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# FRBSF WEEKLY LETTER

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## Taxpayer Risk in Mortgage Policy

In the past fifty years, the government has set up a number of financial institutions to aid in the distribution of funds to credit markets. Recently, these so-called government-sponsored enterprises (GSEs) have been under close scrutiny—in April 1991, the Congressional Budget Office and the Department of the Treasury released reports concluding that taxpayers potentially face considerable risk from the GSEs, since the obligations of the GSEs are believed by the market to enjoy implicit government backing.

We focus here on the Federal National Mortgage Association (Fannie Mae), one of the largest GSEs. Like the Federal Home Loan Mortgage Corporation and the Government National Mortgage Association, its primary purpose is to facilitate the flow of funds to mortgage markets. In this role, Fannie Mae has expanded rapidly over the past ten years. Although Fannie Mae is exposed to the type of interest rate risk and credit risk common to mortgage lending, it borrows at rates close to the Treasury's. Thus it would appear that some sort of federal backing does exist. This *Weekly Letter* evaluates the potential hazards of this guarantee and updates earlier studies that measure the extent to which Fannie Mae may be exploiting its subsidy.

### **Fannie Mae**

Fannie Mae was established in 1938 as a federal agency. In 1968 it became what is called a Government-Sponsored Private Corporation. This designation entitles the company to issue publicly traded stock and to operate in much the same way as a private corporation, yet maintain certain ties to the government.

The reason for providing agency status to federal housing credit programs originated with the belief that mortgage markets need government intervention to assist in the allocation of mortgage credit. The stated public purpose of Fannie Mae is to smooth out regional imbalances in mortgage funds, integrate local and regional markets, and increase the efficiency of the secondary

market. In theory, Fannie Mae increases housing mortgage activity and thereby lowers consumer mortgage costs.

Unlike thrifts, Fannie Mae does not originate mortgages. Instead, it provides support to the housing markets by buying mortgage loans originated by others (mostly commercial banks, mortgage banks, and thrifts). Fannie Mae's primary purchases are conventional, single-family, fixed and adjustable rate mortgages, subject to a maximum limit on the amount of each individual mortgage set by Congress. In addition, Fannie Mae sets underwriting guidelines, collateral requirements, and loan terms of the mortgages that it will acquire. Mortgage loans that meet all of the guidelines are called conforming loans.

To purchase a conforming loan Fannie Mae has a number of options. The simplest mechanism is to purchase the loan outright. The loan then becomes an asset of the Corporation and can be separately resold or pooled with other loans and sold as a new security now incorporating the Fannie Mae guarantee. However, more commonly, Fannie Mae allows lenders to exchange a pool of mortgages for a security backed by those loans. In the case of the "lender swap mortgage-backed security," the lender pays a fee and Fannie Mae, in return, guarantees the timely payment of principal and interest of the security.

In either case, Fannie Mae performs the role of a "credit-enhancer"; that is, it provides a means for investors to invest in pools of potentially risky mortgages at reduced risk to the investor. To the extent that its underwriting standards and lender fee structures appropriately price the underlying risk of the credit-enhanced mortgages, Fannie Mae can perform this function without exposing the federal government and taxpayers to risk.

### **The 1980s expansion**

In the 1980s Fannie Mae's total mortgage purchases grew rapidly, increasing by almost 200 percent between 1980 and 1990. Part of the

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increase in activity during this period can be attributed to congressional liberalization of purchase price caps. However, a more significant factor in Fannie Mae's expansion may have been the weakening of the thrift industry in the mid-1980s.

As the amount of capital in the thrift industry declined, mortgage loans increasingly came to be held outside of thrift portfolios, and originators increasingly sold their mortgages to Fannie Mae. Fannie Mae's dominance in the mortgage-backed securities market, with its implicit guarantee, also has led to lower interest rates on mortgage loans. These lower interest rates diminish the returns thrifts can earn by holding the loans in portfolios, and hence are further incentive for them to sell the mortgages. Likewise, the recent risk-based capital standards for thrifts and banks have worked to increase the volume of Fannie Mae's mortgage-backed securities. The new guidelines require lower risk-based capital for mortgage-backed securities guaranteed by government-sponsored agencies than for mortgage loans. Consequently, banks and thrifts have an incentive to hold GSE mortgage securities, rather than the mortgages themselves.

## **Does Fannie Mae exploit the government's guarantee?**

Some doubt the importance of these factors in explaining the growth of Fannie Mae and instead suspect that Fannie Mae was exploiting an under-priced government guarantee implicit in the agency status of its securities to the benefit of its shareholders. Kane and Foster (1985) attempted to estimate the value of Fannie Mae's federal guarantee between 1978 and 1985. They arrived at their estimates by marking Fannie Mae's assets and liabilities to market and then backing out the value of the guarantee from the value of its stock. From this, the authors determined that the value of the guarantee was always positive and ranged from a low of \$.6 billion in 1985 to a high of \$11.3 billion in 1981.

Schwartz and Van Order (1988) took the analysis a step further and examined the extent to which Fannie Mae was exploiting the guarantee. Using Kane and Foster's calculation of the value of the guarantee as given, they applied a variation of Merton's (1977) option pricing model to deposit insurance. The focus of Merton's model is the audit interval,  $T$ . The firm is audited every  $T$  years

and at that time if the firm's economic net worth is negative, it is shut down. Likewise, if the economic net worth is positive, the firm must change its operating policy or pay a higher insurance premium. Although Fannie Mae is not officially audited at fixed intervals and does not pay an insurance premium, Schwartz and Van Order also focus on  $T$ , which is viewed as a measure of the extent to which political pressure forces a change in operating policy. A large  $T$  implies that Fannie Mae is allowed to continue pursuing risky strategies without political interference. If Fannie Mae is not being audited at frequent intervals one would expect management to maximize the value of the firm by maximizing the value of the guarantee. Because the guarantee does not cost anything, management may have the incentive to take on as much risk as possible.

However, certain factors may limit the amount of risk that management is willing to take on, such as management's stake in the long-term survival of the company. In addition, although Fannie Mae is not audited regularly the possibility of future sanctions by regulators still exists. Thus if Fannie Mae does exploit the guarantee, it may not do so to the fullest extent possible.

The authors used their model to estimate the audit interval and to estimate the riskiness of Fannie Mae's assets. Greater volatility of the assets, which is accompanied by a larger audit interval, implies that management is taking on more risk and exploiting the guarantee. They conclude that from 1978 to 1985 the guarantee was indeed being exploited, though not to the full extent possible. The audit interval was generally one to two years and never exceeded three years.

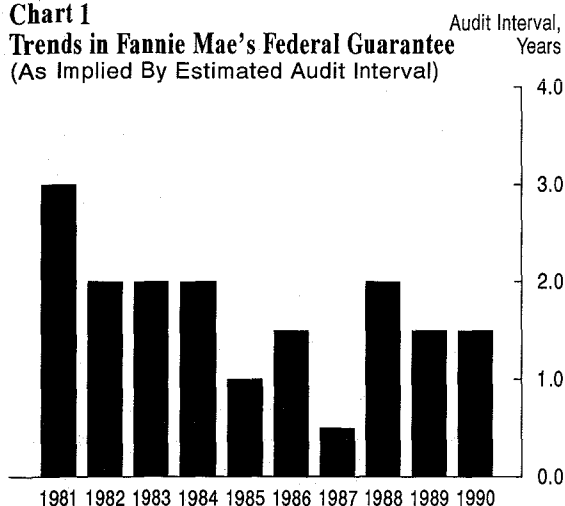
## **An update on the evidence**

Schwartz and Van Order's study only extended through 1985, but since that time Fannie Mae has been extremely profitable and has made a well-publicized effort to reduce the possibility of running into financial trouble. By strengthening its balance sheet the company has attempted to limit its exposure to interest rate risk. Furthermore, it adopted stricter loan guidelines in hopes of reducing credit risk.

We attempt to determine if these changes enacted by Fannie Mae have improved its operating procedure and limited risk enough to eliminate the federal guarantee. Using the Schwartz and Van Order model we estimated the audit interval, and hence the extent of the guarantee, for 1986 through 1990 (see Chart 1). Our results indicate that although the length of  $T$  has been reduced slightly, a federal guarantee still existed in most years. Except for 1987, when interest rates fell

precipitously after the stock market crash, T was estimated to be around one year and never more than two years. Thus, even in an interest rate environment quite favorable to Fannie Mae, evidence points to a federal guarantee that continues to be exploited to some extent.

**Chart 1**  
**Trends in Fannie Mae's Federal Guarantee**  
 (As Implied By Estimated Audit Interval)



Source: 1987 to 1985, Schwartz & Van Order; 1986 to present, authors' estimates (average of high and low).

The fact that this guarantee exists is troublesome, since it suggests that the scale of the guarantee is under the control of Fannie Mae rather than Congress or its constituents. As evidenced by the analysis, the degree of exploitation of the guarantee increased when Fannie Mae got into trouble and fell during the profitable years. During 1981 when Fannie Mae was in its worst shape, the length of the audit interval rose to about three years and the volatility of its assets jumped to its highest level. Conversely, during 1987, economic conditions allowed Fannie Mae to prosper and the value of the guarantee was close to zero.

It would appear from this behavior that Fannie Mae has a great deal of control over the amount of the subsidy it receives from the government. Because Fannie Mae does not have to pay for this subsidy and is not closely regulated, taxpayer exposure is potentially great, contained only by Fannie Mae's desire to remain viable.

#### Do we need GSEs?

A more fundamental question concerns the benefits that the public receives as an offset to this

risk-taking. Fannie Mae's role in the mortgage markets originated partially to offset cycles in financial markets. However, the markets for mortgages and other securities have changed dramatically since Fannie Mae was first conceived. In addition, regulated deposit rates in earlier periods caused exaggerated cycles of disintermediation and housing market volatility. Since the financial reforms of the 1980s, these factors are less relevant, as demonstrated empirically by Pozdena (1990).

The unsubsidized private sector likely would be able to provide adequate secondary market services. Indeed, they already do so in the market for non-conforming mortgages (that is, those mortgages that do not qualify for government agency purchase or securitization). Over \$24 billion in so-called private label mortgage-backed securities were issued in 1990, for example, up from only \$2.4 billion in 1985.

The rapid growth of these private label mortgage-backed securities in the face of their competitive disadvantage with Fannie Mae, calls into question the need for subsidized mortgage credit GSEs. That is, the private market may now be in a position to provide the benefits of a liquid secondary market in mortgages without the attendant taxpayer risk of the current institutional arrangements.

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Index to Recent Issues of *FRBSF Weekly Letter*

DATE	NUMBER	TITLE	AUTHOR
5/31	(91-22)	Ending Inflation	Judd/Motley
6/7	(91-23)	Using Consumption to Forecast Income	Trehan
6/14	91-24	Free Trade with Mexico?	Moreno
7/5	91-25	Is the Prime Rate Too High?	Furlong
7/19	91-26	Consumer Confidence and the Outlook for Consumer Spending	Throop
7/26	91-27	Real Estate Loan Problems in the West	Zimmerman
8/16	91-28	Aerospace Downturn	Sherwood-Call
8/30	91-29	Public Preferences and Inflation	Walsh
9/6	91-30	Bank Branching and Portfolio Diversification	Laderman/Schmidt/ Zimmerman
9/13	91-31	The Gulf War and the U.S. Economy	Throop
9/20	91-32	The Negative Effects of Lender Liability	Hermalin
9/27	91-33	M2 and the Business Cycle	Furlong/Judd
10/4	91-34	International Output Comparisons	Glick
10/11	91-35	Is Banking Really Prone to Panics?	Pozdena
10/18	91-36	Deposit Insurance: Recapitalize or Reform?	Levonian
10/25	91-37	Earnings Plummet at Western Banks	Zimmerman
11/1	91-38	Bank Stock Risk and Return	Neuberger
11/8	91-39	The False Hope of the Narrow Bank	Pozdena
11/15	91-40	The Regional Concentration of Recessions	Cromwell
11/22	91-41	Real Wages in the 1980s	Trehan
11/29	91-42	Solving the Mystery of High Credit Card Rates	Pozdena
12/13	91-43	The Independence of Central Banks	Kim

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