

RESEARCH PAPER

FRANCHISE VALUE, OWNERSHIP STRUCTURE, AND
RISK AT SAVINGS INSTITUTIONS

by Elijah Brewer III and Marc R. Saidenberg

Federal Reserve Bank of New York
Research Paper #9632



**FEDERAL RESERVE
BANK OF NEW YORK**

Franchise Value, Ownership Structure, and Risk at Savings Institutions

Elijah Brewer III^a

Federal Reserve Bank of Chicago
230 South LaSalle Street
Chicago, Ill 60690

Marc R. Saidenberg

Federal Reserve Bank of New York
33 Liberty Street
New York, NY 10045

Current Version: September 1996

Abstract

This paper examines the relationship between asset risk and franchise values and between asset risk and ownership structure. Stock price data from publicly traded S&Ls is used to measure portfolio risk and franchise or charter values. The empirical results provide support for the moral hazard hypothesis. The standard deviation of equity returns is negatively related to S&L franchise values, as measured by the market-to-book asset ratio. This research also finds empirical support for models of managerial entrenchment in the thrift industry. We find evidence of a nonlinear relationship between risk and insider control. The standard deviation of equity returns initially falls then rises as ownership is concentrated in the hands of officers and directors.

^a We thank Rebecca Demsetz and Philip Strahan for helpful comments. The opinions expressed do not necessarily reflect those of the Federal Reserve Bank of Chicago, the Federal Reserve Bank of New York or the Federal Reserve System.

Franchise Value, Ownership Structure, and Risk at Savings Institutions

Elijah Brewer III^a

Federal Reserve Bank of Chicago
230 South LaSalle Street
Chicago, Ill 60690

Marc R. Saidenberg

Federal Reserve Bank of New York
33 Liberty Street
New York, NY 10045

Current Version: September 1996

Abstract

This paper examines the relationship between asset risk and franchise values and between asset risk and ownership structure. Stock price data from publicly traded S&Ls is used to measure portfolio risk and franchise or charter values. The empirical results provide support for the moral hazard hypothesis. The standard deviation of equity returns is negatively related to S&L franchise values, as measured by the market-to-book asset ratio. This research also finds empirical support for models of managerial entrenchment in the thrift industry. We find evidence of a nonlinear relationship between risk and insider control. The standard deviation of equity returns initially falls then rises as ownership is concentrated in the hands of officers and directors.

^a We thank Rebecca Demsetz and Philip Strahan for helpful comments. The opinions expressed do not necessarily reflect those of the Federal Reserve Bank of Chicago, the Federal Reserve Bank of New York or the Federal Reserve System.

I. Introduction

Economic theory predicts that the moral hazard problem presented by fixed price deposit insurance encourages financial intermediaries to take excessive risks. This paper investigates two non-regulatory forces mitigating risk taking by S&Ls, franchise value and agency conflicts.

Merton (1977) argues that the government deposit guarantee can be viewed as a put option for banks on the government. Marcus (1984), Keeley (1990), and Chan, Thakor, and Greenbaum (1992) refine this point by showing the marginal incentive to take risk increases as franchise values fall. Following the deregulation of the banking and thrift industries and the subsequent rise in bank and S&L failures, economists looked for empirical evidence of excessive risk taking and the moral hazard problem with mixed results. Following Merton's lead, Marcus and Shaked (1984), Ronn and Verma (1986), and Pennacchi (1987) estimate the option value of deposit insurance at banks. These authors do not find evidence of excessive risk taking at bank holding companies. They find that banks do not fully maximize the value of fixed price deposit insurance. They argue that the value of the put option is less than its price at many banks.

In an alternative approach, Brewer (1995), and Brewer and Mondeschean (1994) use stock price data to look for evidence of excessive risk taking by S&Ls. Brewer examines how S&Ls' stock returns respond to changes in asset mix. With fixed price deposit insurance, increases in asset risk and financial leverage should lead to increases in the expected return on equity. In contrast to Marcus and Shaked and others, Brewer finds support for the moral

hazard hypothesis in S&Ls. Brewer and Mondeschean find further evidence of excessive risk taking by S&Ls. They find that as S&Ls increase their holdings of junk bonds, equity risk increases and the market value of poorly capitalized thrifts increases as well.

Keeley (1990), Saidenberg (1995) and Demsetz, Saidenberg and Strahan (1996) present further support for the moral hazard hypothesis. This research examines the portfolio composition of banks and S&Ls, and finds that proxies for market power and information rents are negatively related to portfolio risk. Banks with higher charter value due to market power or information rents hold safer assets.

Like Keeley and Demsetz, Saidenberg and Strahan, this research looks for evidence of the moral hazard problem by examining the relationship between franchise values and risk, but this research focuses on a sample of publicly traded S&Ls. This paper tests for excessive risk taking by examining the relationship between asset risk and franchise values, and between asset risk and ownership structure. Stock price data from publicly traded S&Ls measure portfolio risk and franchise values. The market-to-book asset ratio reflects the capitalized value of S&L charters, and the standard deviation of equity returns provides a measure of asset risk.

Using these parameters, the empirical results provide support for the excessive risk-taking hypothesis in contrast to Marcus and Shaked, Ronn and Verma, and others. The standard deviation of equity returns is negatively related to S&L franchise values. S&Ls with larger franchise values hold safer portfolios, while S&Ls with lower franchise values hold riskier assets to maximize the option value of deposit insurance.

This paper also examines the role of owner-manager agency conflicts in S&Ls' portfolio decisions. Owner-manager agency conflicts become more severe as managers become more entrenched and insulated from stockholder discipline. Entrenched S&L managers may act in a risk-averse manner to protect private benefits. The relationship between risk and ownership structure depends on two factors working in opposite directions. Insiders, managers and directors, may act in a risk-averse manner to protect private benefits. As insider holdings rise, however, their interests become more aligned with those of outside shareholders. The first factor has a negative effect on risk while the second factor has a positive effect on risk. We find empirical support for models of managerial entrenchment in this sample of publicly traded thrifts. There is evidence of a nonlinear relationship between risk and insider control. The standard deviation of equity returns initially falls then rises as ownership is concentrated in the hands of officers and directors.

The remainder of this paper is organized as follows, section 2 uses stock price data to construct measures of asset risk and franchise values. Section 3 examines the relationship between risk and franchise value, as measured by the market-to-book asset ratio, for a sample of publicly trade thrifts. Section 4 focuses on agency problems and examines the relationship between risk and ownership structure. Section 5 contains a summary and conclusions.

II. Measuring Risk and Franchise Value

To test for excessive risk taking and the relationship between portfolio risk and S&L franchise values, we need to measure risk and franchise values. Stock price data from publicly traded thrifts can be used to construct measures of both portfolio risk and franchise value.

Measuring Portfolio Risk

Stock price data is used to construct a measure of S&L portfolio risk. Equation 1 relates the risk of S&L equity returns, as measured by the standard deviation of daily equity returns, σ_E , to the risk of S&L assets, as measured by the standard deviation of asset returns, σ_A .

$$\sigma_E = \sigma_A [(\partial E / \partial A)(A/E)] \quad (1)$$

where, σ_E is the standard deviation of equity returns; σ_A is the standard deviation of asset returns; and $(\partial E / \partial A)(A/E)$ is the elasticity of the market value of equity with respect to the value of total assets. Equation 1 shows that the standard deviation of equity returns depends on the risk of a bank's underlying assets, the change in the market value of equity with respect to a change in total assets, and the asset-to-capital ratio. σ_E will be positively related to the risk of the underlying asset and negatively related to the capital ratio.

Measuring Franchise Values

Stock price data from publicly traded S&Ls is also used to construct a proxy for franchise value. Tobin's q will reflect the franchise values of S&Ls. Q is the market value of the bank's assets (the market value of equity plus debt) divided by the book value of tangible

assets (TAP capital plus debt). The capitalized value of the franchise will be reflected in the market value of assets but not in the book value. Q will also reflect the capitalized value of a firm-specific efficiency enhancing factor of production such as private information. S&Ls with larger franchise values due to monopoly or information rents should have larger market-to-book asset ratios.

$$q_{it} = (\text{Market Value of Equity} + \text{Debt}) / (\text{TAP Capital} + \text{Debt}) \quad (2)$$

Equation 2, the market-to-book asset ratio, estimates franchise values as a share of total assets.

III. Franchise Value and Risk

This section tests for excessive risk taking at S&Ls by examining the relationship between risk and franchise values, as measured by the market-to-book asset ratio. The presence of fixed-rate deposit insurance encourages excessive risk taking. The incentive to take risk should increase as franchise values decline. Previously, this approach has been applied to commercial banks. Keeley (1990) examines the relationship between market power and risk at large bank holding companies. He looks at the effects of market power, as measured by the market-to-book asset ratio, on two measures of bank default risk: capital-to-asset ratios (net worth) and the interest cost of large certificates of deposit. Using a sample of 85 large bank holding companies covering 16 years, Keeley finds a significant negative

relationship between charter values and risk. This relationship can, in large part, be explained by changes in market power and bank risk over time. Deregulation eroded barriers to entry, eroding banks' market power. Bank capital ratios also steadily declined through the period.

This section follows Keeley's methodology and uses stock price data from publicly traded S&Ls, instead of banks, to test the relationship between portfolio risk, as measured by the standard deviation of equity returns, and franchise values, as reflected in the market-to-book asset ratio.

Data and Empirical Specification

The data used in this paper are for 100 savings institution (S&L and savings bank) holding companies whose stock were traded on the New York Stock Exchange, American Stock Exchange, or Over the Counter and that filed Federal Home Loan Bank Board (FHLBB) Report of Condition data for each quarter over the January 1985-December 1989 sample period. For the few S&Ls resolved by thrift regulators before the end of the sample period, the data set includes the sample period for the quarters before resolution. Stock market data are from Interactive Data Services, Inc. For multiple S&L holding companies, the assets and liabilities of individual subsidiaries were summed in constructing the balance sheet variables used in the regression equations.

Equity returns over a quarter are calculated by compounding daily common stock returns within a quarter. Estimates of the standard deviation of equity returns (α_E) were computed for each quarter of the sample period using data covering the three month period ending with the last month of the quarter. The market value of common stock is calculated by

multiplying the number of shares outstanding at the end of each quarter by the price of the S&L's common stock at the end of the quarter. The market-to-book asset ratio is calculated from the market value of equity, and the book value of total liabilities and TAP capital.

Table 1 contains descriptive summary statistics for savings institutions in the sample. The table includes estimates of the means and standard deviations of the standard deviation of equity returns, the market-to-book asset ratio, and the other independent variables. The sample period covers 20 quarters from 1985:1 to 1989:4. The appendix presents a complete list of firms in the sample. Although these stock charted institutions are not necessarily representative of all S&Ls, the firms in the sample hold more than 70% of the assets of all publicly traded S&Ls and more than one third of the assets of all thrifts as of 1988.

Equation 3 is estimated for the pooled cross-section, time series sample of savings institutions from 1985:2 to 1989:4 to test the relationship between portfolio risk, as measured by the standard deviation of equity returns, and franchise value. The equation estimated can be represented as

$$\text{risk}_{it} = X_{it}\alpha_1 + q_{it-1}\alpha_2 + \epsilon_{it} \quad (3)$$

where, risk_{it} is the standard deviation of equity returns for firm i in period t ; q_{it-1} is the market-to-book asset ratio for firm i in period $t-1$; X_{it} is a vector of control variables for firm i in period t ; α_2 is the effect of franchise value on risk; α_1 is a vector of coefficients; and ϵ_{it} is a random error term. The vector of controls, X_{it} , consists of controls for size, leverage and.

X_{it} also includes cross-sectional dummy variables and time dummy variables to control for possible correlation across institutions and across time.

Empirical Results

Results from estimating equation 3 using ordinary least squares with and without firm fixed effects are reported in table 2. The results show a significant negative relationship between the standard deviation of equity returns and the market-to-book asset ratio. The coefficient on Tobin's q is negative and significant at the 1% level. These results are consistent with the moral hazard hypothesis and support the theory that S&Ls with larger franchise values hold safer assets in their portfolios. As predicted by equation 2, the estimated coefficient on the capital ratio is negative, showing the effect of financial leverage on the standard deviation of equity returns. Highly leveraged S&Ls, those with low capital ratios, exhibit greater equity return variance.

One problem, however, with measuring franchise values this way is that the capitalized value of deposit insurance will also be reflected in the market-to-book assets. This may bias the coefficient on q upwards in these regressions of equity risk on franchise values. Despite this bias, however, this regression finds a significant negative relationship between risk and the market-to-book asset ratio. S&Ls with higher franchise values from monopoly or information rents appear to hold safer assets in their portfolios. S&Ls with smaller franchise values appear to hold riskier assets maximizing the option value of deposit insurance. These findings strongly support the moral hazard hypothesis and are consistent with the Keeley's findings for bank holding companies.

The results also show a significant negative relationship between the standard deviation of equity returns and S&Ls' size. The coefficient on total assets is negative and significant. In a fixed effects model the variation in total assets is primarily from within firm variation in size. This variation represents growth within firms. The results suggest that asset growth is negatively correlated with equity risk. This empirical relationship between asset growth and risk is counter to the conventional wisdom that links high growth to riskier activities. This result is discussed further in section 4 in conjunction with the model without firm fixed effects.

IV. Corporate Control

The previous section tested for excessive risk taking by examining the relationship between franchise values and risk. In contrast, this section tests for excessive risk taking by addressing corporate control and by examining the relationship between risk and ownership structure.

Profit maximization and the moral hazard hypothesis assume shareholders make lending decisions. However, S&L managers may have different objectives than outside shareholders. Managers' decisions may, in fact, conflict with decisions outsiders shareholders would like them to make. For example, if managers have built up a stock of bank-specific human capital, they may act in a risk-averse rather than value-maximizing manner. These managers may choose safer assets to protect private benefits. If managers have a sufficient ownership stake in the firm, then their incentives will be aligned with outside shareholders. These agency

problems have been widely studied in non-financial firms. These studies find managers avoiding risk to protect private benefits.¹

Saunders, Strock, and Travlos (1990) extend this research to financial firms and examine the relationship between risk taking and ownership structure in banks. They argue that stockholder controlled banks will hold riskier portfolios than managerially controlled banks. Saunders, Strock, and Travlos use the proportion of stock held by bank managers (insiders) to measure stockholder control. As the proportion of insider holdings rise, managers' incentives become more aligned with those of outside shareholders. In testing a linear relationship between ownership structure and risk, Saunders, Strock, and Travlos find a significant positive relationship between insider holdings and bank risk.

The Saunders, Strock, and Travlos approach assumes that the only effect of increasing insider holdings is to align insider and outsider incentives. It also assumes that the insiders' private benefits are predominantly in the form of bank-specific human capital. This approach, therefore, ignores the possible effect of insider holdings on the cost of disciplining managers or on the entrenchment of managers and directors.

Gorton and Rosen (1992) examine the relationship between risk and ownership structure in large bank holding companies. They develop a model of managerial entrenchment for financial intermediaries. They argue that in "unhealthy" industries, risk avoidance may not be sufficient to protect private benefits, and that "bad" managers take excessive risk to

¹ See for example Shleifer and Vishny (1989) and Jensen and Meckling (1976).

convince shareholders they are "good." Gorton and Rosen predict a nonlinear relationship between insider holdings and risk. If insider holdings are sufficiently high then managers' incentives will be aligned with outsiders. They use insider holdings to measure entrenchment. Gorton and Rosen find a non-linear relationship between insider holdings and risk that, they argue, is consistent with their model of entrenchment but not with a model of moral hazard. They find that initially risk increases as insider holdings rise but eventually falls as insiders' incentives are more aligned with outsiders. In contrast to most models of banks with access to insured deposits, their model assumes that in an "unhealthy" industry stockholders prefer safe assets.

Interpreting the evidence on the relationship between risk and ownership structure is difficult as Saunders, Strock, and Travlos use insider holdings to measure stockholder control, while Gorton and Rosen use insider holdings to measure entrenchment as well. Saunders, Strock, and Travlos assume the private benefits are primarily human capital while Gorton and Rosen focus on the cost of replacing managers using insider holdings to measure entrenchment.

In contrast to these studies that focus on banks, this section examines the relationship between risk and ownership structure in S&Ls. This relationship depends on two factors working in opposite directions. Insiders may act in a risk-averse manner to protect private benefits. As insider holdings rise, however, their interests become more aligned with outside shareholders. The first factor has a negative effect on risk while the second factor has a positive effect on risk. Morck, Shleifer, and Vishny (1988) argue that, a priori, predicting which factor will dominate at any level of insider holdings is not possible. We use the

holdings of insiders (officers and directors), and outsiders (non insiders with at least 5% of outstanding shares) to look for evidence of managerial entrenchment and also excessive risk taking. We also examine the relationship between risk and large block holdings (insiders and outsiders with more than 5%), another measure of stockholder control. The moral hazard hypothesis predicts that shareholder controlled S&Ls will hold riskier assets than managerially controlled S&Ls.

It should be noted, however, that Demsetz and Lehn (1985) offer an alternative interpretation of the relationship between risk and ownership structure. They suggest that ownership structure is endogenous -- that the degree of risk to which a firm is exposed is one factor that determines the ownership structure that it will have. They argue that firms operating in a high-risk environment may require a greater concentration of ownership since managerial behavior may be harder to monitor and control. We agree with the validity of this interpretation in comparing the ownership structure of firms in different industries. Within the thrift industry, however, we believe that variation in risk taking is properly viewed as endogenous, depending on S&Ls' choices of leverage and asset risk -- choices which are under management control.

Data and Empirical Specification

The data on the ownership structure of savings institutions are constructed from 10K SEC filings and from proxy statements. Some data were obtained from Kaplan & Smith's Thrift Securities Handbook (1988). Usable data were found for 88 of the 100 savings institutions in the sample. These reports list all shareholders with at least 5% of the outstanding stock and the holdings of officers and directors. To calculate the holdings of

outside shareholders (with at least 5%) the holdings of insiders were subtracted. Insider holdings are the shares held by officers and directors of the savings institutions. Included in the holdings of insiders are all family shares beneficially owned by insiders and also all outstanding options to purchase shares. For shares held by families of insiders that are counted as insider holdings, the last name was used to identify families. Excluded from the holdings of both insiders and outsiders is the stock of a holding company held by subsidiaries or stock of the S&L that it holds itself. Ownership data are a cross-section from the fourth quarter of 1988. In some cases the dates of the proxy fillings differ from the 10K filing. In cases where data are unavailable for 1988:4, the nearest filing was used. A check of earlier periods shows relatively little change in ownership structure over time. Outsider and insider holdings are reported as shares of outstanding common stock.

The means and standard deviations of insider and outsider holdings are reported in table 3. The means and standard deviation of large block holdings, the sum of all shareholders, insiders and outsiders, with at least 5%, are also included.

Equation 4 is estimated for the pooled cross-section, time series sample of savings institutions from 1985:2 to 1989:4 to test the relationship between portfolio risk, as measured by the standard deviation of equity returns, ownership structure, and franchise value. The equation estimated can be represented as

$$\text{risk}_{it} = X_{2it}\beta_1 + q_{it-1}\beta_2 + X_{3it}\beta_3 + \epsilon_{2it} \quad (4)$$

where, risk_{it} is the standard deviation of equity returns for firm i in period t ; $q_{i,t-1}$ is the market-to-book asset ratio for firm i in period $t-1$; x_i is a vector of corporate controls for firm i ; X_{2it} is a vector of control variables for firm i in period t ; β_2 is the effect of franchise value on risk; β_3 is the effect of ownership structure on risk; β_1 is a vector of coefficients; and ϵ_{2it} is a random error terms. The vector of controls, X_{2it} , consists of controls for size, and leverage. X_{2it} also includes time dummy variables to control for correlation across time.

Empirical Results

Results from estimating equation 4 are reported in table 4. Controlling for ownership structure, the results show a significant negative relationship between the standard deviation of equity returns and the lagged market-to-book asset ratio. In each model specification the coefficient on Tobin's q is negative and significant at the 1% level. The panel data capture variation in q over time and cross-sectional differences in franchise values. These findings are, again, consistent with the moral hazard hypothesis and support the theory that S&Ls with larger franchise values hold safer assets in their portfolios. The estimated coefficient on the capital ratio is, again, negative.

Consistent with the results from section 3, these results also show a significant negative relationship between asset size and the standard deviation of equity returns. The coefficient on the log of total assets is negative and significant at the 1% level. In these models without firm-fixed effects the variation in total assets is primarily from cross-sectional differences in firm size. As predicted by portfolio theory, large S&Ls enjoy the benefits of diversification and exhibit less variation in equity returns.

These regressions also provide interesting empirical evidence on the relationship between ownership structure and risk. The first column of table 4 reports the results from testing a nonlinear relationship between insider ownership and risk similar to Gorton and Rosen. In contrast to Gorton and Rosen's findings, there is strong evidence of a U-shaped relationship between insider ownership and the standard deviation of equity returns with risk initially decreasing and then increasing as insider holdings rise. The coefficient on insider ownership is negative and significant at the 10% level and the coefficient on the quadratic term is positive and significant at the 5% level. The inflection point comes at approximately 30% insider holdings. This result is consistent with Morck et al (1988) who find a turning point around 25%. At low levels of insider holdings the negative effect of entrenchment on risk appears to dominate. At higher levels of insider ownership the positive effect of the alignment of managers and equity holders incentives dominates.²

The second and third columns report the results from testing the relationship between risk and ownership structure when measures of outsider stockholder control are introduced. In the second column outsider control is measured as the sum of all shareholders with at least 5% of outstanding shares who are not insiders. The estimated coefficient on large outsider holdings is positive but not statistically significant. In the third column a dummy variable for the presence of at least one large outside stock holder is included. The estimated coefficient on

² These specifications are estimated without firm fixed effects because we use a cross-section of ownership structure data. We try to control for possible cross-section time-series effects by also estimating a random effects model. The results reported in Table 4 are qualitatively similar with this alternative specification.

the dummy variable is, surprisingly, negative and statistically significant. In this sample there is inconclusive evidence that outsiders are able exert control over managers.

The third column reports the results from testing a linear relationship between risk and large block holdings. Large block holdings are the total holdings of all shareholders, insiders and outsiders, with at least 5% of outstanding shares. Block holdings can be thought of as a measure of concentrated stockholder control. The results show a positive but not statistically significant relationship between the standard deviation of equity returns and large block holdings.

We find empirical support for both models of managerial entrenchment and moral hazard in this sample of publicly traded thrifts. As insider holdings increase, risk decreases as managers become entrenched. Shareholders do not seem able to discipline managers effectively. Eventually insider holdings are sufficiently high that managers become owners and the incentives of managers and shareholders become more aligned.

V. Conclusion

This paper examines the relationship between asset risk and franchise values and between asset risk and ownership structure. Stock price data from publicly traded S&Ls is used to measure portfolio risk and franchise or charter values. The empirical results provide support for the moral hazard hypothesis. The standard deviation of equity returns appears to be negatively related to S&L franchise values, as measured by the market-to-book asset ratio. S&Ls with larger franchise values hold safer portfolios. S&Ls with lower franchise values

hold riskier assets to maximize the option value of deposit insurance. This research also finds empirical support for models of managerial entrenchment in the thrift industry. We find evidence of a nonlinear relationship between risk and insider control. The standard deviation of equity returns initially falls then rises as ownership is concentrated in the hands of officers and directors.

References

- Brewer, Elijah, III. 1995. "The Impact of Deposit Insurance on S&L Shareholders' Risk/Return Trade-offs," *Journal of Financial Services Research*, 9: 65-89.
- , and Thomas H. Mondeschean. 1994. "An Empirical Test of the Incentive Effects of Deposit Insurance: The Case of Junk Bonds at Savings and Loan Associations," *Journal of Money, Credit, and Banking*, 26: 146-64..
- Chan, Yuk-Shee, Stuart I., Greenbaum, and Anjan V. 1992. Thakor, "Is Fairly Priced Deposit Insurance Possible?" *Journal of Finance*, 47(1): 227-245.
- Demsetz, Harold and Kenneth Lehn. 1985. "The Structure of Corporate Ownership: Causes and Consequences," *Journal of Political Economy* 93: 1155-77
- Demsetz, Rebecca S., Marc R. Sainenberg, and Philip E. Strahan. 1996. "Banks with Something to Lose: The Disciplinary role of Franchise Value," *Economic Policy Review*, Federal Reserve Bank of New York, forthcoming.
- Gorton, Gary and Richard Rosen. 1995. "Corporate Control, Portfolio Choice, and the Decline of Banking," *Journal of Finance* 50, no. 5: 1377-1420.
- Jensen, Michael C., and William H. Meckling 1976. "The Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics*, 3: 305-360.
- Kaplan Smith & Associates. 1988. *Thrift Securities Handbook*.
- Keeley, Michael C. 1990. "Deposit Insurance, Risk, and Market Power in Banking," *American Economic Review*, 80(5): 1183-1200.
- Marcus, Alan J. 1984. "Deregulation and Bank Financial Policy," *Journal of Banking and Finance*, 8: 557-565.
- , and Israel Shaked. 1984. "The Valuation of FDIC Deposit Insurance Using Option-pricing Estimates," *Journal of Money, Credit and Banking*: 446-459.
- Merton, Robert C. 1977. "An Analytic Derivation of the Cost of Deposit Insurance and Loan Guarantees," *Journal of Banking and Finance*, 1: 3-11.

- Morck, Randall, Andrei Shleifer, and Robert Vishny. 1988. "Management Ownership and Market Valuation: An Empirical Analysis," *Journal of Financial Economics*, 20: 293-316.
- Pennacchi, George G. 1987. "A Reexamination of the Over-(or Under-) Pricing of Deposit Insurance," *Journal of Money, Credit and Banking*: 340-360.
- Ronn, Ehud I., and Avinash K. Verma. 1986. "Pricing Risk-Adjusted Deposit Insurance: An Options Based Model," *Journal of Finance*, 41: 871-895.
- Saunders, Anthony, Elizabeth Strock, and Nicholas Travlos. 1990. "Ownership Structure, Deregulation, and Bank Risk Taking," *Journal of Finance*, 26(2): 643-654.
- Saidenberg, Marc R. 1995. "Why Weren't There More S&L Failures?" unpublished Ph.D. dissertation, University of California at Berkeley.
- Shleifer, Andrei and Robert Vishny. 1989. "Management Entrenchment: The Case of Manager-Specific Investments," *Journal of Financial Economics*, 25: 123-139.

Table 1
Summary Statistics^a

	Mean	Standard Deviation
Total Assets (in millions)	4273.40	6193.51
TAP Capital Ratio (%)	3.155	4.375
Market-to-Book Asset Ratio	1.013	0.084
Return on Equity (%)	-0.110	1.486
Standard Deviation of Equity Returns (%)	3.403	2.940

^a Based on pooled 1985-89 data. Sample size varies over time. There is a total of 1746 observations.

Table 2

Regressions of The Standard Deviation of Equity Returns on The Lagged Market-to-Book Asset Ratio, and Controls. Pooled Quarterly Data From 1985:2 to 1989:4. Standard Errors in Parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent level respectively.

	OLS with Firm and Time Fixed Effects ^a	OLS with Time Fixed Effects ^b
Market-to-Book Asset Ratio (q)	-9.707*** (1.929)	-2.409*** (0.795)
TAP Capital Ratio	-0.217 (0.024)	-0.229*** (0.015)
Log of Total Assets	-3.552*** (0.500)	-0.658*** (0.055)
R ²	0.445	0.222
N	1746	1746

^a The coefficients on the cross-sectional and time dummy variables are omitted.

^b The coefficients on the time dummy variables are omitted.

Table 3
Ownership Structure Summary Statistics.

	Mean	Standard Deviation	Minimum	Maximum
Insider Holdings	17.83	19.03	0.00	90.1
Large Outsider Holdings	16.69	18.37	0.00	100.00
Large Block Holdings	26.69	23.89	0.00	100.00

Table 4

Regressions of The Standard Deviation of Equity Returns on The Lagged Market-to-Book Asset Ratio, Ownership Shares, and Controls. Pooled Quarterly Data From 1985:2 to 1989:4. Standard Errors in Parentheses. ***, **, * indicate statistical significance at the 1, 5, and 10 percent level respectively.

	(1)	(2)	(3)	(4)
	OLS with Time Fixed Effects ^a	OLS with Time Fixed Effects ^a	OLS with Time Fixed Effects ^a	OLS with Time Fixed Effects ^a
Market-to-Book Asset Ratio (q)	-8.279*** (1.807)	-8.271*** (1.821)	-8.926*** (1.819)	-8.342*** (1.816)
TAP Capital Ratio	-0.236*** (0.016)	-0.236*** (0.016)	-0.244*** (0.016)	-0.233*** (0.016)
Log of Total Assets	-0.641*** (0.053)	-0.640*** (0.053)	-0.664*** (0.053)	-0.601*** (0.048)
Insider Holdings	-0.0177* (0.0101)	-0.0177* (0.0105)	-0.0197* (0.0101)	
(Insider Holdings) ²	0.00029** (0.00014)	0.00029** (0.00014)	0.00030** (0.00014)	
Large Outsider Holdings		0.00011 (0.0031)		
Outsider Dummy Variable			-0.318*** (0.117)	
Large Block Holdings				0.0026 (0.0023)
R ²	0.282	0.282	0.285	0.281
N	1583	1583	1583	1583

^a The coefficients on the time dummy variables are omitted.

Appendix

Name: (1988:1)	Total Assets (millions)	TAP Capital Ratio (%)
Ahmanson & Co. (H. F.)	31,707.68	3.63
Altus Bank FSB	2,669.92	0.07
American Century Corporation	872.99	-1.99
American Continental Corporation	4,567.23	3.41
American Savings and Loan Association of Florida	3,071.35	4.76
Ameriwest Financial Corporation	2,121.38	1.89
Amfed Financial Corporation	833.00	3.27
Atlantic Financial Federal	7,319.15	-1.51
Nafco Financial Goup Inc. ^b	1,574.65	3.19
Bankatlantic a Federal Savings Bank	1,967.45	3.24
Bankers First Corporation	1256.25	3.52
Boston Five Bancorp	2,294.02	5.74
Broadview Savings Bank	1,886.52	-0.81
Buckeye Financial Corporation	1,173.45	0.52
CFS Financial Corporation	1,066.19	5.57
Calfed Inc.	22,890.14	2.05
Carteret Bancorp Delaware	5,964.21	-0.38
Centrust Savings Bank	8,589.03	-0.17
Charter Federal Savings Bank, Virginia	923.03	-0.38
Citadel Holding Corporation	3,927.09	3.98
Citizens Savings Financial Corporation	3,123.17	4.04
Cityfed Financial Corporation	10,706.69	0.27
Coast Federal Savings and Loan Association	1,182.70	2.45
Coast Savings and Loan Association	11,694.35	1.50
Collective Federal Savings Bank	2,030.61	5.15
Columbia First Federal Savings Bank	981.70	2.07
Columbia Savings and Loan Association	10,497.18	5.99

Name	Total Assets	Capital Ratio
Comfed Bancorp Inc.	1,575.99	2.01
Commonwealth Savings and Loan Association ^b	1,609.34	1.68
Continental Federal Savings and Loan	695.33	1.01
Crossland Savings, FSB	14,600.98	4.06
Cypress Savings Association ^b	210.47	-0.41
D & N Financial Corporation	2,093.30	2.85
Dime Savings Bank of New York, FSB	11,011.55	6.02
Downey Savings and Loan Association	3,137.71	5.73
Far West Financial Corporation	3,902.02	2.43
Financial Corporation America ^b	30,592.93	-3.89
Financial Corporation of Santa Barbara	4,889.31	0.66
Financial Security Savings and Loan Association ^{a,b}	223.45	-0.11
First Columbia Financial Corporation ^b	3,129.55	-2.22
First Federal Savings and Loan Association Austin ^b	992.03	-3.11
First Federal Michigan Detroit	11,585.06	3.32
First Federal Savings and Loan Association of Fort Meyers	852.85	7.77
First Indiana Corporation	1,069.52	4.51
First Western Financial Corporation	1,305.92	1.65
Firstcorp Inc.	763.50	5.74
Florida Federal Savings and Loan Association	5,292.65	1.83
Fortune Financial Group Inc.	3,021.41	3.07
Frontier Savings Assocation	355.21	2.38
Germania Bank, A Federal Savings Bank	784.23	1.71
Gibraltar Financial Corporation	14,679.26	0.46
Glenfed Inc.	22,403.69	1.81
Golden West Financial	13,750.96	3.11
Great American First Savings Bank	15,889.95	3.29
Great Lakes Bancorp, FSB	3,136.18	1.01
Great Southern Federal Savings Bank	1,001.24	-1.58

Name	Total Assets	Capital Ratio
Great Western Financial Corporation	27,857.86	4.33
Great Western Savings Bank ^{a,b}	748.99	6.91
Hawthorne Financial Corporation	910.68	6.25
Heart Federal Savings and Loan Association	733.20	7.16
Home Federal Savings Bank of Georgia	310.50	6.30
Home Federal Corporation	197.75	8.08
Home Federal Savings and Loan Association of Meridian ^b	82.74	8.38
Home Owners Federal Savings and Loan Association	3,487.72	2.15
Home Federal Savings and Loan	14,873.96	5.17
Homestead Financial Corporation	5,618.26	0.33
Imperial Corporation America	10,948.84	1.51
Investors Savings Richmond, Virginia	2,015.45	2.68
Landmark Savings Association	1,712.86	0.06
Landmark LD Inc.	1,410.30	54.89
Local Federal Savings and Loan Association	819.00	6.29
Mercury Savings and Loan Association	2,389.30	0.87
Metropolitan Financial Corporation	2,321.80	2.98
Metropolitan Federal Savings and Loan Association	1,195.94	6.77
Mid-State Federal Savings and Loan Association	1,049.33	4.01
North Carolin Federal Savings and Loan Association	668.13	0.98
Northeast Savings, FA	7,569.27	1.00
Numerica Financial Corporation	1,097.12	6.23
Old Stone Corporation	4,288.47	4.18
Pacific First Financial Corporation	4,678.03	4.03
Pioneer Savings Bank	2,112.51	-1.96
Pioneer Federal Savings and Loan Association	545.70	7.66
Ponce Federal Bank, FSB	1,134.13	6.73
Poughkeepsie Savings Bank, FSB	1,517.26	6.02
Progressive Savings and Loan Association ^{a,b}	485.39	-0.37

Name	Total Assets	Capital Ratio
Prudential Financial Services	826.04	6.21
Savers Inc. ^a	951.85	-13.71
Security Capital Corporation	2,515.40	-2.38
Sooner Federal Savings and Loan Association	1,908.41	1.71
Southeastern Savings Bank	490.48	4.84
Southmark Corporation	3,061.47	4.36
Transcapital Financial Corporation	6,185.47	2.04
Valley Federal Savings and Loan Association	3,275.80	3.13
Virginia First Savings Bank, FSB	470.92	4.76
Washington Federal Savings and Loan Association	1,901.60	10.43
Wesco Financial Corporation ^b	360.91	16.00
Western Capital Investment Corporation	3,599.16	7.55
Western Federal Savings Bank of Puerto Rico	559.45	6.83
Western Savings and Loan Association	6,424.61	0.77
York Financial Corporation	710.76	4.81

^a 1987:1

^b Ownership structure data unavailable.

**FEDERAL RESERVE BANK OF NEW YORK
RESEARCH PAPERS
1996**

The following papers were written by economists at the Federal Reserve Bank of New York either alone or in collaboration with outside economists. Single copies of up to six papers are available upon request from the Public Information Department, Federal Reserve Bank of New York, 33 Liberty Street, New York, NY 10045-0001 (212) 720-6134.

- 9601. Bartolini, Leonardo, and Gordon M. Bodnar. "Are Exchange Rates Excessively Volatile? And What Does 'Excessively Volatile' Mean, Anyway?" January 1996.
- 9602. Lopez, Jose A. "Exchange Rate Cointegration Across Central Bank Regime Shifts." January 1996.
- 9603. Wenninger, John, and Daniel Orlow. "Consumer Payments Over Open Computer Networks." March 1996.
- 9604. Groshen, Erica L. "American Employer Salary Surveys and Labor Economics Research: Issues and Contributions." March 1996.
- 9605. Uctum, Merih. "European Integration and Asymmetry in the EMS." April 1996.
- 9606. de Kock, Gabriel S. P., and Tanya E. Ghaleb. "Has the Cost of Fighting Inflation Fallen?" April 1996.
- 9607. de Kock, Gabriel S. P., and Tania Nadal-Vicens. "Capacity Utilization-Inflation Linkages: A Cross-Country Analysis." April 1996.
- 9608. Cantor, Richard, and Frank Packer. "Determinants and Impacts of Sovereign Credit Ratings." April 1996.
- 9609. Estrella, Arturo, and Frederic S. Mishkin. "Predicting U.S. Recessions: Financial Variables as Leading Indicators." May 1996.
- 9610. Antzoulatos, Angelos A. "Capital Flows and Current Account Deficits in the 1990s: Why Did Latin American and East Asian Countries Respond Differently?" May 1996.

9611. Locke, Peter R., Asani Sarkar, and Lifan Wu. "Did the Good Guys Lose? Heterogeneous Traders and Regulatory Restrictions on Dual Trading." May 1996.
9612. Locke, Peter R., and Asani Sarkar. "Volatility and Liquidity in Futures Markets." May 1996.
9613. Gong, Frank F., and Eli M. Remolona. "Two Factors Along the Yield Curve." June 1996.
9614. Harris, Ethan S., and Clara Vega. "What Do Chain Store Sales Tell Us About Consumer Spending?" June 1996.
9615. Uctum, Merih, and Michael Wickens. "Debt and Deficit Ceilings, and Sustainability of Fiscal Policies: An Intertemporal Analysis." June 1996.
9616. Uctum, Merih, and Michael Aglietta. "Europe and the Maastricht Challenge." June 1996.
9617. Laster, David, Paul Bennett, and In Sun Geoum. "Rational Bias in Macroeconomic Forecasts." July 1996.
9618. Mahoney, James M., Chamu Sundaramurthy, and Joseph T. Mahoney. "The Effects of Corporate Antitakeover Provisions on Long-Term Investment: Empirical Evidence." July 1996.
9619. Gong, Frank F., and Eli M. Remolona. "A Three-Factor Econometric Model of the U.S. Term Structure." July 1996.
9620. Nolle, Daniel E., and Rama Seth. "Do Banks Follow Their Customers Abroad?" July 1996.
9621. McCarthy, Jonathan, and Charles Steindel. "The Relative Importance of National and Regional Factors in the New York Metropolitan Economy." July 1996.
9622. Peristiani, S., P. Bennett, G. Monsen, R. Peach, and J. Raiff. "Effects of Household Creditworthiness on Mortgage Refinancings." August 1996.
9623. Peristiani, Stavros. "Do Mergers Improve the X-Efficiency and Scale Efficiency of U.S. Banks? Evidence from the 1980s." August 1996.
9624. Ludvigson, Sydney. "Consumption and Credit: A Model of Time-Varying Liquidity Constraints." August 1996.

9625. Ludvigson, Sydney. "The Channel of Monetary Transmission to Demand: Evidence from the Market for Automobile Credit." August 1996.
9626. Sobol, Dorothy M. "Central and Eastern Europe: Financial Markets and Private Capital Flows." August 1996.
9627. Evans, Joan, and James M. Mahoney. "The Effects of Daily Price Limits on Cotton Futures and Options Trading." August 1996.
9628. Molyneux, Philip, and Rama Seth. "Foreign Banks, Profits and Commercial Credit Extension in the United States." August 1996.
9629. Cantor, Richard, and Robert Driskill. "Can a Fiscal Contraction Strengthen a Currency? Some Doubts About Conventional Mundell-Fleming Results." August 1996.
9630. Jayaratne, Jith, and Philip E. Strahan. "Entry Restrictions, Industry Evolution and Dynamic Efficiency: Evidence from Commercial Banking." August 1996.
9631. Dziwura, Joseph R., and Eric M. Green. "Interest Rate Expectations and the Shape of the Yield Curve." September 1996.

To obtain more information about the Bank's RESEARCH PAPERS series and other publications, visit the Federal Reserve Bank of New York's site on the World Wide Web (<http://www.ny.frb.org>). From the research publications page, you can view abstracts of RESEARCH PAPERS and STAFF REPORTS and order the full-length, hard-copy versions of them electronically. Interested readers can also view and download articles from CURRENT ISSUES IN ECONOMICS AND FINANCE and the ECONOMIC POLICY REVIEW.