³

These results can be summarized bluntly: The U.S. has too much housing (and not enough of other goods and services), and Fannie Mae and Freddie Mac make it worse (while not doing an especially good job of focusing on the low- and moderate-income first-time buyer where the social argument is strongest).

B. Safety and Soundness

To the extent that the financial markets are correct in their belief about the implicit guarantee -- that the U.S. Government would come to the rescue of their creditors if either of the two companies experienced financial difficulties³⁴ -- a moral hazard problem is created: The creditors do

not monitor the two companies' managements as closely as they would if the creditors were more fearful of losses.³⁵ In turn, the managements can engage in activities that involve greater riskiness, since the companies' owners will benefit from the "upside" outcomes while (because of the protections of limited liability) being buffered from the full consequences of large "downside" outcomes. The creditors' guarantor -- the federal government -- is thus exposed to potential loss.³⁶

This problem of moral hazard is a general problem for the creditors of a limited liability corporation. Outside of the financial sector, creditors long ago realized the existence of the problem and created monitoring structures, as well as restrictions in lending agreements and covenants in bonds, that give creditors the ability to restrain owners' and managers' risk-taking, especially when net worth levels diminish. For banks and other depositories, where the institution's primary creditors are considered to be less capable of monitoring and protecting themselves against this moral hazard behavior and where the consequences of bank insolvency failures have been considered economically serious (e.g., the potential problem of contagion) and politically serious (the losses experienced by individual depositors), federal and state safety-and-soundness regulation has been the public-sector substitute for the private monitoring just described. The federal government's direct exposure to losses, because of federal deposit insurance (since 1933) provides another justification for such regulation.

With respect to Fannie Mae and Freddie Mac, the federal government's exposure to potential losses from excessive risk-taking or even just from errors and poor judgments would logically call for safety-and-soundness regulation, akin to that applied to banks.³⁷ Only in 1992, however, did the Congress come to that realization, in the Federal Housing Enterprises Financial Safety and Soundness Act (FHEFSSA). The FHEFSSA created OFHEO, lodged within HUD, as the safety-and-soundness regulator for the two companies and instructed the agency to develop forward-looking risk-based capital requirements for them. Only ten years later did the agency succeed in

issuing a final set of those rules. That delay, plus Fannie Mae's revelation of a large exposure to interest-rate risk in 2002 and Freddie Mac's revelation in 2003 of the necessity for a massive restatement of its recent years' income and balance sheet statements, have led to calls for strengthening the regulatory structure. Among the proposals that have been actively considered are:³⁸

- Moving the agency out of HUD (where the culture is more focused on housing) and into the Treasury (where the culture is more focused on safety and soundness);

- Reorganizing the agency as a freestanding ("independent") agency outside the executive branch, where it would be more independent of direct White House influence;

- Bringing the FHLB system (which is currently regulated by a separate -- also frequently criticized -- entity, the Federal Housing Finance Board) under the aegis of whatever agency is created;

- Strengthening the agency's ability to levy fees on Fannie Mae and Freddie Mac to fund itself, thus removing the agency from the vagaries of annual Congressional budgetary appropriations;

- Strengthening the agency's ability to set and revise the minimum capital requirements that the two companies must meet;

- Giving the agency a role in the setting of social targets for the two companies; and

- Giving the agency the power to appoint a receiver that could liquidate or otherwise dispose of either company's assets in the event that the company was unlikely to be able to attain its minimum capital requirements.

As of July 2004, no definitive legislative action had been taken.

C. Systemic risk

The general notion of systemic risk is that the financial problems of one institution could have wider-spread effects on other parts of the economy. For commercial banks, a "contagion" effect is one such scenario, whereby depositor "runs" on one shaky bank might cause worried depositors of other banks to withdraw their cash from those banks, which would create a liquidity squeeze for those latter banks; or the liquidation of assets by the banks in their efforts to meet their depositors' claims could depress asset values sufficiently so that other banks' asset values and solvency were impaired. Alternatively, there might be a "cascade" effect, whereby the chain of banks' claims on one another would mean that the insolvency of one bank would reduce the asset values of other banks that had claims on the first bank (and this cascade could lead to and reinforce a contagion problem, and vice-versa).

The discussion³⁹ with respect to the possible systemic risks posed by Fannie Mae and Freddie Mac begins with the observations that they are very large (recall that they were the second- and third-largest companies in the U.S. at year-end 2003, when ranked by assets), they are highly leveraged (their net-worth-to-assets ratios are in the 3-4% range), they are focused on a narrow asset class, their MBS guarantees and investment portfolios together embody credit (default) risk on over \$3.6 trillion of residential mortgage assets (or about 47% of the total market), and their investment portfolios alone embody potential interest-rate risk on \$1.5 trillion in mortgage assets. The discussion next splits into the question of whether they manage their risks sufficiently well (given their relatively thin capital levels) and then the question of what the larger consequences of financial difficulties for one or both companies might be.

The former set of questions are really just a more detailed analysis of the safety-and-soundness issues discussed above. Fannie Mae and Freddie Mac face two major categories of risk: credit risk (i.e., the risk that mortgage borrowers will default on their payment obligations and that the prices of the repossessed housing are below the outstanding loan balances, which would impair

the value of the mortgage assets in the companies' portfolios and/or require the companies to make payments on their MBS guarantees); and interest-rate risk (i.e., the risk that interest rates change after the investment in a mortgage, and the risk that changes in interest rates could cause the values of their mortgage portfolios to fall below the values of their outstanding debt obligations⁴⁰).

With respect to credit risk, there is general agreement that the credit risk on most single-family residential mortgages has been quite low. The underwriting criteria used by lenders -- primarily adequate household income, and a good credit history -- is an important initial screen. Further, the home itself serves as the collateral for the mortgage in the event of default; most lenders require a 20% down payment (i.e., a maximum loan-to-value ratio of 80%) or some form of mortgage insurance⁴¹ to provide a margin in the event of default; the borrower's monthly repayments diminish the unpaid balance, which leaves a greater margin to protect the lender; and home values have generally been rising in most areas of the U.S. for over 60 years (which again leaves a greater margin to protect the lender). The credit-risk losses experienced by Fannie Mae and Freddie Mac averaged 5.4 basis points annually over the 1987-2002 period, and the losses averaged only 1 basis point annually for 1999-2002.⁴² If there were to be a Great Depression type of collapse in housing values, however, these credit-risk losses could deteriorate considerably.⁴³

Instead, the focus has been on interest-rate risk -- on the risk that interest rates may change, which would affect the market values of their mortgage assets and MBS. This concern, of course, applies only to the assets held in the portfolios of the two companies, since the holders of their MBS are the bearers of the interest-rate risk on those MBS. By holding large portfolios of largely long-term fixed-rate mortgages and MBS that can be prepaid without penalty, the two companies are thereby potentially exposed to extensive interest-rate risk. In turn, they issue debt that is callable (so that, as mortgages prepay, the companies can call in the debt that has funded those mortgages), and they use derivative instruments, such as interest-rate swaps and options on swaps, to construct

obligations that largely match the profile of their assets.

The two companies' defenders point to this debt structure and hedging as evidence that the companies are doing a good job of managing and dispersing their potential interest-rate risks.⁴⁴ The GSEs' critics, however, argue that the absence of exact matching leaves open the possibilities of mistakes, which (given the two companies' relatively low capital ratios) could snowball into a funding crisis for either or both companies.⁴⁵ Further, they point to the large quantities of the companies' interest-rate swaps (the notional amount was about \$1.6 trillion at year-end 2001), with five counterparties accounting for about 59% of their derivatives. However, the transactions value of an interest-rate swap (the price of the option) is a small percentage of the notional value of the swap, and counterparties in derivatives trade are required to post collateral if their net exposure exceeds certain limits, with lower-rated counterparties' posting commensurately more collateral. As of year-end 2001, the net uncollateralized exposures for Fannie Mae were only \$110 million, and for Freddie Mac they were only \$69 million. In the event of a counterparty default, however, the two GSEs would be exposed to the "rollover risk" of finding new counterparties.

Regardless of which side has the better argument, these are really disputes that relate to safety-and-soundness of the two companies and should influence issues such as adequate levels of capital (net worth) for the two companies, given their asset and liability structures and activities and assurances as to counterparty creditworthiness. The discussion of the systemic consequences of the two companies' sizes and actions are, however, linked to these disputes, since how strongly one feels about the systemic consequences (if any) of a financial problem by one or both companies is surely influenced by how likely one feels that such disruptive events could occur.

Any discussion of the systemic consequences must start with the sheer sizes of the two companies: Their portfolio holdings and outstanding MBS now account for almost half of the total of all residential mortgages. On the one hand, this size is a potential element for stability: At times

of externally generated stress (e.g., the market stress of September 11, 2001; the potential market meltdown related to the demise of Long Term Capital Management in September 1998; or the stock market free-fall of October 1987), their continued participation in the secondary mortgage markets has been and can continue to be a source of strength and stability for those markets. If either of them were to begin to falter financially, however, then their size becomes a systemic liability. Larger companies with greater volumes of activities and larger liabilities (and more widespread liability holders and counterparties) will necessarily have a greater effect when they falter. If either Fannie Mae or Freddie Mac were to experience financial difficulties, there would be potential effects on their existing liability holders as well as potential effects directly on mortgage markets. The systemic consequences of each path can be addressed as follows.

With respect to effects on existing liability holders, systemic effects (beyond just the direct losses experienced by the liability holders and counterparties) would depend on the extent of the direct losses and the extent to which the directly exposed parties are themselves leveraged (and thus their losses can impose further losses on others). The extent of a GSE's losses in the event of financial difficulties are difficult to predict. On the one hand, with respect to credit risks, the underlying assets are largely residential mortgages and ultimately the residential homes themselves. The experience of the past 60 years is reassuring in this respect. Home values have tended generally to rise; and even when they have fallen, they have not fallen to small fractions of their peaks (as can happen with the assets that underlie commercial loans). Further, both companies are nationally diversified. On the other hand, a reprise of the Great Depression could erase the relevance of this 60 years of experience. And, with respect to interest-rate risk, the credit-risk experience is largely irrelevant, since the issue is how well the institution has hedged its interest-rate exposure. Overall, though the possibility of a GSE insolvency is surely not an impossibility -- this non-impossibility, after all, is an implication of the stand-alone AA- financial ratings of Fannie Mae and Freddie Mac --

the extent of the insolvency (i.e., in terms of the percentage loss imposed on claims holders) is unlikely to be large.⁴⁶

With respect to a contagion or cascading effect of creditor losses, the primary candidates would be depository institutions, which (in aggregate) hold about a sixth of the two companies' debt and about 40% of their MBS and which are allowed by regulation to hold unlimited amounts of their obligations. A recent study⁴⁷ shows that, as of the third quarter of 2003, depositories' aggregate holdings of the two companies' debt came to 3.3% of all depositories' assets, or slightly more than a third of their aggregate net worth (which was about 9.1% of assets), while their aggregate holdings of the GSEs' MBS came to 8.5% of their aggregate assets.⁴⁸ Though losses of value of GSE debt and MBS of, say, 5% would be far from a welcome event for depositories, it would also be far from a devastating event for most of them and would be unlikely to have widespread systemic consequences.

As for the direct effects on mortgage markets of financial difficulties by one of the companies, it is difficult to imagine no consequences when a \$800 billion or \$1 trillion company withdraws from its primary activities. But the extent of the consequences would depend on whether and to what extent and how quickly the other GSE could pick up the slack,⁴⁹ as well as how elastic would be the responses of the other major providers of residential mortgage finance.⁵⁰ Since no such event has occurred, it is difficult to provide estimates of magnitudes.

Finally, there is general agreement that improved transparency can reduce market participants' misunderstandings and reduce the likelihood and extent of systemic problems. In response to political pressures, Fannie Mae and Freddie Mac announced in 2000 a set of six "voluntary" initiatives that would improve their public disclosures: 1) to issue subordinated debt; 2) to meet certain liquidity standards; 3) to enhance credit-risk disclosures; 4) to enhance interest-rate disclosures; 5) to obtain annual "stand-alone" credit ratings; and 6) to self-implement and report their

regulatory risk-based capital levels.⁵¹ These steps all seem headed in a sensible direction.⁵²

D. The absence of prepay penalties, and the bearing of interest-rate risk

The standard residential mortgage in the U.S. is a long-lived, fixed-rate debt instrument, which the borrower can prepay at any time with no penalty.⁵³ Fannie Mae and Freddie Mac are both cause and effect with respect to these characteristics, since over 90% of the mortgages that they buy are fixed-rate instruments, and they rarely buy mortgages that have prepay penalties. The absence of prepay penalties exacerbates the interest-rate risk that is borne by the holder of a mortgage or of MBS.

This last point can be seen as follows: The holder of a non-prepayable debt instrument is exposed to interest-rate risk, because the value of the instrument declines when interest rates increase but its value increases when interest rates decline. The longer is the maturity of the instrument, the greater are the price swings. If the borrower's prepayment likelihood were a constant and not affected by interest rate movements -- say, prepayments were driven solely by household mobility, and mobility was invariant to interest rate changes -- these properties would apply to residential mortgages as well.

But prepayment behavior is affected by interest rate changes, and in ways that are adverse to the lender. If mortgage interest rates decrease from the levels prevailing at the time of the mortgage origination, the borrower is more likely to repay and refinance her mortgage at the lower interest rate.⁵⁴ Also, households that might not otherwise have been tempted to move to a new home may now find that the lower interest rates make the move (and the repayment of the original mortgage) worthwhile.⁵⁵ This quickening of the repayment rate deprives the lender of the potential capital gain on the mortgage that would otherwise occur on a debt instrument that was not callable; equivalently, the greater pace of repayment is occurring just when the lender doesn't want repayment, since the

lender can then only relend (or reinvest) the funds at the lower prevailing interest rates.

When interest rates rise, prepayments will generally not occur for refinancing purposes,⁵⁶ and even the "normal" flow of mobility-driven prepayments is likely to decrease as some households that otherwise would have found moving to be worthwhile now find moving less worthwhile.⁵⁷ In this case, the capital loss that the lender would have experienced on a non-callable debt instrument is compounded by the slackening of the prepayment rate; in essence, prepayments are slackening, just when the lender wishes that they would accelerate.⁵⁸

Thus, if the borrower can prepay her mortgage with no penalty, then the pattern of prepayments will vary inversely with changes in interest rates and will exacerbate the interest-rate risk faced by lenders. This extra risk that is borne by the lender is not free to the borrower. Instead, the risk of the borrower's exercising her option to prepay without penalty is incorporated into the overall interest rate and fees that a competitive market will charge all borrowers (so long as the lender cannot determine beforehand which borrower is more likely to prepay). Accordingly, even those borrowers who (for whatever reason) are unlikely to prepay their mortgages must pay extra because of the greater risk imposed on lenders, and there is a cross-subsidy that runs from those who are less likely to prepay to those who are more likely to prepay.

Why is the prepay option not priced more explicitly -- e.g., through an explicit penalty for prepaying (which, in turn, would allow a lower interest rate and lower initial fees)? Or, at least, why are borrowers not offered more often⁵⁹ the choice between a no-prepayment-penalty mortgage (with a higher interest rate and initial fees) and a prepayment penalty mortgage (with a lower interest rate and initial fees)? At least part of the reason appears to be a patchwork of state regulation that, in some states, limits (or forbids) the ability of state-chartered depositories to impose prepayment penalties. However, the buying patterns of Fannie Mae and Freddie Mac -- they almost exclusively purchase no-prepayment-penalty mortgages -- also influences the outcome.

Why, in turn, do the two GSEs buy almost exclusively no-prepayment-penalty mortgages? Partly this may be an element of standardization, since an array of different prepayment penalties could add to the informational burden on MBS investors to know what penalties applied to the MBS that they held and what the consequences for prepayments might be. But this cannot be the entire story, since it would surely be possible for either company to announce that it would be willing to buy mortgages that had one or two prepayment penalty patterns and thereby maintain a reasonable level of standardization, as is true for the companies' purchases of adjustable-rate mortgages (which, in principle, can have a wide variety of terms). Since the two companies maintain huge portfolios of these no-prepayment-penalty mortgages and MBS with their concomitant exacerbated interest-rate risk, which must then be managed, it may well be the case that they believe that they have a comparative advantage at managing this exacerbated interest-rate risk. In any event, it is clear that the states' inhibitions on penalties is complementary to the GSEs' business strategies.

As a related matter, so long as the lending/borrowing arrangement with respect to a home involves long-term finance, interest-rate risk unavoidably arises and cannot (from an economy-wide perspective) be diversified away.⁶⁰ Two questions then arise: (a) Who bears the interest-rate risk? and (b) Who should bear that risk?

The first question is easier to answer: With adjustable-rate mortgages (ARMs), the borrower bears the risk. With long-term fixed-rate mortgages that are non-prepayable, the lender or the MBS holder bears most of the risk.⁶¹ As the preceding discussion indicated, the interest-rate risk borne by lenders on long-term fixed-rate mortgages is exacerbated by the current practice of allowing borrowers to prepay their mortgages without penalty. In essence, the penalty-free prepay option allows the borrower to shed all interest-rate risk.

The second question is harder. Some general principles can be stated, however. First, diversification of that risk is surely a good thing. Second, the bearing of that risk should be by

individuals/institutions that are knowledgeable and skilled at managing the risk and that are in a financial position to bear it without undue financial hardship (and without creating the transactions costs of bankruptcies, etc.). This surely argues for allowing (but not requiring, nor forbidding) mortgage originators to offer ARMs to those borrowers who knowledgeably want them. It also argues for allowing mortgage originators to offer fixed-rate mortgages that may (or may not) include prepayment penalties, which would allow the prepayment risk to be explicitly priced, and then letting market participants choose. It is far from clear that the federal government needs to be the explicit or implicit backstop for this process through its maintenance of the special GSE status of Fannie Mae and Freddie Mac (or of the FHLB system).⁶²

E. Efficient transmission of benefits

Within the sphere of conforming mortgages, Fannie Mae and Freddie Mac are a protected duopoly, which could affect their pricing behavior and thus the extent to which they pass through to homebuyers the benefits that they receive as a consequence of their special GSE status. At one extreme, despite their duopoly structure, they might behave like perfectly competitive firms and pass through 100% of the benefits to homebuyers; at the other extreme, they might collude and retain all of the benefits for their shareholders.

Dennis Carlton, David Gross, and Robert Stillman conclude that the two companies' activities do not raise antitrust concerns.⁶³ Nevertheless, the issue of whether the two companies exercise market power remains an interesting one.

It does appear that the two companies have held on to at least part of their special benefits and have earned supra-normal returns.⁶⁴ For example, for the years 1998-2002, Fannie Mae earned an average return on equity (ROE) of 25.4% (and was at or above 25.0% for each of those years), while Freddie Mac earned an average of 24.2% for those same years; by contrast, the industry ROE

for all FDIC-insured commercial banks for the same five years was around 14%.⁶⁵ A recent estimate of the gross and net benefits of the GSEs' special status is consistent with these results.⁶⁶ In 2003 the two GSEs received, as a consequence of their special status, gross benefits of about \$19.6 billion, of which they passed through about two-thirds (\$13.4 billion) to homebuyers through lower mortgage rates and retained about one-third (\$6.2 billion) for their shareholders.

There is, however, a deep irony to the consequences of this exercise of market power for allocative efficiency: To the extent that one believes (as was argued above) that public policies in general encourage too much housing and that the two companies' activities make it worse, then their exercise of market power (implying that mortgage rates are not as low as if they behaved wholly competitively and thus home buying is not as encouraged) means that global allocative efficiency is improved.

F. Possible inherent efficiencies or inefficiencies

Are there reasons to believe that the special GSE status of Fannie Mae and Freddie Mac creates a special and inherent efficiency for providing mortgage finance? This question goes beyond their historical role in encouraging mortgage securitization, since asset securitization is now a well-established and widely employed technique in finance.

Skepticism is warranted as to whether the two companies' special GSE status adds extra efficiency to mortgage markets. First, as is argued above, the current broad-based approach of the two companies is surely not an efficient way to address the positive externality with respect to home ownership.

Second, there is the issue of transactions costs with respect to the credit-risk on residential mortgages.⁶⁷ In order to provide assurances of timely payments to the holders of their MBS, "private-label" (i.e., private, non-GSE) issuers usually create a senior-subordinated structure

(whereby the subordinated security absorbs the first credit losses) that protects the holders of the senior MBS. The creation of this structure involves transactions costs, as does the process of obtaining a rating on the senior MBS from one or more rating agencies (e.g., Moody's or Standard & Poor's). Further, investors in the senior MBS would be interested in learning whether some of the subordinated MBS tranches are experiencing greater losses than was expected (which would mean greater risks for the associated senior MBS), thus entailing further monitoring (transactions) costs. The blanket credit-loss guarantees issued by Fannie Mae and Freddie Mac (backed by the implicit federal guarantee) eliminates all of those costs.

This argument is surely correct as far as it goes. But the Fannie/Freddie process guarantee must then be backstopped by the government-oriented safety-and-soundness regulatory process described above and ultimately by taxpayers. Which route offers the lowest costs (short-run or long-run) is not obvious.

A third argument is that the new-era securitization process is inherently more efficient than is the depository-driven process of yore and that the expansion of Fannie Mae and Freddie Mac (with their implicit federal guarantee) at the expense of depositories' (with their explicit federal deposit insurance) holdings of conforming residential mortgages is evidence of this superior efficiency.⁶⁸ However, regulatory considerations have also played an important role in the GSEs' growth. Commercial banks and S&Ls have been encouraged to hold MBS rather than whole mortgage loans by risk-based capital requirements (which have been in place since 1988) that require only 1.6% capital for holding any MBS that is rated AA or better but require 4% for holding unsecuritized residential mortgages. Further, the capital requirements that have applied to Fannie Mae's and Freddie Mac's holdings of mortgages (2-1/2 %) have been substantially less than the capital requirements that have applied to depositories' holding of mortgages (4%), giving the former a cost advantage. Accordingly, though mortgage securitization (as an efficient innovation of the 1970s and

1980s) was surely going to grow and gain market share relative to the traditional depository route, the extent of the GSEs' growth is not necessarily an indicator of their special and inherent efficiencies.

As for possible inherent inefficiencies that may accompany the two companies' special GSE status, there is no assurance that the current managements and organizational structures for Fannie Mae and Freddie Mac are the most efficient for doing what they do. Since the Congress has issued only two charters of this particular kind, the ability of competitive processes to reward more efficient firms and winnow less efficient firms from the marketplace is inhibited. Further, the two firms are not required periodically to bid for their franchises in an auction against potential replacements; they have been "grandfathered" indefinitely. And the market for corporate control cannot operate effectively: Their limited charters make them immune to takeover by any other firm, and their large size and special GSE status make them virtually immune to a "hostile" takeover by just an investor group.

As a related matter, whenever either of the two firms has expanded slightly in "horizontal" (e.g., sub-prime lending) or "vertical" (e.g., providing underwriting software to mortgage originators) direction -- or even publicly contemplated such moves -- critics have complained that the two companies' ability to expand arises solely from the low-cost funding that they enjoy because of the implicit guarantee and not because of any inherent efficiency advantage (and that they are in fact elbowing aside inherently more efficient enterprises). Without a "clean" market test, there is no way to resolve such questions.

VI. What is to be done?

A. First-best

The analysis provided above points in a clear direction with respect to Fannie Mae and

Freddie Mac: Since there seems to be no special efficiency reason for preserving their special GSE structure, since they mostly just add to an already excessive amount of encouragement for housing in the U.S., since their role in addressing the important social externality of home ownership is modest at best, and since the implied guarantee (to the extent that it would be honored) creates a contingent liability for the U.S. Government, an outright privatization of the two companies -- the withdrawal of their special charters and their conversion to normal corporations -- would be the first-best outcome. This would imply that the two companies would no longer enjoy any special privileges, but also would no longer be restricted to their current narrow slice of the financial world.⁶⁹ How these companies and their owners would fare in that scenario would then be a matter for markets, and not the Congress or OFHEO, to decide.⁷⁰

As an historical matter, the presence of Fannie Mae and Freddie Mac and their implied guarantees may well have been important for the innovation and development of mortgage securitization in the 1970s and 1980s. Nevertheless, mortgage securitization is now a well-established technology of finance that would easily survive the privatization of the two companies.

The consequence of true privatization for residential mortgage markets would be modest: Mortgage rates would be about 25 basis points higher than would otherwise be the case. Grass would surely not grow in the streets of America as a consequence -- and would surely continue to grow in most backyards. And, because the U.S. already builds and consumes too much housing, this would be a move in the right direction.

In their place, the federal government ought to deal directly with the true positive externality related to housing: encouraging low- and moderate-income first-time buyers. Such a program should be an explicit on-budget encouragement for such home purchases, with subsidies for down payments⁷¹ and for monthly payments.

As part of this true privatization, the Secretary of the Treasury should state clearly at the

Congressional hearings that consider the legislation that the Treasury (after the passage of the privatization legislation) would treat the two companies just like other corporations in the U.S. economy, would not consider the two companies to be “too big to fail,” and would have no intention of “bailing them out” in the event of subsequent financial difficulties. The President should reiterate this message at the official signing of the legislation. Also, bank and S&L regulators should revise their “loans-to-one-borrower” regulations so that depositories’ holdings of Fannie Mae and Freddie Mac debt would be treated similarly to their holdings of other companies’ debt (i.e., loans to any single borrower normally cannot exceed 10% of the depository’s capital), rather than the unlimited holdings that are currently permitted.⁷²

Further, in order to ameliorate the concentration of interest-rate risk that the current structure of fixed-rate mortgages without prepayment penalties places on lenders or MBS holders and that may be an extra element that unduly strengthens the role of Fannie Mae and Freddie Mac in the mortgage markets, lenders should have the freedom to offer mortgages that would include a fee for the prepayment option that is usually not explicitly priced (but is surely included in the overall pricing of mortgages). Such explicit pricing will also eliminate the cross-subsidy that currently runs from those who do not exercise the option to those who do. State laws and regulations that inhibit such explicit pricing should be repealed.

In addition, there are at least two positive measures that could reduce the cost of housing in efficiency-enhancing ways. First, and foremost, the federal government should cease placing impediments to international trade in construction materials; removal of the current trade impediments to the import of Canadian lumber would be an excellent place to start.⁷³ Second, inefficient local building codes that raise the costs of housing construction more than is warranted by safety or similar considerations should be modified or eliminated. Third, states and metropolitan areas need to develop procedures to take into account the community-wide consequences on housing

costs of local "large-lot" zoning measures that restrict the availability of land for lower-cost, higher-density housing in areas where land would otherwise be inexpensive.⁷⁴

B. Second-best

The true privatization of the two companies may well be an unlikely outcome in the current political environment. The political attractiveness of an arrangement that reduces housing costs but has no on-budget consequences is powerful. Accordingly, second-best measures should be considered.

First, regardless of what's done with respect to Fannie Mae and Freddie Mac, an explicit housing program for low- and moderate-income first-time buyers is worth undertaking in its own right. So are any efforts to allow explicit pricing of the prepayment option and the efficiency-enhancing efforts to reduce the cost of housing.

Second, even if the two companies retain their GSE status, bank and S&L regulators could still apply the loans-to-one borrower limitations to depositories' holdings of their debt, as suggested above.⁷⁵

Third, as a way to reduce the financial markets' belief in the "implicit guarantee," the Secretary of the Treasury should state loudly and at frequent intervals (e.g., Congressional hearings) that it is the policy of the federal government to adhere to what is stated on the Fannie Mae and Freddie Mac securities: that these are not obligations of the federal government and that the Treasury has no intention of "bailing them out" in the event that they become financially troubled. As was discussed above, such explicit denials have not been enunciated in the past.

Fourth, in addition to keeping or even increasing the pressures of HUD's affordable housing "mission" goals with respect to the two companies' purchases of mortgages,⁷⁶ the two companies should be forced to concentrate further on the lower end of the housing market by freezing the

conforming loan limit at its current level of \$333,700 and waiting for median sales prices (or 80% of median) to catch up to that level before resuming indexed annual increases. This freeze would also have the beneficial effect of limiting the two companies' growth and thereby reducing potential systemic risks.

Fifth, the safety-and-soundness regime should be strengthened through the transfer of OFHEO to the aegis of the Treasury, with a structure and powers (especially receivership powers) that resemble those of the regulatory agencies for depository institutions that are currently housed within the Treasury: the Office of the Comptroller of the Currency (for national banks) and the Office of Thrift Supervision (for S&Ls and savings institutions). The major argument against such strengthening is, as was discussed above, the risk that such strengthening would also strengthen the financial markets' belief in the implicit guarantee. Though this possibility is troubling, the dangers of not strengthening the regulatory regime appear to be even greater.⁷⁷

In sum, housing is too important (but also too plentiful) to be left to the tender mercies of the current arrangements that apply to Fannie Mae and Freddie Mac. The first-best path of privatization is unrealistic; but some constructive second-best measures deserve serious consideration.

Table 1: Fannie Mae and Freddie Mac Assets and Mortgage-Backed Securities, and the Residential Mortgage Market (in billions of dollars; includes single- and multi-family mortgages)

Year	Fannie Mae			Freddie Mac			Total nonfarm, residential mortgages
	Total assets	Retained mortgage portfolio ^a	Mortgage-backed securities outstanding ^b	Total assets	Retained mortgage portfolio ^a	Mortgage-backed securities outstanding ^b	
1971	\$18.6	17.9	0.0	1.0	1.0	0.1	391
1975	31.6	30.8	0.0	5.9	4.9	1.6	577
1980	57.9	55.6	0.0	5.5	5.0	17.0	1,105
1985	99.1	94.1	54.6	16.6	13.5	99.9	1,730
1990	133.1	114.1	288.1	40.6	21.5	316.4	2,907
1995	316.6	252.9	513.2	137.2	107.7	459.0	3,745
2000	675.2	607.7	706.7	459.3	385.5	576.1	5,543
2001	799.9	706.8	859.0	641.1	503.8	653.1	6,110
2002	887.5	801.1	1,029.5	752.2	589.9	749.3	6,842
2003	1,009.6	901.9	1,300.2	803.4	660.4	768.9	7,715

^a Includes repurchased mortgage-backed securities.

^b Excludes mortgage-backed securities that are held in portfolio

Notes

¹ Other broad discussions of Fannie Mae and Freddie Mac can be found in, for example, U.S. Congressional Budget Office, *Federal Subsidies and the Housing GSEs*. Washington, D.C.: USCBO, 2001; W. Scott Frame and Larry Wall, "Financing Housing through Government-Sponsored Enterprises," Federal Reserve Bank of Atlanta *Economic Review* 87 (First Quarter 2002), pp. 29-43; Lawrence J. White, "Focusing on Fannie and Freddie: The Dilemmas of Reforming Housing Finance," *Journal of Financial Services Research* 23 (February 2003), pp. 43-58; U.S. Office of Federal Housing Oversight, *Systemic Risk: Fannie Mae, Freddie Mac and the Role of OFHEO*. Washington, D.C.: USOFHEO, 2003; William R. Emmons, Mark D. Vaughn, and Timothy J. Yeager, "The Housing Giants in Plain View," Federal Reserve Bank of St. Louis *Regional Economist* (July 2004), pp. 5-9; and W. Scott Frame and Lawrence J. White, "Fussing and Fuming over Fannie and Freddie: How Much Smoke, How Much Fire?" *Journal of Economic Perspectives*, forthcoming.

² Mortgage banks are originators of mortgages that, unlike commercial banks or S&Ls, do not retain the mortgages or MBS as investments but instead immediately sell the mortgages or MBS.

³ Apparently, a major reason for the spin-off at the time was to remove its debt (which became the obligation of the company) from the federal government's national debt total.

⁴ A major motive for the conversion of Freddie Mac to a publicly traded company was the belief that a wider market for its stock would raise the price of its shares that were held by the then-ailing S&L industry and would thus improve the balance sheets of the latter.

⁵ See USCBO.

⁶ This figure is slightly different from the one that appears in Table 1, because the latter has been updated.

⁷ In 2004 the Bush Administration announced that it would cease appointing any members to either board, as an effort to begin to reduce the special status of the two companies.

⁸ And, at least through mid 2006, they have been and will be able to receive interest-free "daylight overdrafts" from the Federal Reserve, whereby the Fed makes payments on behalf of the two companies at the beginning of the business day but does not receive payment from them until the end of the business day. In February 2004 the Fed announced that it intends (as of July 2006) to begin charging them interest on these loans, as it does for all other financial institutions. See Federal Reserve, "Press Release," February 5, 2004; available at: <http://www.federalreserve.gov/boarddocs/press/other/2004/20040205/default.htm>.

⁹ In 2002, in an effort to quell criticism and fend off legislative action, the two companies "voluntarily" announced their intention to adhere to the SEC's reporting requirements, although only Fannie Mae has thus far actually registered its securities.

¹⁰ See Edward J. Kane and Chester Foster, "Valuing Conjectural Government Guarantees of FNMA Liabilities," in *Proceedings: Conference on Bank Structure and Competition*. Chicago: Federal Reserve Bank of Chicago, 1986; and U.S. General Accounting Office, *Government-Sponsored Enterprises: The Government's Exposure to Risks*. Washington, D.C.: USGAO, 1990.

¹¹ The FHLB system, which serves as a wholesale bank for many federally insured depository institutions (banks, S&Ls, and credit unions), enjoys a similar package of favorable features and is similarly described as a GSE. There are

also GSEs that serve agricultural credit markets (Farm Credit System and the Federal Agricultural Mortgage Corporation, or Farmer Mac) and the student loan market (Student Loan Marketing Association, or Sallie Mae), although the latter is in the process of privatization under the name SLM Corp. For further discussion of the FHLB system, see W. Scott Frame, "Federal Home Loan Bank Mortgage Purchases: Implications for Mortgage Markets," Federal Reserve Bank of Atlanta *Economic Review* 88 (Third Quarter 2003), pp. 17-31.

¹² As one indicator, the financial pages of major newspapers set aside a separate "box" of "government agency issues" to report the yields on their bonds (and on those of the other GSEs), usually placed immediately adjacent to the box that shows the yields on Treasury debt.

¹³ The extent of this advantage varies over time and with the nature and maturity of the financial instrument and with general financial conditions. See, for example, Brent W. Ambrose and Arthur Warga, "Implications of Privatization: The Costs to Fannie Mae and Freddie Mac," in U.S. Department of Housing and Urban Development, *Studies on Privatizing Fannie Mae and Freddie Mac*. Washington, D.C.: HUD, 1996, pp. 169-204; Brent W. Ambrose, and Arthur Warga, "Measuring Potential GSE Funding Advantages," *Journal of Real Estate Finance and Economics* 25 (September-December 2002), pp. 129-150; Frank E. Nothaft, James E. Pearce, and Stevan Stevanovic, "Debt Spreads between GSEs and Other Corporations," *Journal of Real Estate Finance and Economics* 25 (September-December 2002), pp. 151:172; and Wayne Passmore, "The GSE Implicit Subsidy and the Value of Government Ambiguity," Federal Reserve Board Finance and Economics Discussion Series Number 2003-64 (2003), available at: <http://www.federalreserve.gov/pubs/feds/2003/200364/200364pap.pdf>.

¹⁴ See, for example, U.S. Department of the Treasury, *Government Sponsorship of the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation*. Washington, D.C.: Treasury, 1996; U.S. Congressional Budget Office, *Assessing the Public Costs and Benefits of Fannie Mae and Freddie Mac*. Washington, D.C.: USCBO, 1996; and USCBO, *Federal Subsidies*.

¹⁵ These mortgages are usually described as "conforming" or "qualifying" mortgages; larger mortgages are usually described as "jumbos." Other non-conforming mortgages (besides jumbos) are those that do not meet the prime credit-quality standards of the two companies.

¹⁶ This limit applies only to a single-unit residence; higher limits apply to two-unit, three-unit, and four-unit residences and to multi-family housing; also, limits for Hawaii, Alaska, and the Virgin Islands are 50% higher.

¹⁷ The presence of these safety-and-soundness requirements may also be a positive attribute, since it may strengthen the financial markets' belief that Fannie Mae and Freddie Mac are the beneficiaries of the federal government's implied guarantee of the liabilities.

¹⁸ See, for example, USCBO, *Federal Subsidies*; Joseph McKenzie, "A Reconsideration of the Jumbo/Non-Jumbo Mortgage Rate Differential," *Journal of Real Estate Finance and Economics* 25 (September-December 2002), pp. 197-213; and Brent W. Ambrose, Michael LaCour-Little, and Anthony B. Sanders, "The Effect of Conforming Loan Status on Mortgage Yield Spreads: A Loan Level Analysis," *Journal of Real Estate Economics*, forthcoming.

¹⁹ See, for example, Gloria Gonzalez-Rivera, "Linkages between Secondary and Primary Markets for Mortgages: The Role of Retained Portfolio Investments of the Government-Sponsored Enterprises," *Journal of Fixed Income* 11 (June 2001), pp. 29-36; Andy Naranjo and Alden Toevs, "The Effects of Purchases of Mortgages and Securitization Government Sponsored Enterprises on Mortgage Yield Spreads and Volatility," *Journal of Real Estate Finance and Economics* 25 (September-December), pp. 173-195; and Joe Peek and James A. Wilcox, "Secondary Mortgage Markets,

GSEs, and the Changing Cyclicity of Mortgage Flows,” in *Research in Finance*, vol. 20, ed. Andrew Chen. Amsterdam: Elsevier, 2003, pp. 61-80.

²⁰ There are "network" benefits to standardization; but there are also risks that a standard becomes a barrier to entry and to further innovation. See, for example, Lawrence J. White, *U.S. Public Policy toward Network Industries*. Washington, D.C.: AEI-Brookings Joint Center for Regulatory Studies, 1999.

²¹ Further, the community may also feel that it "knows better" than the household with respect to some issues, like encouraging saving. Home ownership tends to be a way of encouraging a household to save more (through efforts to collect funds for the down payment and through the "forced saving" of principal repayments on the mortgage), so long as home values do not decline.

²² See, for example, William M. Rohe and Michael A. Stegman, "The Impact of Homeownership on the Social and Political Involvement of Low Income People," *Urban Affairs Quarterly* 30 (No. 1, 1994), pp. 152-174; William M. Rohe and Leslie S. Stewart, "Homeownership and Neighborhood Stability," *Housing Policy Debate* 7 (No. 1, 1996), pp. 37-81; Peter H. Rossi and Eleanor Weber, "The Social Benefits of Homeownership: Empirical Evidence from National Surveys," *Housing Policy Debate*, 7 (No. 1, 1996), pp. 1-35; Richard K. Green and Michelle J. White, "Measuring the Benefits of Homeowning: Effects on Children," *Journal of Urban Economics* 41 (May 1997), pp. 441-461; Daniel Aaronson, "A Note on the Benefits of Homeownership," *Journal of Urban Economics* 47 (May 2000) pp. 356-369; and George Galster, Nancy Gardner, Marv Mandell, Dave E. Marcotte, and Hal Wolman, "The Impact of Family Homeownership on Children's Educational Attainment and Earnings during Early Adulthood," presented at the Association for Public Policy Analysis and Management Meetings, November 8, 2003, mimeo.

²³ For evidence that the size of down payment can be a binding constraint for low-income households, see Peter Linneman and Susan M. Wachter, "The Impact of Borrowing Constraints on Home Ownership," *AREUEA Journal* 17 (December 1989), pp. 389-402; and Roberto G. Quercia, George W. McCarthy, and Susan Wachter, "The Impacts of Affordable Lending Efforts on Homeownership Rates," *Journal of Housing Economics* 12 (March 2003), pp. 29-59.

²⁴ Even in the context of the social benefits, however, it should be remembered that home ownership may not be the best choice for all households, since: a) a home is a large, risky, illiquid asset with substantial transactions costs for buying and selling (including the sale that may arise from foreclosure); b) not all households may have the low variance in income (or other assets) or the discipline in budgeting that is necessary for the constant monthly payments that are necessary to pay off a mortgage; and c) the illiquidity and high transactions costs of home sales may impede labor mobility and thus reduce flexibility in seeking new employment. See, for example, William M. Rohe, Shannon Van Zandt, and George McCarthy, "The Social Benefits and Costs of Homeownership," Working Paper No. 00-01, Research Institute for Housing America, Arlington, VA, 2000; and George McCarthy, Shannon Van Zandt, and William Rohe, "The Economic Benefits and Costs of Home Ownership: A Critical Assessment of the Research," Working Paper No. 01-02, Research Institute for Housing America, Arlington, Va., May 2001.

²⁵ See Harvey S. Rosen, "Housing Decisions and the U.S. Income Tax: An Econometric Analysis," *Journal of Public Economics* 11 (February 1979), pp. 1-23; and Martin Gervais, "Housing Taxation and Capital Accumulation," *Journal of Monetary Economics* 49 (October 2002), pp. 1461-1489.

²⁶ By contrast, the limits for FHA- and VA-insured mortgages, which are about 50%-60% of the conforming loan limit, are more tightly tailored to the appropriate social target.

²⁷ The goals involve (a) a broad target involving households with less than median incomes; (b) a geographically

focused target involving under-served areas, such as low-income and high-minority census tracts; and (c) a special target involving very low-income households and low-income households living in low-income areas.

²⁸ During 1999-2002, of Fannie Mae's purchases, 42.5% were home loans for low- and moderate-income households; of Freddie Mac's purchases, the percentage was 42.3%. Similarly, only 26.5% of the two companies' purchases involved loans to first-time homebuyers. These percentages were below those of all lenders for conventional-conforming residential mortgages. See U.S. Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2004: Analytical Perspectives*. Washington, D.C.: GPO, 2004, p. 84. See also Jonathan Brown, "Reform of GSE Housing Goals," in *Serving Two Masters, yet out of Control: Fannie Mae and Freddie Mac*, ed. Peter J. Wallison. Washington, D.C.: AEI Press, 2001, pp. 153-165; Lance Freeman, George Galster, and Ron Malega, "The Impact of Secondary Mortgage Market and GSE Purchases on Underserved Neighborhood Housing Markets: A Cleveland Case Study," Report to the U.S. Department of Housing and Urban Affairs, January 2003, mimeo; and U.S. Department of Housing and Urban Development, "HUD's Regulation of Government-Sponsored Enterprises," April 7, 2004, and linked charts and graphs, available at <http://www.hud.gov/offices/hsg/gse/gse.cfm>.

²⁹ See, for example, Ronald Feldman, "Mortgage Rates, Homeownership Rates, and Government-Sponsored Enterprises," Federal Reserve Bank of Minneapolis *The Region* 16 (No. 1, 2002), pp. 4-24; and Gary Painter and Christian L. Redfearn, "The Role of Interest Rates in Influencing Long-Run Homeownership Rates," *Journal of Real Estate Finance and Economics* 25 (September-December 2002), pp. 243-267.

³⁰ See Edwin S. Mills, "Has the United States Overinvested in Housing?" *AREUEA Journal* 15 (Spring 1987), pp. 601-616; and Edwin S. Mills, "Dividing up the Investment Pie: Have we Overinvested in Housing?" Federal Reserve Bank of Philadelphia *Business Review* (March/April 1987), pp. 13-23.

³¹ Patric H. Hendershott, "Tax Changes and Capital Allocation in the 1980s," in *The Effects of Taxation on Capital Accumulation*, ed. Martin Feldstein. Chicago: University of Chicago Press, 1987, pp. 259-290; see also Harvey S. Rosen, "Housing Subsidies: Effects on Housing Decisions, Efficiency, and Equity," in *Handbook of Public Economics*, vol. 1, eds. Alan J. Auerbach and Martin Feldstein. Amsterdam, North Holland, 1985, pp. 375-420.

³² Gervais.

³³ Lori L. Taylor, "Does the United States still Overinvest in Housing?" Federal Reserve Bank of Dallas *Economic Review* (Second Quarter 1998), p. 16.

³⁴ It is important to note that no presidential administration has explicitly rejected the concept of the implicit guarantee. More typical are carefully crafted comments along the following lines: "The privileges feed a market perception that GSE debt is backed by the US government. This is inaccurate -- the charters do not require the federal government to bail out a troubled GSE." N. Gregory Mankiw, "Keeping Fannie and Freddie Safe," *Financial Times*, February 24, 2004, p. 15.

³⁵ In an important sense, this moral hazard problem is the reverse side of the lower borrowing costs of Fannie Mae and Freddie Mac. Recall that the credit markets treat them as better than AAA, even though they would otherwise be rated as AA- or below. Without the implied guarantee, the financial markets would either insist on a stronger balance sheet with more capital (net worth) as protection (which would be costly for the two companies) so as to achieve the AAA rating commensurate with the current interest rates at which they borrow; or the financial markets would insist on charging higher interest rates (which would be costly) commensurate with their current balance sheets and their AA- ratings.

³⁶ The federal government's contingent liability can be roughly estimated by posing the following question: What would the federal government have to pay annually to a third-party guarantor to take over the federal government's likely obligations to the two GSEs' debt and MBS holders? In essence, this question is answered by examining the borrowing advantages of the two GSEs, since these advantages reflect the difference between the interest payments that the financial markets would require in the absence of the federal government's implied guarantee and the two GSEs' actual borrowing costs; as is described above, the advantages are approximately 35-40 basis points on debt and 30 basis points on MBS. If these spreads are multiplied by the outstanding debt of the two GSEs, the annualized contingent liability comes to approximately \$12-13 billion.

³⁷ About the only argument against such regulation, besides any inefficiencies that its actual execution might bring, is that the imposition of the safety-and-soundness regime itself might strengthen the market's belief in the implied guarantee and also strengthen the government's belief that it must (in the event that, despite the regulatory regime's efforts, financial difficulties nevertheless arise) honor the market's strengthened perception.

³⁸ For a more extensive discussion of the proposals and the issues underlying them, see W. Scott Frame and Lawrence J. White, "Regulating Housing GSEs: Thoughts on Institutional Structure and Design," *Federal Reserve Bank of Atlanta Economic Review* 89 (Second Quarter 2004), pp. 87-102.

³⁹ For a thorough and broad discussion of this topic, see USOFHEO.

⁴⁰ See the more extensive discussion of interest-rate risk below.

⁴¹ Mortgage insurance is provided by two government agencies -- the Federal Housing Administration (FHA) and the Department of Veterans Affairs (VA) -- as well as by private mortgage insurers.

⁴² See *Inside Mortgage Finance, The 2003 Mortgage Market Statistical Annual, Volume II: The Secondary Mortgage Market*. Bethesda, MD: Inside Mortgage Finance Publications, Inc., 2003.

⁴³ The stress tests that OFHEO uses to determine the risk-based capital requirements for the two GSEs take two years from the depression that the "oil patch" experienced in the 1980s, and then extends that environment over a ten-year horizon.

⁴⁴ See, for example, Eugene Ludwig, "Systemic Risk: A Regulator's Perspective," *Fannie Mae Papers* 2 (No. 1, February 2003), available at: <http://www.fanniemae.com/commentary/pdf/fmpv2i1.pdf>; Noel Fahey, "Systemic Risk: A Fannie Mae Perspective," *Fannie Mae Papers* 2 (No. 2, February 2003), available at: <http://www.fanniemae.com/commentary/pdf/fmpv2i2.pdf>; and Franklin Raines, "Remarks," Panel on Government Sponsored Enterprises, 40th Annual Conference on Bank Structure & Competition, Federal Reserve Bank of Chicago, May 6, 2004, available at: http://www.fanniemae.com/media/speeches/speech.jhtml?repID=/media/speeches/2004/speech_242.xml&counter=1&p=Media&s=Executive%20Speeches.

⁴⁵ See, for example, Dwight Jaffe, "The Interest Rate Risk of Fannie Mae and Freddie Mac," *Journal of Financial Services Research*, 24 (August 2003), pp. 5-29; Alan Greenspan, "Testimony," before the Committee on Housing and Urban Affairs, U.S. Senate, February 24, 2004, available at: <http://www.federalreserve.gov/boarddocs/testimony/2004/20040224/default.htm>; and William Poole, "Remarks," Panel on Government Sponsored Enterprises, 40th Annual Conference on Bank Structure & Competition, Federal Reserve Bank of Chicago, May 6, 2004, available at: http://www.stlouisfed.org/news/speeches/2004/05_06_04.html

⁴⁶ Again, as a back-of-the-envelope calculation, the estimates of the federal government's contingent liability could be capitalized to imply about a \$150 billion of loss (which would break down to about a 5-6% loss on the two companies' portfolios and about a 4% loss on their MBS). This latter number is consistent with the experience of the Resolution Trust Corporation (RTC), the government agency created in 1989 to resolve the financial problems of the insolvent S&Ls of the late 1980s and early 1990s. The RTC's experience was that single-family residential mortgage loans in the portfolios of insolvent S&Ls had losses of only about 4%. See Fahey.

⁴⁷ See Charles Kulp, "Assessing the Banking Industry's Exposure to an Implied Government Guarantee of GSEs," FYI: An Update on Emerging Issues in Banking. FDIC: March 1, 2004, available at: <http://www.fdic.gov/bank/analytical/fyi/2004/030104fyi.html>.

⁴⁸ These percentages for the aggregate of all depositories equivalently represent simple averages. There is variation around these averages. The Kulp report notes that 3% of depository institutions hold GSE debt-plus-MBS that exceed 500% of their "Tier 1 capital"; these 3% account for 4% of all depositories' assets.

⁴⁹ Or whether it might instead also be stressed by imperfectly informed investors who begin to shy away from its debt and MBS.

⁵⁰ It seems likely that the Federal Reserve would treat the impairment of one of the GSEs as an event worthy of special actions, such as assuring the financial markets that it would be ready to provide adequate liquidity, as needed, without necessarily involving a Fed "bailout" of the impaired GSE.

⁵¹ This sixth initiative was rendered moot in 2002 when OFHEO's risk-based capital standard became effective.

⁵² Suggestions for further improvement can be found in Frame and Wall, and in Jaffee.

⁵³ The average term for a new mortgage has hovered at about 27-28 years over the past decade; adjustable-rate mortgages have been less than a quarter of the market in the last 6-7 years, and exceeded a third of the market in only a single year of the 1990s. I am not aware of data that describe the proportion of fixed-rate mortgages that are prepayable without penalty, but it must be high, since those are virtually the only kind of mortgages that Fannie Mae and Freddie Mac will buy. In the language of finance, the borrower has a free call option to prepay.

⁵⁴ This will depend on the awareness of the borrower of refinancing possibilities, the transactions costs of refinancing, the borrower's expectations about the direction of future interest rate changes, and any changes in the borrower's personal situation (or changes in the value of the property) that could affect the lender's likelihood of granting the new loan.

⁵⁵ There may be some compensating upward adjustment in home prices in response to the decrease in interest rates, but the net effect is likely to be in the direction indicated in the text.

⁵⁶ The exception will be the borrower whose personal financial situation has improved and who can lower her interest rate even in a rising market.

⁵⁷ Again, there may be some counter-balancing movement in home prices, but the net direction is likely to be as described in the text.

⁵⁸ This phenomenon of additional adverse effects on the mortgage lender from decreases or increases in interest rates is usually described as the "negative convexity" of the mortgage instrument.

⁵⁹ There are some lenders that, when permitted to do so, do include prepayment penalties.

⁶⁰ This is true for a closed economy (which is a rough approximation of the environment of residential mortgages). If mortgages were traded in a global financial environment but national interest rate movements were not perfectly correlated, then some hedging of national interest-rate risk might be possible.

⁶¹ The borrower still bears some risk, in the sense that a subsequent change downward in interest rates means that the borrower could have subsequently borrowed at a lower cost.

⁶² For a contrary view, see Susan E. Woodward, "Rechartering Freddie and Fannie: The Policy Issues." Sand Hill Econometrics, Menlo Park, CA, 2004, mimeo. Also, in June 2004 Freddie Mac ran prominent newspaper ads extolling the advantages of 30-year fixed-rate mortgages without prepayment penalties and linking their existence to the special GSE status of Fannie Mae and Freddie Mac. See, for example, *Wall Street Journal*, June 24, 2004, p. A17.

⁶³ Dennis W. Carlton, David B. Gross, and Robert S. Stillman, "The Competitive Effects of Fannie Mae," *Fannie Mae Papers*, 1 (No. 1, January 2002), available at: <http://www.fanniemae.com/global/pdf/commentary/fmpv1i1.pdf>.

⁶⁴ As a theoretical matter, however, one cannot rule out the possibility that these rich returns were caused by "Bertrand" competitive behavior -- whereby each firm focuses myopically on price competition -- in the presence of rising marginal costs for each firm. Also, it is well known that, in the context of differentiated products, even Bertrand behavior can yield rents.

⁶⁵ For the fifteen years 1988-2002, Fannie Mae averaged 27.5%, while Freddie Mac averaged 23.5%.

⁶⁶ See U.S. Congressional Budget Office, *Updated Estimates of the Subsidies to the Housing GSEs*. Washington, D.C.: US CBO, April 8, 2004.

⁶⁷ See Woodward.

⁶⁸ See Robert Van Order, "A Microeconomic Analysis of Fannie Mae and Freddie Mac," *Regulation* 23 (Summer 2000), pp. 27-33; Robert Van Order, "The U.S. Mortgage Market: A Model of Dueling Charters," *Journal of Housing Research* 11 (No. 2, 2000), pp. 233-255; and Robert Van Order, "The Economics of Fannie Mae and Freddie Mac," in *Serving Two Masters, yet out of Control: Fannie Mae and Freddie Mac*, ed. Peter J. Wallison. Washington, D.C.: AEI Press: 41-54.

⁶⁹ The same outcome should be sought for the other housing GSE, the FHLB system.

⁷⁰ Are the two companies so large that the financial markets would believe that, even if they were fully privatized, they would still be so large that the federal government would not take the risk that their financial difficulties would cause systemic risk and undue disruption -- that they are "too big to fail"? That could not be known before the event. But what does seem likely is that any such belief would be weaker than the current belief in the implied guarantee. Further, to the extent that their reduced borrowing advantages in debt markets and in MBS markets cause their shares of involvement in residential mortgage finance to shrink, the systemic risks that their financial problems could cause would also shrink.

⁷¹ A good start is the American Dream Downpayment Act of 2003, which authorizes \$200 million annually to help low- and moderate-income homebuyers.

⁷² Though the two companies do not currently create “bankruptcy-remote” trusts for the MBS, it is highly likely that they would do so after they were truly privatized. In this event, the loans-to-one-borrower limitations should not apply to the two companies' MBS, since the MBS represent pools of underlying mortgages on which the two GSEs have offered their guarantees. The MBS thus represent however many mortgage borrowers are in any given pool and should not (if they are in a bankruptcy-remote trust) be treated differently (from the perspective of the loans-to-one-borrower rule) from any other portfolio of mortgages.

⁷³ See, for example, Brink Lindsey, Mark A. Groombridge, and Prakash Loungani, “Nailing the Homeowner: The Economic Impact of the Economic Impact of Trade Protection of the Softwood Lumber Industry,” Cato Institute Trade Policy Analysis No. 11, July 6, 2000; available at: <http://www.free-trade.org/pubs/pas/tpa-011es.html>.

⁷⁴ See Edward L. Glaeser and Joseph Gyourko, “The Impact of Zoning on Housing Affordability,” NBER Working Paper No. 8835, March 2002.

⁷⁵ This would be comparable to the Federal Reserve's decision to cease their "daylight overdrafts" and treat them like other financial institutions, which was noted above.

⁷⁶ Currently, the two GSEs must meet the following goals: 50% of each company's business must benefit low- and moderate-income families; 31% must benefit underserved areas; and 20% must serve "special affordable housing" needs. As of July 2004, HUD was considering revisions to these targets that would raise them to 57%, 40%, and 28%, respectively, as well as adding requirements that would establish targets related to first-time buyers and to home-purchase loans (as compared to purchasing seasoned loans or refinancings). See U.S. Department of Housing and Urban Development, “Summary: HUD’s Proposed Housing Goal Rule – 2004,” April 7, 2004; available at: <http://www.hud.gov/offices/hsg/gse/summary.doc>

⁷⁷ Indeed, the two companies are likely to face greater competition from an expansion of the FHLB System and from changed rules with respect to banks' capital requirements for holding mortgages. This increased competition is likely to erode some their franchise value and thereby erode some of their implicit capital and increase their incentives to take risks. For an elaboration of this argument, see W. Scott Frame and Lawrence J. White, “Competition for Fannie Mae and Freddie Mac?” *Regulation*, forthcoming.