Reforming Fannie and Freddie: Privatization is the Way

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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' government charters, the financial markets believe that the federal government is unlikely to 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 their activities, those benefits are modest at best. Recent reforms are steps in the right direction; but privatization would be a superior policy choice.

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

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I. Introduction

Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal

Home Loan Mortgage Corporation) continue to attract special policy attention, and for good reason.

The two companies enjoy special government charters that allow them to borrow funds in the

capital markets at rates that are lower than would otherwise be the case. In turn, they cause

residential mortgage interest rates to be lower than would otherwise be the case. But they expose

the federal government to a substantial contingent liability.

Is this special position and special activity worth continuing? To answer this question,

another question should be asked: Are there market failures -- for example, externalities -- that are

of sufficient magnitude to justify the intervention? Though housing and housing finance are areas

where one can find market failures, Fannie and Freddie's activities do not address them well enough

to justify these companies' special position in today's capital markets.

Accordingly, privatization is the appropriate reform. This article will lay out the case for

privatization.

II. The Special Status of Fannie and Freddie

Fannie and Freddie are special: They are government-chartered companies ("government

 st As part of my duties as Board Member of the Federal Home Loan Bank Board, I was also a director of Freddie Mac from November 1986 through August 1989. A more detailed discussion

can be found in White (2002); see also Frame and Wall (2002a, 2002b).

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sponsored entities", or GSEs), with narrow federal mandates: to provide finance for single- and multi-family housing. But they are publicly traded companies with private shareholders. The board of directors of each includes five directors (out of eighteen) that are selected by the President of the United States.

Both are large. At year-end 2000, Fannie had \$675 billion in assets; Freddie had \$459 billion. When ranked by assets, they were the third- and fifth-largest "private" enterprises in the U.S. In addition, Fannie had outstanding \$707 billion in pass-through mortgage-backed securities (MBSs) that carry its credit guarantee; Freddie had \$576 billion of its MBSs outstanding.

As GSEs, Fannie and Freddie enjoy a number of legal advantages¹ that, together with their federal charters, create an aura of quasi-governmental specialness. As a consequence, despite specific disclaimers to the contrary,² the securities markets treat their debt securities -- directly issued debt and MBSs -- as (very likely) carrying a federal guarantee; they are often described as "agency" debt. Fannie and Freddie thereby enjoy lower financing costs than would otherwise be the case, but not quite as low as the "full faith and credit" obligations of the U.S. Government itself.

Fannie and Freddie are also subject to major limitations: (a) They are restricted to mortgage finance and cannot originate mortgages; (b) There is a maximum size of mortgage, linked to an annual index of housing prices, that they can finance; for 2002 that maximum (for single-family

¹ Fannie and Freddie are exempt from state and local taxes; their securities are exempt from the Securities and Exchange Commission's registration requirements and fees; 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 securities are explicitly government securities under the Securities Exchange Act of 1934; their securities are exempt from the provisions of many state investor protection laws; and they have had lower capital (net worth) requirements for holding residential mortgages in their portfolios than has been true for banks and thrifts.

 $^{^2}$ The prospectuses for all Fannie and Freddie securities explicitly state that they are not guaranteed by the federal government.

homes) is \$300,700;³ (c) The mortgages must have at least a 20% down payment (i.e., a maximum of an 80% loan-to-value [LTV] ratio), or a credit enhancement (such as mortgage insurance); and (d) 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 [net worth] requirements and annual examinations) by HUD's Office of Federal Housing Enterprise Oversight (OFHEO).

They participate in financing residential mortgages in two ways. First, they buy and hold mortgages in their own portfolios, funding 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 3% equity. Second, they purchase mortgages from originators, create MBSs from bundles of the mortgages, and sell the securities to investors with guarantees of timely payment of interest and principal. These are the \$707 billion and \$576 billion, respectively, of outstanding MBSs mentioned above.

Their combined presence in the mortgage markets is substantial. As of year-end 2000 their mortgages-in-portfolio plus MBSs outstanding 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;
- -- 48% of the \$4.4 billion total of all single-family conventional mortgages (which excludes FHA- and VA-insured mortgages);
- -- 60% of the \$3.5 billion total of all single-family conforming mortgages (which also excludes jumbo mortgages);
- -- 71% of the \$2.8 billion total of all fixed-rate single-family conforming mortgages (which also excludes adjustable-rate mortgages).

³ Mortgages within the maximum are described as "qualifying" or "conforming" mortgages; larger "non-conforming" mortgages are "jumbos".

III. 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 special status, Fannie and Freddie can issue debt at interest rates that are about 40 basis points less than could an otherwise similar non-GSE.⁴ 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).⁵

Historically, Fannie and Freddie have been important forces in creating a national funding market for residential mortgages and eroding local and regional differentials. Also, both were important in creating the large secondary market in residential mortgages that characterizes the U.S. today.

However, the U.S. Government has been and continues to be exposed to the contingent liability that (if the financial markets are correct in their belief) in the event that Fannie or Freddie were in financial difficulty the federal government would likely stand behind their obligations. 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

⁴ Standard & Poor's has recently rated both Fannie and Freddie as "AA-". But comparisons to other AA- rated firms may be problematic, since those other firms would not enjoy the other advantages of being a GSE noted above (USCBO 2001c).

⁵ 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 Fannie and Freddie have disputed these past and present estimates and argue that the GSEs' funding advantages are smaller and their downward effects on conforming mortgages are larger.

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.⁶ 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.⁷

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, matchfunding, issuing callable debt, etc.) their interest rate risk? how much capital (net worth) do they have for covering unexpected losses? Because of this endogeneity, OFHEO's safety-and-soundness regulation, which is akin to that which applies to depositories, is necessary to limit the federal government's exposure.

IV. The Larger Context

Any arguments for reforming Fannie and Freddie must place them in their larger context.

A. Housing policy.

Public policy in the U.S. has historically encouraged housing through many routes, including sizable tax advantages, direct and indirect subsidies, and favored institutional arrangements. The special status of Fannie and Freddie is just one among many such routes.

⁶ The two GSEs had \$1,081 billion in debt (x 40 basis points) plus \$1,283 billion in MBSs outstanding (x 30 basis points).

⁷ Stiglitz et al. (2002) argue that the likelihood of a loss to the federal government is vanishingly small. If this is true, then S&P's AA- rating is far too conservative, and the GSEs instead deserve an unqualified AAA -- and privatization would cost the companies little.

The encouragement of home *ownership* has an externality-correction basis: With home ownership, the potential moral hazard problems between landlord and tenant are internalized, including issues of maintenance of the premises. The improved maintenance that comes with home ownership has positive externalities for the community. Further, to the extent that homeowners care more about the community (because of 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 Glaeser 1999).⁸

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.

Unfortunately, instead of exhibiting a tight focus, virtually all of the policy tools that are used to encourage home ownership 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) (Rosen 1979, 1985). Further, some of the nominal encouragement is likely captured by sellers in the form of higher prices (White and White 1977). The result is a U.S. housing stock that is inefficiently large, by as much as 30% (Mills 1987a, 1987b; Hendershott 1986; Taylor 1998).

⁸ There clearly are limits, however. 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 Fannie/Freddie channel is part of this broad and blunt approach. The conforming loan limit is so high that Fannie and Freddie are able to fund mortgages that are about twice the size of an 80% LTV mortgage on the median sales-price house; only a sixth of all mortgage loans are jumbos that exceed the limit. Though HUD has "leaned" on Fannie and Freddie to focus more of their efforts on low- and moderate-income households, it is clear that the bulk of the GSEs' efforts has not been directed in this area (Brown 2001; McClure 2001; Pearce 2001; Williams 2001; Quercia et al. 1998; Wachter et al. 1996).

B. Mortgage finance.

The mortgage finance structure of today, with Fannie and Freddie at its center, is far different from that of three decades ago, when the typical mortgage was originated by a savings and loan institution and held in its portfolio, with the thrift's deposits providing the funding (White 1991; Weicher 1994). Is there a case to be made for federal chartering that can be rooted directly in the processes of mortgage finance?

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 unsophisticated 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, 2001) model of "dueling charters": 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. 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.⁹ This differential is

⁹ The GSEs' mortgages are diversified nationally, while most depositories' mortgages are geographically localized. However, it is not clear that the regulatory capital differential is necessary to compensate for this difference in geographic diversification. Few banks or thrifts have become insolvent because of local economic conditions' causing their residential mortgage portfolios to lose substantial value. Also, the federal deposit insurance fund itself is nationally diversified.

surely part of the reason for the substantial expansion during the 1990s of the GSEs' mortgages held as on-balance sheet assets¹⁰ and the substantial reductions in thrifts' holdings of mortgages. Also, depositories' regulatory capital requirements provide them with an incentive to hold 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. 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 of their assets as non-MBS single-family residential mortgage loans, substantially below the 1989 fraction. The duel is largely over.

C. Recent reforms.

The 1992 legislation that created OFHEO also established minimum core capital requirements for Fannie and Freddie and instructed OFHEO to develop a set of supplemental risk-based capital standards based on forward-looking stress tests. OFHEO was expected to complete the task within 18 months; however, its final rules were not released until July 2001 and will take effect a year later.

¹⁰ Fannie's on-balance sheet holdings of residential mortgages more than quintupled between 1990 and 2000; Freddie's holdings were *eighteen* times higher in 2000 than in 1990.

¹¹ 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.

Also, in October 2000, in response to political pressures, Fannie and Freddie announced a set of voluntary initiatives (Frame and Wall 2002a) that committed them to:

- Issue subordinated debt;
- Maintain adequate liquidity;
- Self-implement a risk-based capital standard on an interim basis;
- Enhance their disclosures of interest rate and credit risk
- Obtain and publicly disclose annual credit ratings.

The capital standards and the voluntary initiatives are welcome steps forward. However, since the positive externalities and thus true social benefits provided by Fannie and Freddie are modest at best, the better course of action would be privatization.¹²

IV. The Shape of Privatization

The privatization of Fannie and Freddie would mean the removal of their federal charters and all explicit/formal and implicit government support. In essence, they would become ordinary companies. Given their substantial brand-name reputations 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, 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. And, to the extent that the Fannie/Freddie

¹² Logically, the privatization of the Federal Home Loan Bank System, another GSE, should occur at the same time.

¹³ 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.

¹⁴ Even with all formal and informal ties broken, the financial markets might consider such large firms to be "too big too fail"; i.e., the federal government would not permit even a fully private Fannie or Freddie to fail to meet its obligations. But this issue applies to any large firm in the U.S. economy. It has been over 20 years since the last explicit "bail-out" of a major firm: the federal government's loan guarantees for Chrysler in 1981. Calomiris (2001) and Ely (2001) offer some details for a potential privatization that would deal with the too-big-to-fail problem by requiring the

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.

Without their special charters, Fannie and Freddie's roles in the (formerly) conforming mortgage segment would diminish somewhat, depending 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, subprime 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. 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. The privatized Freddie and Fannie would simply join them.

Though their special status may well have helped Fannie and Freddie in originally

divestiture of parts of the companies; but potential economies of scale and scope might well be sacrificed.

¹⁵ With privatization, the nagging controversy concerning the GSEs' 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 their 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.

establishing 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. It is time for true privatization.

References

Brown, Jonathan, "Reform of GSE Housing Goals," in Peter J. Wallison, ed., <u>Serving Two Masters</u>, <u>Yet Out of Control: Fannie Mae and Freddie Mac</u>. Washington, D.C.: AEI Press, 2001, pp. 153-165.

Calomiris, Charles W., "An Economist's Case for GSE Reform," in Peter J. Wallison, ed., <u>Serving Two Masters</u>, <u>Yet Out of Control: Fannie Mae and Freddie Mac</u>. Washington, D.C.: AEI Press, 2001, pp. 85-106.

Chen, Yehning, "Banking Panics: The Role of the First-Come, First-Served Rule and Information Externalities," <u>Journal of Political Economy</u>, 107 (October 1999), pp. 946-968.

Diamond, Douglas W. and Philip H. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity," <u>Journal of Political Economy</u>, 91 (June 1983), pp. 401-419.

DiPasquale, Denise and Edward L. Glaeser, "Incentives and Social Capital: Are Homeowners Better Citizens?" <u>Journal of Urban Economics</u>, 45 (March 1999), pp. 354-384.

Ely, Bert, "GSEs as Instruments of Federal Policy: Public Benefits and Public Costs," in Federal Reserve Bank of Chicago, The Financial Safety Net: Costs, Benefits, and Implications for Regulation, 37th Annual Conference on Bank Structure and Competition, May 11, 2001.

Frame, W. Scott and Larry D. Wall, "Fannie Mae's and Freddie Mac's Voluntary Initiatives: Lessons from Banking," <u>Economic Review</u>, Federal Reserve Bank of Atlanta, 86 (First Quarter 2002a), pp. 45-59.

Frame, W. Scott and Larry D. Wall, "Financing Housing through Government-Sponsored Enterprises," <u>Economic Review</u>, Federal Reserve Bank of Atlanta, 86 (First Quarter 2002b), pp. 29-43.

Green, Richard K. and Michelle J. White, "Measuring the Benefits of Homeowning: Effects on Children," Journal of Urban Economics, 41 (May 1997), pp. 441-461.

Hendershott, Patric H., "Tax Changes and Capital Allocation in the 1980s" in Martin Feldstein, ed., The Effects of Taxation on Capital Accumulation. Chicago: University of Chicago Press, 1987, pp.

259-290.

McCarthy, George, 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.

McClure, Kirk, "The Twin Mandates Given to the GSEs: Which Works Best, Helping Low-Income Buyers or Helping Underserved Areas?" <u>Cityscape</u>, 5 (No. 3, 2001), pp. 107-143.

Mills, Edwin S., "Has the United States Overinvested in Housing?" <u>AREUEA Journal</u>, 15 (Spring 1987a), pp. 601-616.

Mills, Edwin S., "Dividing Up the Investment Pie: Have We Overinvested in Housing?" <u>Business Review</u>, Federal Reserve Bank of Philadelphia, (March-April 1987b), pp. 13-23.

Pearce, James E., "Fannie Mae and Freddie Mac Mortgage Purchases in Low-Income and High-Minority Neighborhoods," <u>Cityscape</u>, 5 (No. 3 2001), pp. 265-316.

Postlewaite, Andrew and Xavier Vives, "Bank Runs as an Equilibrium Phenomenon," <u>Journal of Political Economy</u>, 95 (June 1987), pp. 485-491.

Quercia, Roberto G., George W. McCarthy, and Susan Wachter, "The Impacts of Affordable Lending Efforts on Homeownership Rates," Working Paper #304, Wharton School, University of Pennsylvania, June 1998.

Rohe, William M. and Michael A. Stegman, "The Impact of Homeownership on the Social and Political Involvement of Low Income People," <u>Urban Affairs Quarterly</u>, 30 (No. 1, 1994), pp. 152-174.

Rohe, William M. and Leslie S. Stewart, "Homeownership and Neighborhood Stability," Housing Policy Debate, 7 (No. 1, 1996), pp. 37-81.

Rohe, William M., 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., May 2000.

Rosen, Harvey S., "Housing Decisions and the U.S. Income Tax: An Econometric Analysis," <u>Journal of Public Economics</u>, 11 (February 1979), pp. 1-23.

Rosen, Harvey S., "Housing Subsidies: Effects on Housing Decisions, Efficiency, and Equity," in Alan J. Auerbach and Martin Feldstein, eds., <u>Handbook of Public Economics</u>, vol. 1. Amsterdam, North Holland, 1985, pp. 375-420.

Rossi, Peter H. and Eleanor Weber, "The Social Benefits of Homeownership: Empirical Evidence from National Surveys," <u>Housing Policy Debate</u>, 7 (No. 1, 1996), pp. 1-35.

Stiglitz, Joseph E., Jonathan M. Orzag, and Peter R. Orzag, "Implications of the New Fannie Mae and Freddie Mac Risk-Based Capital Standard," <u>Fannie Mae Papers</u>, 1 (March 2002).

Taylor, Lori L., "Does the United States Still Overinvest in Housing?" <u>Economic Review</u>, Federal Reserve Bank of Dallas (Second Quarter 1998), pp. 10-18.

U.S. Congressional Budget Office, "Federal Subsidies and the Housing GSEs," May 2001a.

U.S. Congressional Budget Office, "Interest Differentials between Jumbo and Conforming Mortgages, 1995-2000," May 2001b.

U.S. Congressional Budget Office, "Letter from Dan L. Crippen to Congressman Richard H. Baker," July 11, 2001c.

Van Order, Robert, "A Microeconomic Analysis of Fannie Mae and Freddie Mac," Regulation, 23 (No. 2, 2000a), pp. 27-33.

Van Order, Robert, "The U.S. Mortgage Market: A Model of Dueling Charters," <u>Journal of Housing Research</u>, 11 (No. 2, 2000b), pp. 233-255.

Van Order, Robert, "The Economics of Fannie Mae and Freddie Mac," in Peter J. Wallison, ed., Serving Two Masters, Yet Out of Control: Fannie Mae and Freddie Mac. Washington, D.C.: AEI Press, 2001, pp. 41-54.

Wachter, Susan, James Follain, Peter Linneman, Roberto G. Quercia, and George McCarthy, "Implications of Privatization: The Attainment of Social Goals," in U.S. Department of Housing and Urban Development, Studies on Privatizing Fannie Mae and Freddie Mac. Washington, D.C., 1996, pp. 337-377.

Weicher, John C., "The New Structure of the Housing Finance System," <u>Review</u>, Federal Reserve Bank of St. Louis, 76 (July/August 1994), pp. 47-65.

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

White, Lawrence J., "Focusing on Fannie and Freddie: The Dilemmas of Reforming Housing Finance," Working Paper, Department of Economics, Stern School of Business, New York University, 2002.

White, Michelle J. and Lawrence J. White, "The Subsidy to Owner-Occupied Housing: Who

Benefits?" Journal of Public Economics, 7 (February 1977), pp. 111-126.

Williams, Richard A., Eileen McConnell, and Reynold Nesiba, "The Effects of the GSEs, CRA, and Institutional Characteristics on Home Mortgage Lending to Underserved Markets," <u>Cityscape</u>, 5 (No. 3, 2001), pp. 9-106.

Woodward, Susan E., "Rechartering Fannie Mae and Freddie Mac: The Policy Issues," Working Paper, Sand Hill Econometrics, Menlo Park, Calif., 2001.