Focusing on Fannie and Freddie: The Dilemmas of Reforming Housing Finance

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Abstract

Fannie Mae and Freddie Mac are unique and controversial participants in the housing finance system of the United States. Because of these enterprises' federal government charters, the financial markets believe that the government would not allow Fannie and Freddie to fail to honor their debt obligations, and they are thereby able to borrow more cheaply in credit markets; in turn, they lower interest rates for residential mortgages. If the financial markets are right, however, Freddie and Fannie also create a contingent liability for the government. Though there are positive externalities from home ownership, the Fannie/Freddie route is far too broad and unfocused to address those externalities effectively. Privatization, accompanied by targeted federal assistance for potential first-time low- and moderate-income home buyers, would be a superior policy direction.

Key words: housing finance; mortgages; Fannie Mae; Freddie Mac; government sponsored enterprises

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1. Introduction

Public policy discussions invariably occur -- or should occur -- in the context of the second best (Lipsey and Lancaster, 1956-1957). When one or more non-trivial market imperfections are already present, the social welfare consequences of an additional apparent market imperfection cannot automatically be predicted.

The continuing policy discussions concerning Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation), and their special status, are no exception. Since the 1930s the federal government has had an array of programs, incentives, and institutions to encourage housing and especially to encourage home ownership; Fannie and Freddie are just two such vehicles for encouragement among many. And home ownership itself may well convey positive externalities for American society, which might justify some encouragement -- although very likely not as much and not as broad as is actually provided.

Accordingly, a discussion of Fannie and Freddie should consider the larger context of housing policy in which they are embedded, as well as considering their roles and net effects. Efficiency and distribution both matter. And an analysis of net effects necessarily involves (implicitly, if not explicitly) a counter-factual or "but for" scenario of what the world would look like if their special status did not exist today.[1]

[*] As part of his duties as Board Member of the Federal Home Loan Bank Board, the author was also a director of Freddie Mac from November 1986 through August 1989.

[1] Counter-factual historical scenarios as to how the residential mortgage markets might have

It is these tasks that will be attempted in this paper.

2. Fannie and Freddie: the basics

Fannie May and Freddie Mac are undeniably unique and peculiar institutions. They are both creatures of the federal government. Fannie Mae was created in 1938; Freddie Mac was created in 1970. Their structures evolved over time.[2] Today, they are largely similar: They are federally chartered corporations, with narrow federal mandates -- to provide finance for single- and multi-family housing -- but they are publicly traded companies with private shareholders. Their boards of directors each include five directors (out of eighteen) that are selected by the President of the United States. A common description is that they are "government sponsored enterprises" (GSEs).[3]

Fannie and Freddie are the only two enterprises that have received this special housing finance charter from the federal government. By contrast, commercial bank and thrift (savings institution) charters, with their attendant federal deposit insurance, are readily available from the federal government or the states, so long as the applicants can demonstrate that they are competent (i.e., have acceptable business plans), have sufficient initial capital, and are of good character (i.e., are not felons). At year-end 2000 there were 8,315 chartered commercial banks and 1,590 chartered thrifts in operation, while 192 new banks and 43 new thrifts began operation during the calendar year.

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developed in the absence of the establishment of Fannie and Freddie may be interesting for larger, long-term policy development, but they offer little guidance for the immediate questions surrounding their current roles and possible changes in their status.

[2] See, for example, Tucillo (1983), Weicher (1994, 2000) and Woodward (2001) for discussions of their evolution.

[3] Three other GSEs exist: the Federal Home Loan Bank System (FHLBS); the Farm Credit Administration; and Farmer Mac. A former GSE (Sallie Mae) was privatized in the late 1990s.

Both Fannie and Freddie are sizable entities. As of year-end 2000, Fannie had $675 billion in assets; Freddie had $459 billion in assets. When ranked by assets, they were the third- and fifth-largest "private" enterprises in the U.S.[4] In addition, Fannie had outstanding $707 billion in pass-through mortgage backed securities (MBSs) that carry its guarantee, while Freddie had $576 billion. The market values of their publicly traded equity shares at year-end 2000 were $75 billion and $42 billion, making them the 31st and 58th largest publicly traded companies.

Both companies grew rapidly in the 1980s and 1990s, as the data in Table 1 indicate. Especially striking was the growth in their MBSs outstanding during the 1980s and then the growth in their on-balance-sheet residential mortgages held as assets in their portfolios in the 1990s.

As GSEs, Fannie and Freddie enjoy the following advantages:

-- Despite specific disclaimers to the contrary,[5] the securities markets treat the debt securities (directly issued debt and MBSs) of Fannie and Freddie as (very likely) carrying a federal guarantee; Fannie and Freddie thereby enjoy lower financing costs than would otherwise be the case (but not quite as low as the U.S. Government itself);

-- They have had lower capital (net worth) requirements for holding residential mortgages in their portfolios than has been true for banks and thrifts;[6]

-- They are exempt from state and local taxes;

-- Their securities are exempt from the Securities and Exchange Commission's registration requirements and fees;

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[4] This ranking is found in Forbes, April 16, 2001, p. 248; it excludes another GSE, the Federal Home Loan Bank System, which had $654 billion in assets.

[5] The prospectuses for all Fannie and Freddie securities explicitly state that they are not guaranteed by the U.S. Government.

[6] As is discussed below, since 1992 Fannie and Freddie have had a capital requirement of 2.5% for holding mortgages in portfolio; since 1989 banks and thrifts have had a capital requirement of 4% for holding mortgages.

-- The U.S. Treasury is authorized to lend each up to $2.25 billion;

-- They can use the Federal Reserve as their fiscal agent;

-- 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 banks and thrifts;

-- Their MBSs, when held by U.S. banks and thrifts, carry a capital (net worth) requirement of only 1.6%, rather than the capital requirement of 4% that the underlying mortgages themselves would require if held by a bank or thrift;

-- 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.

The first of these advantages provides the most value to Fannie and Freddie; but that advantage flows, at least in part, from the other special provisions and the aura that they convey, as well as from these GSEs' federal charters themselves.

Fannie and Freddie are also subject to major limitations:

-- They are restricted to the business of providing residential mortgage finance; they cannot originate mortgages;

-- There is a maximum size of mortgage, linked to an annual index of housing prices, that they can finance; for 2001 that maximum (for single-family homes) is $275,000;[7]

-- The mortgages must have at least a 20% down payment (i.e., a maximum of an 80% loan-to-value) ratio, or a credit enhancement (such as mortgage insurance); and

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[7] Mortgages within the maximum are usually described as "qualifying" or "conforming" mortgages; larger "non-conforming" mortgages are "jumbos". Also, the limit is 50% higher in Alaska, Hawaii, Guam, and the U.S. Virgin Islands. It is worth noting that in 2000 (when the Fannie/Freddie conforming mortgage limit was $252,700) the median sales price for a new home was $168,500 and the median sales price for an existing home was $139,000; 80% loan-to-value mortgages on those medians would have been $134,800 and $111,200, respectively. Only 17% of all single-family mortgages were jumbos.

-- They are subject to oversight regulation by the U.S. Department of Housing and Urban Development (HUD) and to safety-and-soundness regulation -- e.g., minimum capital requirements and annual examinations -- by HUD's Office of Federal Housing Enterprise Oversight (OFHEO).

Their participation in the residential mortgage[8] markets takes two forms: First, they buy and hold residential mortgages in their own portfolios; they fund these purchases overwhelmingly with debt. Of Fannie's $675 billion in assets at year-end 2000, 90% was invested in mortgages; of Freddie's $459 billion, 84% was in mortgages. The liabilities of each were composed of 97% debt and only 3% equity.

Second, they purchase residential mortgages from originators, create securities (MBSs) from bundles of the mortgages, and sell the securities to investors with guarantees as to the timely payment of interest and principal; i.e., Fannie and Freddie have absorbed the credit risk of these mortgages. As mentioned above, at year-end 2000 the amounts of MBSs outstanding for Fannie and Freddie were $707 billion and $576 billion, respectively. They thereby create a large secondary market in residential mortgages.

The structure of the mortgage market is thus quite different today as compared with, say, three decades ago (White 1991; Weicher 1994). Then, mortgage finance was largely a wholly vertically integrated process: banks and thrifts were the primary originators of residential mortgages; they kept the mortgages in their portfolios, financed almost entirely by deposits; and they serviced the mortgages (i.e., sent bills and made monthly collections).[9] Federal deposit

[8] Fannie and Freddie have only a modest involvement in multi-family (i.e., five or more units) residential mortgages; over 95% of their portfolio holdings and MBSs is devoted to single-family (i.e., one-to-four units) residential mortgages.

[9] This "traditional" structure accounted for about 60% of mortgages in 1968 (Weicher 1994); the remainder were held by life insurance companies; pension funds; Fannie Mae; federal, state, and local agencies; finance companies; mortgage companies; and individuals. For this non-traditional group, most originations occurred through third-party mortgage bankers.

insurance, provided by the Federal Deposit Insurance Corporation (FDIC) to banks and the Federal Savings and Loan Insurance Corporation (FSLIC) to thrifts, provided guarantees to the depositor/liability holders.

Today, though the vertically integrated bank/thrift process is still important, the activities of Fannie and Freddie have created a second, vertically disintegrated process: mortgage bankers originate and briefly hold the mortgages; they sell the mortgages to Fannie or Freddie; the originators may choose to service the mortgages themselves or to sell the servicing rights to a third party servicer; Fannie and Freddie may hold the mortgages in their portfolios, financed by their debt; or they package them into MBSs and sell them to investors, so that the financing of the mortgages is coming from the purchasers of those MBSs; and Fannie and Freddie provide guarantees to those investor/liability holders (with the securities markets believing that the Federal Government will very likely stand behind those guarantees).[10]

Banks and thrifts have also become substantial suppliers of mortgages to Fannie and Freddie, thus electing to be less vertically integrated than the traditional process. Banks and thrifts also purchase MBSs -- often exchanging mortgages for MBSs representing the same underlying mortgages -- and hold them in their portfolios, thereby gaining a more liquid mortgage asset with a credit guarantee and lower capital requirements, possibly no servicing complications, and the potential for greater geographical diversification than could be achieved from local mortgage originations. The advantage of the lower capital requirement for holding these GSEs' MBSs can be readily seen from the following: As was discussed in the text above, a group of residential mortgages would carry a 4% capital requirement for a bank or thrift, while these GSEs' MBSs (which could consist of the same mortgages, but carrying these GSEs' credit guarantee) carry only a

[10] Van Order (2000a, 2000b, 2000c) has formalized this notion of two alternative mortgage finance delivery mechanisms into a model of "dueling charters". See Calomiris (1999) for a discussion and critique; see also the discussion in the text below.

1.6% capital requirement. Fannie and Freddie currently charge an annual securitization fee of about 20 basis points. So long as the annual costs of equity are more than 833 basis points above the costs of debt (e.g., deposits) for a bank or thrift, a swap of mortgages for the equivalent GSEs' MBSs yields a financial gain.[11]

As of year-end 2000, Fannie and Freddie's mortgages-in-portfolio plus MBSs outstanding together accounted for the following percentages of the various categories of residential mortgages (USCBO 2001a):

39% of the $5.6 billion total of all residential mortgages

40% of the $5.2 billion total of all single-family (one-to-four units) mortgages[12]

48% of the $4.4 billion total of all single-family conventional mortgages[13]

60% of the $3.5 billion total of all single-family conforming mortgages[14]

71% of the $2.8 billion total of all fixed-rate single-family conforming mortgages.[15]

3. The larger context

The special statuses of Fannie and Freddie are not an aberration in the American economy.

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[11] Let Y_{mort} be the annual yield on a mortgage, Y_{mbs} (= Y_{mort} - 0.20) be the yield on the equivalent MBS, *d* be the annual (after-tax) cost of debt, and *e* be the annual cost of equity. Then, if the capital (equity) requirement for holding a mortgage is 4% and the capital requirement for holding a GSE MBS is 1.6%, then holding the MBS is more profitable when

$$Y_{mbs} - 0.984d - 0.016e > Y_{mort} - 0.96d - 0.04e$$
$$Y_{mort} - 0.20 - 0.984d - 0.016e > Y_{mort} - 0.96d - 0.04e$$
$$0.024e > 0.024d + 0.20$$
$$e > d + 8.33$$

[12] Excludes multi-family (five or more units) mortgages.

[13] Excludes FHA- and VA-insured mortgages.

[14] Excludes jumbo mortgages.

[15] Excludes adjustable-rate mortgages (ARMS).

Instead, they are part of a much larger mosaic of long-standing public policies to encourage residential housing, including (past and present):[16]

-- Tax advantages: the non-recognition of the implicit income from housing by owner-occupiers for income tax purposes;[17] the exemption of owner-occupied housing from capital gains taxes; accelerated depreciation for rental housing; specific federal, state, and local subsidies and tax advantages for the construction of rental housing;

-- Federal, state, and local rent subsidization programs;

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

-- Mortgage insurance, provided by HUD's Federal Housing Administration (FHA) and by the Department of Veterans Affairs (VA);

-- Securitization of FHA- and VA-insured mortgages by HUD's Government National Mortgage Association (Ginnie Mae);

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

-- Favorable funding for thrifts and other depositories that focus on residential lending, through the Federal Home Loan Bank System (another GSE);

-- Federal deposit insurance for thrifts (formerly through the FSLIC, now through the FDIC) and for other depositories whose portfolios contain some mortgages.

It is possibly only a slight exaggeration to claim that when it comes to housing and especially home ownership, the ethos of public policy has been (and continues to be) "too much is

[16] For overviews, see, for example, Aaron (1972), Downs (1973), Weicher (1980), Mitchell (1985), and Rosen (1985).

[17] The common perception of the tax advantage of home ownership is the deductibility of mortgage interest and local real estate taxes. But, as Weicher and Woodward (1989) correctly argue, these deductions simply extend the basic advantage to those owner-occupiers who finance their home through debt rather than through equity (i.e., paying for it wholly with cash).

never enough".

4. What difference do they make?

The GSE status of Fannie and Freddie give them clear advantages, as compared with a non-GSE. They are supposed to use those advantages to reduce the cost of and expand residential finance. What are the consequences?

Recent estimates (USCBO 2001a) of the reduced cost of Fannie and Freddie's debt place it at about 40 basis points; i.e., because of their "agency" status, Fannie and Freddie can issue debt at interest rates that are about 40 basis points less than could an otherwise similar non-GSE.[18] These funding advantages vary positively with the length of maturity of a debt issue and have varied over time as conditions in the credit markets have varied. Their MBSs similarly carry a yield that is about 30 basis points lower than non-GSE MBSs. On the other side of the ledger, Freddie and Fannie's mortgage purchase activities appear to have reduced conforming mortgage interest rates by about 25 basis points (USCBO 2001b).[19]

[18] Since Standard and Poor's has recently rated both Fannie and Freddie as "AA-", an "otherwise similar" non-GSE would apparently be one that also had an AA- rating. But, as is pointed out in USCBO (2001d), the S&P stress test and consequent rating is based on the criterion of "risk to the government" and assumes that the companies would continue to enjoy all of the advantages of their GSE status (except for the potential $2.25 billion Treasury loan); an otherwise similarly structured firm that was not a GSE would face higher funding costs immediately and throughout the period of the stress test, which might well imply a lower rating.

[19] In the mid 1990s, the common estimates for the GSEs' advantage in debt funding were 40-70 basis points, for their MBSs 30-40 basis points, and for their downward effects on conforming mortgages in the range of 25-35 basis points. Advocates for Freddie and Fannie have disputed these past and present estimates and (not surprisingly) argue that the GSEs' funding advantage is smaller and their downward effect on conforming mortgages is larger; see, for example, Fannie Mae (2001b), Howard (2001a, 2001b), Pearce and Miller (2001a, 2001b), and Toevs (2001). For a response, see USCBO (2001a, 2001c, 2001d). For some important older studies, see Hendershott and Shilling (1989), Ambrose and Warga (1996), and Cotterman and Pearce (1996). For summaries of these studies, see Feldman (1999), Kane (1999), and Seiler (2000).

Historically, Fannie and Freddie have been important forces in creating a national funding market for mortgages and eroding local and regional differentials; in an important sense, they helped overcome structural barriers created by state laws that limited intra-state bank branching and forbade interstate branching, which were reinforced for national banks by the McFadden Act of 1927 and the Douglas Amendment to the Bank Holding Company Act of 1956. Also, Fannie and Freddie were essential in creating the large secondary market in residential mortgages. Though Ginnie Mae was the innovator in securitizing home mortgages in the late 1960s, Freddie Mac was a "fast second", issuing its first MBS in 1971; Fannie Mae, however, waited until 1981 before it issued its first MBS. Both were quite active in the 1980s and 1990s. By becoming securitizers, Freddie and Fannie were helping overcome another of the country's limitations on depository institutions: the Glass-Steagall Act's 1933 divorce of commercial banking from securities (investment banking) activities (Woodward 2001).

5. The dangers

Fannie and Freddie are exposed to at least three types of risks:

1) Credit risk. On all of the mortgages that they hold in their portfolios and on all of their MBSs, Fannie and Freddie are exposed to the risks of default by the mortgage borrower.

2) Interest rate risk. On all of the fixed interest rate mortgages[20] that they hold in their portfolios,[21] Fannie and Freddie are exposed to the risk that interest rates will rise, which will decrease the value of their assets (since the stream of future payments that the mortgages represent are discounted at the new, higher rate). Further, the risks are asymmetric: Since all of the mortgages give their holders the option to pre-pay (pay off the mortgage earlier than is contractually

[20] Only about 4.5% of Fannie's mortgage portfolio and 7.1% of Freddie's mortgage portfolio consist of adjustable rate mortgages.

[21] The holders of the MBSs absorb the interest rate risk on those underlying mortgages.

stated), interest rate decreases are often accompanied by waves of pre-pays and refinancings (at the lower interest rates), so Freddie and Fannie do not experience comparable capital gains.

3) Operational risk. This is the risk of poor management, bad judgments, employee fraud, etc.

As would be true for any well-managed company, Fannie and Freddie take extensive measures to contain these risks (Fannie Mae 2001; Freddie Mac 2001; Woodward 2001). Indeed, both companies appear to be quite good at dealing with these risks.[22] However, as is true for any limited liability company vis-a-vis its creditors, the owners (or the managers acting on their behalf) have an incentive to take additional risks (or to be less careful in dealing with risks), because they are limited in their exposure to the downside losses from the risk-taking: Their stake in the company is the maximum that they can lose; the creditors absorb any further losses.[23] It is the recognition of this potential for moral hazard behavior that has long caused bond holders and bank lenders to insist on restrictive covenants in bond indentures and restrictions in lending agreements.

If the capital markets are correct in their belief that the federal government would stand behind Fannie and Freddie's obligations in the event that either were in financial difficulties, however, then their creditors need not worry about any moral hazard behavior. Instead, it is the federal government that is at risk. In essence, this is a contingent liability for the federal government: By guaranteeing those obligations, the government has absorbed the (negative value of the) "puts" that the creditors would otherwise have to worry about.

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[22] In the early 1980s, however, Fannie Mae was insolvent on a mark-to-market basis, because it (like thousands of thrifts) had taken on excessive interest rate risk by lending long and borrowing short (i.e., investing in 30-year mortgages while funding itself through shorter-maturity debt obligations).

[23] In essence, the creditors have granted a "put" to the owners. Because of limited liability, the owners can "put" the company to the creditors by walking away. The put is costly for the put grantor in the event that the enterprise becomes insolvent, since the assets then are insufficient to cover the liabilities.

An upper bound to the annualized cost of this contingent liability is those 40 basis point differentials on these GSEs' debt and the 30 basis point differentials on their MBSs. If these differentials are what Fannie and Freddie would have to pay the participants in the financial markets to absorb these risks in the absence of the government guarantee, they would thus approximate what the federal government would have to pay to get someone else to absorb the risks. The total (for 2000) would be $8.0 billion.[24] To the extent that a part of these differentials represent other aspects of these GSEs' operations and not a risk premium, the annual cost would be less.[25]

Whatever its size, it is an implicit cost. It could be described as a "subsidy", since the federal government has provided an apparent guarantee (that has value to its recipients) and has assumed the concomitant contingent liability -- a cost -- without being reimbursed by Fannie and Freddie. However, the use of the "subsidy" term has engendered confusion, since the subsidy is not overt or explicit[26] and invites clouded sparring as to whether the "subsidy" should be measuring the federal government's costs or the favored parties' willingness to pay for the special opportunity that has been provided. Instead, staying within the framework of the apparent guarantee and the concomitant contingent liability, and its estimated annualized cost, seems most appropriate for the purposes of this paper.

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[24] The two GSEs had $1,081 billion in debt (x 40 basis points) plus $1,283 billion in MBSs outstanding (x 30 basis points).

[25] For example, Gatti and Spahr (1997) estimate the federal government's contingent liability on Freddie Mac's MBSs, as of 1993, at about 8 basis points. (If Gatti and Spahr's estimate held true for Fannie and Freddie's MBSs in 2000, then the remaining differential -- 22 basis points -- would represent the superior liquidity and other properties of these GSEs' MBSs.) If applied to the aggregate of the $1,283 billion of Fannie and Freddie's MBSs outstanding at year-end 2000, this would imply an annualized governmental cost of only $1 billion (rather than the $3.85 billion that the 30 basis points would represent) and an overall cost of about $5.3 billion.

[26] As the GSEs' advocates correctly claim, no government expenditure has thus far been required to support Fannie or Freddie. But the same could have been said prior to 1989 with respect to the federal deposit insurance arrangement for the savings and loan industry. The eventual taxpayer cost for the subsequent debacle (White 1991) was approximately $150 billion.

The size of this contingent liability is partly exogenous -- how volatile will interest rates be? how volatile will future macroeconomic conditions and homeowners' defaults be? -- and partly endogenous -- what is the size of these GSEs' direct liabilities and MBSs outstanding? how careful are Fannie and Freddie in screening credit risks? how adequate are their loan-loss reserves for covering expected losses? how well do they hedge and offset (e.g., through options, match-funding, issuing callable debt, etc.) their interest rate risk? how much capital (net worth) do they have for covering unexpected losses? Because of this endogeneity, government regulation -- safety-and-soundness regulation, akin to that which applies to depositories -- is necessary to limit the federal government's exposure.

Only belatedly, however -- in 1992 -- did the government formally recognize this necessity. The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (FHEFSSA)[27] created the OFHEO within HUD to conduct formal examinations of Fannie and Freddie and to establish capital requirements. The Act established core capital requirements of 2.5% of assets[28] and 0.45% of outstanding MBSs and instructed OFHEO to develop a set of supplemental risk-based capital standards based on forward-looking stress tests that assume ten years of extreme economic conditions (similar to those used by bond rating firms for their bond ratings).[29] The original goal was for OFHEO to establish final rules within 18 months after the passage of the Act. In practice the process took considerably longer: The final rules were released in July 2001 and will take effect a year later.

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[27] The FHEFSSA is embedded in (Title XIII of) the Housing and Community Development Act of 1992.

[28] Recall that banks and thrifts are subject to a 4% capital requirement for holding residential mortgages.

[29] See Gatti and Spahr (1997) and USOFHEO (2001b) for further descriptions. The GSEs' minimum required capital will be the greater of the core capital requirement or the risk-based capital requirement.

6. The Social Significance of Home Ownership

The evaluation of the net or balance of Fannie's and Freddie's roles must be made in the larger context of housing policy in the U.S. Recall that there are a panoply of policies that encourage housing, including policies that favor home ownership.[30] The percentage of households that own their own homes is seen as an important social indicator. The annually announced figure is an important political event, and trends and comparisons with earlier years are scrutinized carefully.[31] In the 1990s, the goal of extending home ownership deeper into the ranks of "low- and moderate-income" households became more important. As part of the FHEFSSA, HUD acquired the power to set goals for Fannie and Freddie to extend their mortgage purchase efforts so as to encompass more low- and moderate-income households.

There is a serious argument for encouraging home ownership: There may well be positive externalities from owning rather than renting. Moral hazard problems between landlord and tenant are eliminated, including issues related to the maintenance of the premises. Though most of the gains from their elimination are internalized by the parties, the improved maintenance has positive externalities for the community. Further, to the extent that homeowners care more about the community (because of the spillover effects for themselves), they may become more involved citizens. There is an empirical literature that supports these and related notions (Rohe and Stegman 1994; Rohe and Stewart 1996; Rossi and Weber 1996; Green and White 1997; DiPasquale and

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[30] The policies that promote rental housing do nothing to encourage home ownership; if anything, home ownership is somewhat discouraged. But rental housing policies are pursued as a way of supplementing the incomes of low- and moderate-income households. As a general matter, a more effective way of supplementing their incomes would be to give them the equivalent cash directly (Aaron and von Furstenberg 1971; Muth 1973; Murray 1975; Kraft and Olsen 1977; Smeeding 1982).

[31] The percentage of households owning their own homes rose throughout the 1990s (except for a dip in 1994), reaching an all-time high of 67.4% in 2000 (up from 63.9% in 1990).

Glaeser 1999).[32]

Thus, encouraging home ownership has a legitimate basis, although there clearly are limits. Because of the substantial transactions costs in buying and then selling a home, as well as the inherent riskiness of a home as an investment, home ownership may well be inappropriate for households with high mobility, unstable employment and irregular incomes, or other impediments to meeting fixed debt obligations on a timely basis (Rohe and Stewart 1996; Rohe et al. 2000; McCarthy et al. 2000). Further, because of these same costs, home ownership tends to lessen household mobility, which in turn has further costs to the household (e.g., in terms of flexibility in seeking new employment).

The logic of positive externalities from home ownership would call for a focused program that encouraged those households who would not otherwise buy (but for whom it is a close call) to purchase a home. This focus should be on would-be first-time low- and moderate-income household buyers (Green and White 1994; White 1996; Calomiris 1999; Ely 2001)

Unfortunately, instead of exhibiting a tight focus, virtually all of the policy tools that are used to encourage home ownership, including the basic Fannie/Freddie program, are quite broad and blunt. The result is that a great deal of encouragement for home ownership goes to households -- especially middle- and high-income households -- who would buy and own anyway but who are thereby encouraged to buy larger and better appointed homes and to buy second homes (that are larger and better appointed).[33] The positive externalities from buying a bigger and better house and/or a second house are surely quite small, at best. Further, to the extent that the supply curve for housing is less than perfectly elastic, some of the nominal encouragement is captured by sellers in the form of higher selling prices (White and White 1977).

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[32] Rohe and Stewart (1996) has a review and bibliography of earlier studies.

[33] For example, Rosen (1979) finds that taxing home owners' net imputed rent would have a substantially greater relative effect on the amount of house owned than on the percentage of households that decide to own.

That the panoply of encouragements causes the stock of housing to be inefficiently larger than would otherwise be the case is evident. Mills (1987a, 1987b) estimates that the housing stock is about 30% larger than if the encouragements were not present.[34] With an excessively large housing stock (and insufficiently large stock of other productive capital), he finds that U.S. aggregate income is substantially lower -- about 10% -- than it otherwise could be. Taylor (1998) finds that the condition of over-investment in housing persisted over the period 1975-1995: "...the unmeasured benefit to housing investment would have to top $220 billion per year (or $300 per month for each owner-occupied home) to support the current allocation of resources (Taylor 1998, p. 16)." *It is important to re-emphasize that the positive externality from housing attaches to the incidence of home ownership, not to the quantity of housing consumed.*

7. Reforming Housing Finance

Let us now address the status of Fannie and Freddie: They borrow for less than would otherwise be the case; they cause conforming mortgages to cost/yield less than would otherwise be the case, thereby increasing the demand for residential (primarily single-family owner-occupied) housing; and they create a contingent liability for the federal government that would otherwise not be the case. Further, there are the transactions costs: the costs of running Fannie and Freddie, the rents that their shareholders have likely earned (Hermalin and Jaffee 1996; White 1996, Seiler 1999, 2000),[35] and the costs of regulators and regulation.

[34] Hendershott (1986) estimates that, as of the mid 1980s, tax considerations alone encouraged a 10% expansion of the housing stock. See also Rosen (1985).

[35] The annual return on equity from 1995 through 2000 averaged 24.3% for Fannie and 23.5% for Freddie. Recall that they are the only two enterprises that are permitted to have their special federal charters. The presence of rents, however, is a multi-faceted issue: (a) Rents are indicative of static allocative inefficiency; but (b) if one believes that the GSEs are part of a process that is already allocating too many resources to housing, rents mean a reduction in that mis-allocation; and (c) rents may provide the wherewithal for HUD to "lean" on the GSEs to expand their efforts in directions that they would otherwise find unprofitable; and (d) rents mean an increase in franchise

We should start by assuming a zero-sum world[36] and then look for positive externalities that would justify the special government treatment that Fannie and Freddie receive.[37] As has been argued above, wider home ownership is a positive externality. However, though the GSEs do lower the cost of home ownership modestly,[38] their effect in inducing households who would not otherwise buy a home to do so must be yet more modest, since most of the encouragement that they provide must be to induce households who would be owner-occupiers anyway to buy a bigger/better appointed house and/or to buy a second house.[39] As was noted above, in 2000 (when

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value and a reduced incentive for owners to take risks.

[36] More technically, we should start with a slightly negative-sum world, since the marginal social benefit from the consumption of additional housing will generally be below the marginal social cost of providing it. Transfers between producers and consumers ought to be considered to be neutral, although (as has been discussed above) the political process has historically considered more (and lower-priced) housing as an unalloyed good thing rather than largely consisting of neutral transfers.

[37] This effort does not neglect the efficiencies that the current managements are able to achieve but instead asks whether there are *specific* consequences of their special status and government support that permit actions and outcomes that would otherwise not be possible (or would be more costly) in the absence of their special status.

[38] A reduction of 25 basis points on a mortgage that would otherwise carry an interest rate of 8% and that covers 80% of the purchase price of the home is effectively a 2-1/2% reduction in the cost of buying the home. This percentage would be even less if we take into account (a) the after-tax effects; (b) any increase in the selling price that may have occurred because of the seller's capitalization of part of the GSE-caused lower interest cost; and (c) the other costs of home ownership (e.g., property taxes, insurance, utilities, and maintenance).

[39] Recall the results from Rosen (1979), noted above. Wachter et al. (1996) provide estimates of the effects of Fannie/Freddie privatization on home ownership rates. They assume a 50 basis point effect on a base of a 10.12% mortgage rate, and they find a negative effect of 1.14 percentage points in the rate of home ownership. However, a 25 basis point change on an 8% mortgage rate would be only 5/8 as great in relative magnitude, implying a decrease of 0.71 percentage points. Though they find greater effects on targeted groups, it is unclear whether an increase in interest rates for *conforming* loans would affect low- and moderate-income home owners by as much as they indicate, since those groups are more likely to be using FHA or VA insured mortgages, on which interest rates would not change by as much, if at all.

the Fannie/Freddie conforming mortgage limit was $252,700) the median sales price for a new home was $168,500 and the median sales price for an existing home was $139,000; 80% loan-to-value mortgages on those medians would have been $134,800 and $111,200, respectively. Only 17% of single-family mortgages outstanding in 2000 were jumbos -- i.e., above the conforming mortgage limit.

In 1992 the FHEFSSA instructed HUD to set specific goals with respect to affordable housing, encompassing:

-- a broad low- and moderate-income goal, for households with less-than-median income;

-- a geographically targeted goal for housing located in under-served areas, such as low-income and high minority census tracts; and

-- a targeted income-based goal, for special affordable housing for very low-income households and low-income households living in low-income areas.

The goals were set,[40] and Fannie and Freddie have met them (Fannie Mae 2001; Freddie Mac 2001). But the extent to which these efforts have induced Fannie and Freddie to expand home ownership *beyond what otherwise would have occurred* is unclear. Detailed studies (McClure 2001; Pearce 2001; Williams et al. 2001) indicate that the targets may be sufficiently broad so that meeting them is not a strain,[41] and that these GSEs' efforts with respect to low income households and areas tended to lag behind those of local portfolio lenders.

These efforts to "lean" on Fannie and Freddie are similar in spirit to the efforts of the

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[40] For more details, see Pearce (2001).

[41] E.g., the GSEs may be "cherry picking" the best risks within a designated group or area, who they would be lending to anyway; see Calomiris (1999). Also, they may be simply learning about extending their purchases into new, somewhat riskier markets that require new but profitable underwriting skills; see Quercia et al. (1998). And, as Wachter et al. (1996) point out, the GSEs are meeting some of their targeted goals through multi-family lending, which may be beneficial to low- and moderate-income households but does not promote home ownership and may even undercut it somewhat.

Community Reinvestment Act of 1977 (CRA) to induce banks and thrifts to "meet the credit needs" of their local communities, and the same drawbacks are present (White 1993; White 2000b, 2002a). Efforts to force lenders to extend credit, directly or indirectly (i.e., via the GSEs) confront an essential conundrum:[42] If the lending opportunities are profitable, the lenders should be already lending without any external pressure, so the pressure is redundant (and there are always costs of monitoring and reporting); if the opportunities are unprofitable, then either the efforts require a cross-subsidy from activities with above-normal profits (rents), or they will be evaded (cynical shirking), or they will place the enterprise in financial difficulties. As financial markets become more competitive, the wherewithal for cross-subsidy disappears, and one of the latter two possibilities become likely.

Fannie and Freddie may be a special case where "leaning on" might have a chance, since their special charters and advantages are likely allowing them to earn rents (Hermalin and Jaffee 1996; White 1996; Seiler 1999, 2000). Still, this route involves pressure on an organization to take actions (make loans) that are believed to be unprofitable and that thereby rasp against the grain of a profit-seeking enterprise, with managerial fiduciary obligations to its stockholders.[43] It is surely a recipe for political struggles and foot-dragging generally. Far better would be a direct, targeted program that directly addresses the externality (as will be discussed below).

Are there other positive externalities from the government chartering of Fannie and

[42] The spirit of the CRA and of the FHEFSSA's instructions to HUD is that there are potentially profitable customers among the targeted groups or areas who somehow are not being served. This belief is hard to reconcile with a model of aggressive profit-seeking lenders. Also, it is important to note that the CRA and the FHEFSSA are not focused on issues of racial discrimination, which is the province of the Equal Opportunity Lending Act of 1975.

[43] This is different from the legal mandates, say, to avoid discrimination against customers, suppliers, or employees on the basis of race or gender -- e.g., as embodied (for lending) in the Equal Opportunity Lending Act of 1975 -- since these do not raise direct issues of profitability and should be more readily instilled in a corporate culture as "the right thing to do".

Freddie? Two candidates have been advanced. First, Woodward (2001) argues that the (implicit) government guarantee permits Fannie and Freddie to issue a blanket guarantee on all their MBSs that removes issues of credit risk from the minds of MBS investors, thereby eliminating the transactions costs of credit/information research in which MBS investors would otherwise engage. By contrast, for "private label" MBSs (of jumbo mortgages), their issuers secure favorable (AA or AAA) bond ratings for the MBSs by creating two classes of bonds -- senior and subordinated -- that are supported by the underlying mortgages. The subordinated bonds are those that absorb the first fraction of any losses up to the limit of their nominal value, and only then are further losses absorbed by the senior bonds. The latter are the MBSs that receive the favorable ratings (and are suitable for investment by financial institutions), while the former are considered quite risky and require a selective clientele, such as hedge funds. The rating process itself absorbs resources (transactions costs), and investors will be further concerned as to whether some subordinated MBSs have absorbed greater losses, which would imply greater risks for the associated senior MBSs, entailing further monitoring (transactions) costs. The Fannie/Freddie process eliminates these costs.

This argument is surely correct; but offsetting the gains is the contingent liability of the federal government. The argument is reminiscent of one of the major arguments supporting federally provided deposit insurance: reducing the transactions costs for poorly informed liability (deposit) holders in determining which banks are safe or risky. And, of course, the federal government also bears a contingent liability for that guarantee. But deposit insurance also has the important function of preventing (ill-informed) depositor runs on otherwise solvent banks and thereby stabilizing the banking and monetary system (Diamond and Dybvig 1983; Postlewaite and Vives 1987; Chen 1999). And deposit insurance provides a simple and safe haven for depositors' funds. The argument concerning reducing transactions in the secondary mortgage market does not carry a similar larger stabilizing or social purpose.

The other potential positive externality arises in the context of Van Order's (2000a, 2000b, 2000c) model of "dueling charters", in which he reminds us that depositories that fund residential mortgages and hold them in portfolio also have a government guarantee (deposit insurance). If the depositories are inherently a less (socially) efficient means of financing mortgages than are the GSEs, then the expansion of the GSEs (at the depositories' expense) reduces social inefficiency. However, though the innovation of mortgage securitization has clearly revolutionized mortgage finance and would persist even without the favored status of the GSEs, the assumed inherent superior efficiency of Fannie and Freddie may not be valid. Recall that for mortgages held in portfolio, the GSEs have a substantial *regulatory* advantage: a 2-1/2% capital requirement as opposed to the depositories' 4% requirement. This differential is surely part of the reason of the substantial expansion of the GSEs' mortgages held as on-balance sheet assets and the substantial reductions in thrifts' holdings of mortgages. Also, as was discussed above, depositories' regulatory capital requirements provide them with an incentive to hold the GSEs' MBSs rather than holding mortgages.

As for the depositories' government guarantee (federal deposit insurance), the discussion above indicated that deposit insurance itself carries substantial positive externalities. And the contingent liability of the federal government has been substantially reduced, as compared with two decades ago, because of higher capital requirements that are somewhat risk-based, prompt corrective action mandates, and larger reserves in the deposit insurance fund.[44] Also, the specially treated depository category of federally insured thrift institution, with a heavy emphasis on portfolio mortgage lending, has become substantially diluted and weakened since 1989. Total assets for all thrifts declined by 18% between 1989 and 2000; and at year-end 2000 thrifts held less than a third

[44] Safety-and-soundness of depositories could be improved further, however, with the use of market value accounting, the mandatory issuance of subordinated debt, and the use of forward-looking stress tests (White 1991, 2002b).

of their assets as non-MBS single-family residential mortgage loans, substantially below the 1989 fraction. That duel is largely over.

In sum, the positive externalities and thus true social benefits provided by Fannie and Freddie are surely positive but modest. If the status of Fannie and Freddie could be considered in isolation, the policy recommendation to privatize them -- i.e., remove all explicit/formal and implicit government support[45] -- would be an easy one.[46] Given their substantial brand-name reputation and the impressive collection of human/intellectual capital bound in the two firms, they would likely continue to innovate and prosper, with their relative funding costs a bit higher than is currently the case,[47] their MBSs yielding a bit more, and the costs for home buyers of obtaining a residential mortgage rising a bit. In turn, the government's contingent liability would be gone.

In their place, the federal government should institute a targeted program to encourage home ownership for first-time buyers among low- and moderate-income households. This would be a far more direct way of addressing the positive externality of home ownership. The encouragement should apply both to reducing down payments (Calomiris 1999) and interest costs (Ely 2001). The costs of the program would, and should, be explicit. Further, as a way of reducing the costs of housing more generally, governments at all levels ought to focus on supply-side

[45] There is the non-trivial question of whether, even with all formal and informal ties broken, the financial markets would consider such large firms to be "too-big-too-fail"; i.e., despite any formal ties, the federal government would not permit a fully private Fannie or Freddie to fail to meet its obligations. But this question applies to any large firm in the U.S. economy. It has been 20 years since the last explicit "bail-out" of a major firm: the federal government's loan guarantees for Chrysler.

[46] Ely (2001) offers some details for a potential privatization. However, his plan for also requiring the divestiture of parts of the companies as part of the privatization process does not seem warranted, since potential economies of scale and scope might well be sacrificed.

[47] To the extent that the Fannie/Freddie advocates are correct in claiming that the estimates of their funding advantage overstate the true benefit from being a GSE, the increase in their funding costs following privatization would be smaller.

considerations (Weicher 1980), such as modifying restrictive land zoning (which reduces housing supply by limiting the ability to build single-family houses on small lots and limits the building of multi-family units), modifying building codes that unnecessarily raise housing costs without adding to housing safety, and avoiding restrictive international trade policies that raise the prices of important inputs into housing, such as lumber (Simon 2001).

Without their special charters, Fannie and Freddie's role in the (formerly) conforming mortgage segment would diminish somewhat; how much would depend on how much of those differentials discussed above are due to their special status and how much to their superior practices. But, also, freed of the restrictions that accompany their current status, Fannie and Freddie would likely vertically integrate into related areas (e.g., mortgage insurance, title insurance, appraisals, originations) and expand horizontally into related areas of finance (e.g., jumbo mortgage loans, sub-prime mortgage loans, personal finance loans, auto loans, credit card loans, perhaps even commercial real estate) where their credit assessment and securitization skills could work to their advantage.[48] They might well have the capability to continue to offer blanket guarantees on their MBSs (rather than doing senior/subordinated structures), thereby solving the transactions cost problem discussed above. Private entities now engage in "private label" housing MBS finance, as well as securitizations of auto loans, personal finance loans, credit card loans, commercial mortgage loans, and a widening array of other asset-backed finance vehicles. A privatized Freddie and Fannie would simply join them.[49]

[48] With privatization, the nagging controversy concerning their recent and current efforts to expand into related areas -- are they taking these actions because they are inherently more efficient than the rivals that they are displacing? or are they just taking further advantage of their artificially low costs of funding? -- would disappear. These controversies have encompassed these GSEs' expansions into non-mortgage financial investments, subprime mortgages, automated underwriting systems, mortgage insurance, and appraisals, as well as just the substantial expansion of their on-balance-sheet portfolios of residential mortgages in the 1990s (McKinley 2000; White 2000a; Wallison and Ely (2000). For the most recent controversy, concerning appraisals, see Barta (2001).

[49] Though their special status may well have helped Fannie and Freddie in originally establishing

But Fannie and Freddie do not exist in isolation but in the middle of the extensive policy support for housing listed above. If somehow Fannie and Freddie were privatized, then what about the Federal Home Loan Bank System (FHLBS) and especially the FHLBS's recent initiative to offer its members a mortgage finance program -- its Mortgage Partnership Finance (MPF) program[50] -- that is somewhat similar to and competitive with (albeit much smaller than) the Fannie/Freddie purchases of mortgages? And what other adjustments in the mortgage finance system might accompany the privatization of Fannie and Freddie?

First, privatization of the FHLBS logically ought to accompany any privatization of Fannie and Freddie, for basically the same reasons (Ely 2001; Stanton 2001). Second, as Woodward (2001) points out, in the wake of a Fannie/Freddie privatization, FHA insurance would likely expand, and mortgage finance by depositories would likely expand; both would increase the federal government's contingent liabilities somewhat -- but surely not by as much as the Fannie/Freddie and FHLBS privatizations would reduce it.

Despite some offsets, the privatization of Fannie and Freddie would still make sense and would constitute an important first step toward rationalizing U.S. housing policy.[51]

A general rationalization of U.S. housing policy may well be a quixotic goal, however. Public and political sentiment shows few signs of turning away from the notion that more housing is always a good thing, even if middle- and high-income households are the primary beneficiaries. If privatization of Fannie and Freddie is not a realistic political option, then rigorous and vigorous

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the secondary market for MBS and in effectively unifying the national market for residential mortgage finance, government support is clearly no longer necessary for these activities to continue.

[50] See the Federal Home Loan Bank of Chicago's website: www.fhlbc.com.

[51] The next steps, besides privatizing the FHLBS, would be the phasing-out of the widespread tax favoritism for housing and the expansion of income support for low-income households through expansion of the earned income tax credit (EITC), so that they could expand their consumption of goods and services generally rather than restricting their benefit to the consumption of housing.

safety-and-soundness regulation must be pursued, so as to minimize the federal government's contingent liability.[52] The essential components of such regulation are the same as those that ought to be part of depositories' safety-and-soundness regulation: market value accounting; minimum risk-based capital requirements, based on market value accounting and using forward-looking stress tests; the required issuance of subordinated debt;[53] and the staged tightening of regulatory restrictions ("prompt corrective action") as the regulated entity's capital erodes. Although "the devil is in the details" (and in the enforcement), OFHEO's final risk-based regulation appears to be headed in a sensible direction. Further, the voluntary disclosure and other actions that Fannie and Freddie committed to in October 2000 should be continued:[54]

-- issue subordinated debt[55]

-- maintain adequate liquidity

-- implement and disclose a risk-based capital stress test until OFHEO's final risk-based capital regulations are implemented

-- publicly disclose interest rate risk sensitivity analyses on a monthly basis

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[52] Seiler (1999) suggests expanded "economic regulation", treating Fannie and Freddie as public utilities and possibly encompassing rate-of-return regulation. This suggestion seems extreme, especially given the poor experience that the American economy has had with much of public utility regulation, especially when competitive pressures are present; see, for example, Phillips (1975); Weiss and Klass (1981, 1986), Joskow and Rose (1989), Winston (1993), and Joskow and Noll (1994). Though privatization would be far better, effective safety-and-soundness regulation and the expansion of the FHLBSs' MPF program should go a long way toward dealing with the problems that Seiler raises.

[53] Any subordinated debt issued by the GSEs ought truly to be subordinated to the federal government's interests and ought not to be eligible to be "bailed out" by any Treasury rescue of the GSEs (Shadow Financial Regulatory Committee 2001).

[54] Further details can be found in Fannie Mae (2001a) and Freddie Mac (2001).

[55] The precept that the debt ought truly to be subordinated to the interests of the federal government should be followed.

-- publicly disclose credit risk sensitivity analyses on a quarterly basis

-- annually obtain and publicly disclose a financial rating that would indicate the "risk to the government" or independent financial strength of the companies.[56]

In a context in which Fannie and Freddie continue more-or-less as they are today (albeit more effectively regulated), what should be the fate of the FHLBS's MPF program? If it is successful, the MPF program would offer additional competition for Fannie and Freddie, which should generally be worthwhile. It may, however, represent a further expansion of the government's indirect (via GSEs) expansion into residential housing finance and an enlargement of its contingent liability. Whether it would make more difficult any future privatization is unclear. Though an expanded MPF program would add the FHLBS as an interested party in the secondary mortgage area, the privatization of the FHLBS ought to accompany any privatization of Fannie and Freddie, and an expanded MPF program does not affect this logic. But with greater competition, the rents currently earned by Fannie and Freddie would likely decline, and they might be more amenable to privatization.[57] On balance, the benefits of greater competition are more tangible, and the expansion of the MPF program, provided that it is otherwise sound, ought not to be hindered.

8. Conclusion

The roles of Fannie Mae and Freddie Mac and housing finance more generally are

[56] Both Fannie and Freddie have obtained AA- ratings from Standard & Poors. However, as is pointed out in USCBO (2001d), the S&P stress test and consequent rating assumes that the companies would continue to enjoy all of the advantages of their GSE status (except for the Treasury loan); an otherwise similarly structured firm that was not a GSE would face higher funding costs immediately and throughout the period of the stress test, which might well imply a lower rating.

[57] Expanded competition, by reducing the GSEs' rents, will make even more difficult and more painful HUD's efforts to "lean" on Fannie and Freddie to extend their purchases to targeted groups and areas.

embedded in a much larger set of housing programs and policies in the U.S. There is a legitimate goal -- expanding home ownership -- that housing programs could pursue. But they currently pursue that goal diffusely and indirectly, rather than in a targeted manner. As a direct consequence of these diffuse policies, the U.S. housing stock is inefficiently large, while the stock of other productive capital is inefficiently too small, and U.S. incomes suffer. Any proposed changes in housing finance clearly occur within the realm of the second-best.

Public policy continues to face a choice as to how Fannie and Freddie will be treated. They could continue to stay in their current unique and exclusive GSE positions, as part of the overall package of "too much is never enough" housing policies that the American polity continues to pursue. Better-focused safety-and-soundness regulation appears to be on the way, which is all to the good; the federal government's contingent liability should be reduced as much as possible. But the goal of expanding home ownership will continue to be pursued only indirectly. HUD will continue to "lean" on the two GSEs to do more for targeted groups; when the leaning starts to hurt, they will surely resist.

Or Fannie and Freddie could be privatized. The implicit costs of the contingent liability that the federal government bears would cease and should be replaced with an explicit program to help low- and moderate-income households become first-time buyers. Fannie and Freddie would be fully freed to pursue whatever strategies best fit their management structures and expertises and best serve their shareholders; a continuation of their prominent roles in secondary mortgage markets would surely be central to those strategies.

It is this latter route of privatization that should be pursued. Disentangling Fannie and Freddie from that larger framework will not be easy. But it is a task that is worth attempting.

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Table 1: Balance Sheet and MBS Data, Fannie Mae and Freddie Mac, 1980-2000
(in billions of dollars)

	Fannie Mae			Freddie Mac		
	Total assets	Retained mortgage portfolio[a]	MBSs outstanding[b]	Total assets	Retained mortgage portfolio[a]	MBSs outstanding[b]
1980	$57.9	$55.6	$0.0	$5.5	$5.0	$17.0
1985	99.1	94.1	54.6	16.6	13.5	99.9
1990	133.1	114.1	288.1	40.6	21.5	316.4
1995	316.6	252.9	513.2	137.2	107.7	459.0
2000	675.1	607.6	706.7	459.3	385.5	576.1

[a] Includes repurchased MBSs.
[b] Excludes MBSs that are held in portfolio.

Source: USOFHEO (2001a).