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The Impact of Deposit Insurance on S&L Shareholders' Risk/Return Trade-offs

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This paper tests the hypothesis that deposit insurance has distorted risk/return trade-offs for financially distressed savings and loan associations (S&Ls). When deposit insurance is underpriced, increases in the riskiness of the asset portfolio and growth in liabilities should lead to increases in expected return on common stock. In particular, changes in asset components which increase the volatility of an institution's portfolio should lead the stock market to upwardly revalue S&L equity. This hypothesis is examined using data for the July 1984-December 1987 period. Increases in commercial mortgage loans, acquisition and development loans, direct investments, and nonmortgage loans appear to cause higher return for shareholders of higher-risk S&Ls. Similar increases appear to have little impact on the common stock returns of lower-risk S&Ls.

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Despite the widespread belief that under priced deposit insurance provides incentive for insured institutions to increase the value of shareholder equity by investing in assets that shift risk onto the deposit insurer, little, if any, empirical evidence has been presented to test this hypothesis. This paper tests this hypothesis by examining the impact of changes in balance sheet composition on savings and loan association (S&L) common stock returns. We find, among other things, that the common stock returns of high-risk S&Ls respond favorably to increases in commercial mortgage loans, acquisition and development loans and nonmortgage assets, while those of other S&Ls do not. This suggests that high-risk S&Ls have used these assets to increase the volatility of the asset portfolio, in turn raising the value of deposit insurance and the value of shareholders' equity.

Since the early 1980's, most S&Ls have been allowed to engage in nonmortgage activities. Consumer lending, business lending, and direct investment authority are examples of expanded asset powers granted to S&Ls. Many of the new asset powers were granted because they are thought to have less interest-rate risk than the traditional long-term fixed-rate mortgage loans.

Research on the effects of deregulation of S&Ls has drawn considerable interest in recent years. Much empirical research has focused on attempting to either predict or evaluate the effects of deregulation on S&Ls' riskiness (e.g., Benston [7]; Benston and Koehn [5]; FHLBB [11]).[1] In the presence of an effective deposit insurance system with early closure such studies would be only of academic interest. However, experience has shown that deposit insurance tends to be associated with delayed closure.[2] Because of this delay, access to underpriced deposit insurance has advantages and distressed financial institutions quite rationally attempt to exploit those advantages.

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Benston and Koehn [4] investigate the differential portfolio behavior of low-capital and high-capital S&Ls. They find that nonmortgage assets held by S&Ls with low-capital were associated with higher risk as measured by the standard deviation of stock returns, while nonmortgage assets held by S&Ls with high-capital were not. They and others suggest that low-capital S&Ls tend to increase the value of shareholders' common equity by gambling some of the institutions' assets on investments with large but less likely payoffs and a correspondingly high variance.[3] To a S&L close to failure, such a gamble is worth taking because the gamble can only increase the expected value of the common stock. In other words, there is no downside risk to shareholders. Should the bet fail, the shareholders are no worse off by the gamble. Should the bet pay off, the equity holders stand to gain.

This paper tests the hypothesis that financially distressed S&Ls increase the value of shareholders' equity by investing in assets that shift risk onto the deposit insurance. Section 1 discusses the impact of nonmortgage assets on S&L common stock returns. Section 2 presents a model of changes in a S&L's market value. Section 3 discusses the data and methodology. The empirical results are presented in section 4. The final section contains a summary of our findings.

The Impact of Asset-Mix on S&L Common Stock Returns

The effect of asset-mix investments on S&L common stock returns depends on what investments are permitted, what assets S&Ls invest in, how mix with other assets, and how the investments are managed. Allowing S&Ls to invest in nonmortgage assets changes the efficient risk/return frontier available to the S&L. The exact shape of the new frontier depends both on what investments are permitted and how S&Ls' managers choose to operate these investments. The Depository Institutions Deregulation and Monetary Control Act of 1980 allows S&Ls to engage, among other things, in business and consumer lending. Commercial mortgage lending was restricted to 20 percent of assets, as were the combined aggregate holdings of consumer loans, commercial paper, and debt securities.[4] Additional product-line deregulations were provided in the Garn-St Germain Depository Institutions Act of 1982. In particular, the 1982 act relaxed the quantitative restrictions on commercial mortgage loans from 20 percent to 40 percent and broadened the array of permissible investments to include time and savings deposits of other S&Ls and, most importantly, business loans. In May 1983, the now defunct Federal Home Loan Bank Board (FHLBB) permitted federal S&Ls to invest up to 11

percent of assets in junk bonds. During the same period, many state governments enacted statutes that broadened asset powers for their state-chartered S&Ls even more. State-chartered S&Ls were permitted by several states to invest considerable amounts directly in real estate, corporate equities, and subsidiary service corporations. These direct investments have been blamed by the FHLBB for the losses incurred by the Federal Savings and Loan Insurance Corporation (FSLIC). And as a result, Congress, in the Financial Institutions Reform, Recovery and Enforcement Act of 1989, restricts the ability of S&Ls to make and hold nonmortgage assets and requires S&Ls to raise the level of housing and housing-related loans in their portfolio to 70 percent from the previous 60 percent level.

Table 1 examines, as of December 31, 1988, the portfolio composition of S&Ls nationwide and each of six states (California, Florida, Illinois, Louisiana, Oklahoma, and Texas) that have accounted for the largest share of the total cost of all failure resolutions from 1980 through 1988.[5] In the table, S&Ls are divided into three groups: (1) S&Ls with negative book equity according to generally accepted accounting principles (GAAP); (2) low-capital (that is, positive net worth below 6 percent of assets); and (3) well-capitalized S&Ls (with net worth above 6 percent of assets).

The table shows that there is a substantial variation among states in percentage of assets devoted to direct investments. Moreover, it tends to be the insolvent firms that engage most prominently in these activities. Both nationwide and in all 6 states, insolvent S&Ls held more direct investments than solvent institutions. At the same time, insolvent S&Ls also held a smaller proportion of their assets in mortgages (Oklahoma is an exception). From these limited data, insolvent S&Ls appear to hold more of what the FHLBB considered to be risky assets than the rest of the industry. However, this analysis does not permit us to determine the direction of causation, as the data provide information only on the outcomes of S&L decisions.

A change in asset composition, with or without underpriced deposit insurance, may lead to an increase in expected return on equity. Underpriced federal deposit insurance, however, gives S&Ls an advantage in holding risky assets and can, in some instances, create incentives for excessive risk-taking.

Since many depositors funds are insured, depositors do not have any incentive to impose discipline on the use of their funds. The institutions, therefore, can use these deposits to engage in riskier activities than would otherwise be possible. Studies by Merton [19] and Buser, Chen and Kane [9] show that

providing deposit guarantees at less than their market value provides banks with a subsidy. The value of this subsidy equals the difference between the cost of risky and riskless (guaranteed) deposit claims less the premium charged for insurance. Access to future deposit guarantees, under these circumstances, is an asset of the bank. The value of this asset is equal to the present value of the stream of subsidies the bank or S&L expects to receive. Therefore, expansion into riskier activities may enhance S&L value because risk-taking is subsidized.

We would, therefore, expect that financially distressed S&Ls to seek out riskier investments to increase the possibility of a large payoff. These S&Ls are likely to select or invent new combinations of mortgage and nonmortgage assets that are risk-increasing. In selecting new combinations of mortgage and nonmortgage assets, S&Ls may provide information on the risk profile of their asset portfolio. If the market perceived these combinations as riskier, then the value of the option to repurchase the assets will increase along with the value of common stock and the expected return on common stock. This paper examines the relationship between common stock returns and changes in asset composition and growth in liabilities to test whether the market responds in a positive way to riskier activities for the more risky relative to less risky institutions.

Modelling Changes in Market Value

The primary hypothesis examined in this paper is that changes in S&L involvement in nonmortgage activities significantly influence S&L common stock returns. The approach used to test this hypothesis is to model changes in the market value of equity.

The market value of an S&L equity reflects the value of its net portfolio holdings and access to underpriced deposit insurance (see Unal and Kane [20]). That is,

$$M_{j,t} = A^*_{j,t} - L^*_{j,t} + DI_{j,t} \qquad (1)$$

where $M_{j,t}$ is the market-value net worth of the jth S&L in period t; $A_{j,t}^*$ is the market value of assets of the jth S&L in period t; $L_{j,t}^*$ is the market-value of liabilities of the jth S&L in period t; and $DI_{j,t}$ is the value of access to deposit insurance.

The market's valuation of the assets recorded on each S&L's book varies over time as interest rates change and credit risk waxes or wanes. We express the market valuation of the jth S&L assets at time period t as proportionate to the book value,

$$A^*_{j,t} = a_{j,t} A_{j,t} \tag{2}$$

where $a_{j,t}$ is an appropriate mark-up or mark-down factor applied to the book value reported by the jth S&L.

For the jth S&L, liabilities at time t+1 is

$$L^*_{j,t+1} = L_{j,t}(1 + r^L_t) \tag{3}$$

where r_t^L is the rate paid on liabilities in time period t.

For the jth S&L, the market value of net worth at time t+1 is

$$M_{j,t+1} = (1 + r^A_t)A^*_{j,t} - (1 + r^L_t)L^*_{j,t} + \Delta S_{j,t} - DIV_{j,t+1} + DI_{j,t+1} \tag{4}$$

where $DIV_{j,t+1}$ is dividend paid by the jth S&L to shareholders in period t+1; r_t^A is the market rate of return on asset portfolio in time period t; and $\Delta S_{j,t}$ is new equity raised through flotation of shares during time period t.

The change in the market value of net worth is,

$$M_{j,t+1} - M_{j,t} = \Delta M_{j,t} = [r^A_t A^*_{j,t} - r^L_t L^*_{j,t} + \Delta S_{j,t} - DIV_{j,t+1} + \Delta DI_{j,t}] \tag{5}$$

Dividing both sides of (5) by $M_{j,t}$ and rearranging results in

$$R_{j,t} = \frac{1}{M_{j,t}} [r^A_t A^*_{j,t} - r^L_t L^*_{j,t} + \Delta S_{j,t} + \Delta DI_{j,t}] \tag{6}$$

where $R_{j,t}$ is the rate of return on the common stock.

We know that deposit insurance can be viewed as an European Put option [19]. Hence,

$$DI_{j,t}=f(\frac{A^*_{j,t}}{L^*_{j,t}},\sigma^A_{j,t})\,M_{j,t}\geq 0 \tag{7}$$

where $\sigma_{j,t}{}^A$ is the standard deviation of the rate of return on the asset portfolio; and f(.) has the property that $f_1 < 0$ and $f_2 > 0$.[6]

Hence,

$$\frac{\Delta DI_{j,t}}{M_{j,t}}=[f_1\Delta\left(\frac{A^*}{L^*}\right)_{j,t}+f_2\Delta\sigma^A_{j,t}]\frac{A^*_{j,t}}{M_{j,t}}. \tag{8}$$

Substituting (8) into (6) and rearranging results in

$$R_{j,t}=\frac{1}{M_{j,t}}[r^A_t A^*_{j,t}-r^L_t L^*_{j,t}+\Delta S_{j,t}]+[f_1\Delta\left(\frac{A^*}{L^*}\right)_{j,t}+f_2\Delta\sigma^A_{j,t}]\frac{A^*_{j,t}}{M_{j,t}}. \tag{9}$$

The $\Delta[A^*/L^*]_{j,t}$ variable can be decomposed into the following terms

$$\Delta\left(\frac{A^*}{L^*}\right)_{j,t}=\frac{A^*_{j,t+1}}{L^*_{j,t+1}}-\frac{A^*_{j,t}}{L^*_{j,t}}. \tag{10}$$

Let

$$L^*_{j,t+1}=(1+g_{j,t})L^*_{j,t} \tag{11}$$

where $g_{j,t}$ is the growth rate of liabilities in time period t. Then

$$\Delta\left(\frac{A^*}{L^*}\right)_{j,t}=\frac{(1+r^A_t)A^*_{j,t}+g_{j,t}L^*_{j,t}+\Delta S_{j,t}}{L^*_{j,t+1}}-\frac{A^*_{j,t}(1+g_{j,t})}{L^*_t(1+g_{j,t})}. \tag{12}$$

Assuming $\Delta S_{j,t} = 0$, we can rearrange these terms to get

$$\Delta\left(\frac{A^*}{L^*}\right)_{j,t} = \frac{r_t^A A_{j,t}^*}{L_{j,t+1}^*} - [1 - \frac{A_{j,t}^*}{L_{j,t}^*}]\frac{g_{j,t}}{(1+g_{j,t})}. \tag{13}$$

Now $\sigma_{j,t}{}^A$ can be approximated by

$$\sigma_{j,t}^A = \sum_i \frac{A_{j,t}^*(i)}{A_{j,t}^*}\sigma^i \tag{14}$$

where $A_{j,t}{}^*(i)$ is the holdings of the ith asset at time t of the jth S&L; and σ^i is the standard deviation of the rate of return on the ith asset.

A linear approximation of the $\Delta\sigma_t{}^A$ can be written as

$$\Delta\sigma_{j,t}^A = \sum_i \Delta\left(\frac{A_{j,t}^*(i)}{A_{j,t}^*}\right)\sigma^i. \tag{15}$$

Substituting (13) and (15) into (9) we get

$$R_{j,t} = r_t^A[1 + f_1\frac{A_{j,t}^*}{L_{j,t+1}^*}]\frac{A_{j,t}^*}{M_{j,t}} - r_t^L\frac{L_{j,t}^*}{M_{j,t}} + \frac{\Delta S_{j,t}}{M_{j,t}}$$

$$+ f_1[1 - \frac{A_{j,t}^*}{L_{j,t}^*}]\left[\frac{g_{j,t}}{(1+g_{j,t})}\right]\left[\frac{A_{j,t}^*}{M_{j,t}}\right] + f_2\sum_i \Delta\left(\frac{A_{j,t}^*(i)}{M_{j,t}}\right)\sigma^i. \tag{16}$$

Equation (16) suggests that four factors affect the stock returns of an insured institution: the return on existing assets, $r_t{}^A$; the rate on liabilities, $r_t{}^L$, valued as a riskless instrument; the growth rate of liabilities; and the change in asset volatility due to changes in asset composition. For low-risk S&Ls, f_1 and f_2 will be near zero because deposit insurance is presumably a relatively unimportant source of value. This implies that the impact of liability growth and changes in asset composition will be different for high- and low-risk S&Ls. How stock returns change with liability growth rate depends on

whether the S&L is economically solvent. Flannery [13] has noted that when a firm's capital is positive, faster growth means lower capitalization. Lower capitalization will lead to a rise in the value of access to deposit insurance. And as a result, this should generate higher stock returns. For insolvent firms, however, Flannery's simulation experiments showed that faster growth initially generates high capital ratios because the dollar amount by which the market value of liabilities initially exceed the market value of assets becomes decreasingly significant. We would, therefore, expect that the growth rate of liabilities to have a positive impact on the stock returns of low-risk S&Ls and a negative impact on the stock returns of higher-risk S&Ls. The variables used to operationalize the factors affect S&L stock returns are discussed below.

The Independent Variables

Since S&Ls invest primarily in mortgages, we assume that the primary factor affecting the market's valuation of an S&L's assets is changes in the market value of mortgages. The holding period returns associated with long-term U.S. government bonds, obtained from Standard and Poor's weekly bond index (RTBOND), are used to measure changes in the market value of mortgages. The returns on a stock market index, RMKT, is included in the equation to control for systematic marketwide fluctuations on the common stock returns of individual S&Ls.

The other important factors affecting common stock returns are associated with changes in the value of deposit insurance. Two affects must be taken into account: the impact of the growth in liabilities, $g_{j,t}$, on the subsidy per dollar of equity and changes in volatility, $\sigma_{j,t}{}^{A}$, on the subsidy per dollar of equity. The growth rate of liabilities is captured by the variable LIBGROW. LIBGROW should capture the impact of increased leverage on the value of deposit insurance and shareholders' common stock returns and is expected to have a positive sign. The impact of changes in volatility is captured less directly.

Conceptually, if a S&L holds a portfolio of mortgage and nonmortgage assets of different risks/returns, then, as the relative investment in the different assets changes, the volatility of the S&L's asset returns must change. The precise behavior of volatility as a function of the asset mix will depend on the relative riskiness of the different asset categories; changes in asset mix can either increase or decrease common stock returns. Two potentially important sources of influence of S&L's asset volatility are the ratio of the change in

direct investments to market value of common stock (DDIRECT) and the ratio of the change in nonmortgage loans to market value of common stock (DNONMORT). Changes in the relative investment in these different assets will change S&L common stock returns. The change in other assets divided by the market value of common stock (DOASSET) is included in the equation to control for other asset categories that may influence S&L common stock returns. The other asset category, net of contra-assets, includes (1) foreclosed real estate and real estate held in judgement; (2) office, furniture, and equipment (3) investment securities (including junk bonds); and (4) all other asset categories.

Two mortgage asset categories are also employed: traditional fixed-rate mortgages and adjustable-rate mortgages. We would expect that returns on direct investments and nonmortgage loans would be more volatile than fixed- and adjustable-rate mortgages. Thus over the course of, say, a quarter changes in portfolio composition away from traditional assets toward higher risk nontraditional assets should lead to an increase in asset volatility and an one time positive return to shareholders. This effect will only be important for those institutions for whom deposit insurance is an important balance sheet component.

Changes in the following asset portfolio items are employed: fixed-rate mortgages (DFRM); adjustable-rate mortgages (DARM); direct investments (DDIRECT); nonmortgage loans (DNONMORT); and other assets (DOASSET).

The resulting empirical equation is,

$$R_{j,t} = \beta_0 + \beta_1 RMKT_t + \beta_2 RTBOND_t + \alpha_1 LIBGROW_{j,t} + \alpha_2 DFRM_{j,t}$$
$$+ \alpha_3 DARM_{j,t} + \alpha_4 DDIRECT_{j,t} + \alpha_5 DNONMORT_{j,t}$$
$$+ \alpha_6 DOASSET_{j,t} + \omega_{j,t} \qquad (17)$$

where $\omega_{j,t}$ is a stochastic error term. Estimation of equation (17) allows us to investigate the equity market response to risky activities.

Much of the concern about S&L nonmortgage activity deregulation has to do with high-risk S&Ls gambling some of the institutions' assets on investments with large but likely payoffs. In order to examine this issue, the S&Ls in this

study are ranked according to their risk-of-failure. Risk-of-failure is measured as the sum of one plus the mean return on common stock divided by the standard deviation of the rate of return on common stock. Intuitively, the risk-of-failure is an estimate of the number of standard deviations below the mean that the return on common stock would have to fall so as to render equity negative. Negative equity is one common definition of failure. High probability of failure is associated with high standard deviation of common stock returns, low mean returns, and low capitalization ratios.

The sample of S&Ls was ordered by risk-of-failure and divided into three groups: high-risk, medium-risk, and low-risk.[7] The high-risk category includes the first forty percent of S&Ls that had the highest risk-of-failure values. The medium-risk category includes the next twenty percent of S&Ls that had the highest risk-of-failure values. The low-risk category is comprised of the remaining forty percent of S&Ls in the sample.

Data and Methodology

The data used in this paper are for 63 S&Ls whose stock was traded on the New York Stock Exchange, American Stock Exchange, or Over the Counter and which filed FHLBB *Report of Condition* data for each quarter over the July 1984-December 1987 sample period. Stock market data are from Interactive Data Services, Inc. For multiple S&L holding companies, the assets of individual S&L subsidiaries were summed in constructing the balance sheet variables discussed below.[8]

Table 2 shows the total assets for each of the 63 S&Ls at year-end 1987. Of the 63 S&Ls in the sample, 18 had total assets of more than $5 billion. There were 26 S&Ls with total assets between $1-5 billion. The remaining 19 S&Ls had total assets less than $1 billion. At the end of 1987, the 63 S&Ls had $303 billion in total assets. Expressed as a percentage of the industry's asset total, sample S&Ls constitute about 31 percent.

Common stock returns over a quarter were calculated by averaging weekly common stock returns. The returns are dividend-unadjusted.[9] The holding period return on long-term U. S. government bonds is used to measure changes in the market value of mortgages. The stock market portfolio employed in this study is the S&P500 market index.

The liability variable (LIBGROW) is estimated as the quarter to quarter percent change in total S&L liabilities. The fixed-rate mortgage loans-to-capital ratio (DARM) was computed by taking the change in fixed-rate mortgage loans and dividing by total market value of common stock. 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. An S&L's involvement with direct investments (DDIRECT) is measured by the ratio of the change in direct investments to S&L market value of common stock. Direct investments include equity securities (except Federal Home Loan Bank Stock), real estate investments, and investments in service corporations or subsidiaries. The nonmortgage loan ratio (DNONMORT) is the change in the sum of total business and consumer loans divided by S&L market value of common stock.[10] The other asset ratio (DOASSET) is the change in other assets not elsewhere classified divided by S&L market value of common stock.[11] The sample period covers 14 quarters beginning in 1984:3 and ending in 1987:4. The samples of high- and low-risk S&Ls are each represented by 26 associations with a pooled cross-sectional time-series data of 364 observations. The medium-risk group of S&Ls is comprised of 12 associations with a combined 154 observations. Table 3 depicts the mean portfolio composition of selected variables over the sample period by risk category. The table also presents the differences between high- and low-risk S&Ls in the means for each of the variables and the corresponding t-statistics of the differences. High-risk S&Ls have more adjustable-rate mortgage loans, commercial mortgage loans, acquisition and development loans, and deposit plus Federal Home Loan Bank advances than low-risk S&Ls. Low-risk S&Ls have more residential mortgage loans and nonmortgage loans.

Our methodology involves first stacking the equations for the three risk classes of S&Ls and estimating the relation between S&L stock returns and the balance sheet variables. Next, we examine only the differential response of high- and low-risk S&Ls. In this stage the medium-risk group is eliminated because it serves as a buffer to allow an S&L to shift out of high (low)-risk without being immediately reclassified as low (high)-risk.

The first step in analyzing the valuation effects of nonmortgage assets is to estimate the following model (see Table 4)

$$\begin{bmatrix} R_H \\ R_M \\ R_L \end{bmatrix} = \beta_0 + \beta_1 RMKT + \beta_2 RTBOND$$

$$+ \begin{bmatrix} A_H & A_M & A_L \end{bmatrix} \begin{bmatrix} Z_H & 0 & 0 \\ 0 & Z_M & 0 \\ 0 & 0 & Z_L \end{bmatrix} + \varepsilon \qquad (18)$$

where Z_H, Z_M, and Z_L are the vectors of balance sheet variables for high-risk, medium-risk, and low-risk S&Ls, respectively; A_H, A_M, and A_L are coefficient vectors for the three risk classes; and ε is an error term.

Empirical Results

The results of the estimation of equation (18) using ordinary least squares (OLS) regression are shown in Table 5. The estimated values of the parameters represent their cross-sectional average values.[12]

The results in Table 5 indicate that both the returns on the stock market index and the holding period returns on long-term U.S. government bonds are statistically significant in explaining S&L common stock returns. For every 100 basis point change in stock market returns, S&L common stock returns will change, on average, 133 basis points. For every 100 basis point change in holding period returns, S&L common stock returns will change, on average, 57 basis points.

The liability growth rate term has the expected effect on common stock returns of S&Ls. This variable is negative and significant for high-risk S&Ls and positive for medium- and low-risk S&Ls but is only significantly different from zero for the medium-risk group.[13] The stock market responds unfavorably to rapid growth at high-risk S&Ls because growth generates higher market capitalization. However, the stock market responds favorably to rapid growth in liabilities at medium- and low-risk S&Ls.

For high-risk S&Ls, common stock returns increase significantly with growth in direct investments (DDIRECT), nonmortgage assets (DNONMORT), and other assets (DOASSET). None of the balance sheet variables have a statistically significant impact on the common stock returns of medium- and

low-risk S&Ls. In this regression equation, the positive and statistically significant coefficients on DDIRECT, DNONMORT, and DOASSET and the insignificant coefficients on mortgage assets suggest that shifts in S&L investment strategies from traditional low-risk to nontraditional high-risk activities enhance returns to equity holders of high-risk S&Ls. Table 6 tests for differences in coefficients between DFRM and DDIRECT, DNONMORT, DOASSET, and DARM. With the exception of DARM, the high-risk S&L coefficients on DDIRECT, DNONMORT, and DOASSET are all significantly greater than that on DFRM, implying that the stock market reacts favorably to shifts in those firm's investment strategy from low-risk to high-risk assets.

The separate empirical results for high- and low-risk S&Ls are presented in Table 7. Zellner's [21] seemingly unrelated regression techniques are used to estimate these equations. The results show that the stock market risk sensitivity of high-risk S&Ls is fifty percent more than that of low-risk S&Ls. The coefficient difference is statistically significant at the 0.01 level. Evidently, the stock market perceived that high-risk S&Ls are more exposed to marketwide movements than low-risk associations. The interest rate sensitivity coefficient of high-risk S&Ls is twenty percent less than that of low-risk associations. This coefficient difference is not statistically significant, however. Also, noteworthy is the fact the $\bar{R}^2$ is lower for high-risk S&Ls than low-risk S&Ls, suggesting that nonsystematic risk is higher.

The relationships between S&L common stock returns and fixed- and adjustable-rate mortgages, direct investments, nonmortgage assets, and other assets are consistent with those reported in Table 5. In particular, the stock market reacts favorably to increases in DDIRECT, DNONMORT, and DOASSET of high-risk S&Ls.[14] The low-risk S&L results reported in Table 7 show little evidence of a statistically significant association between nonmortgage activities and common stock returns. The liability growth rate term is not significantly different from zero for both high- and low-risk S&Ls.

Tests were conducted for each group of S&Ls to examine the differences in the coefficients between DFRM and DDIRECT, DNONMORT, and DOASSET. These tests are reported in Table 8. The results indicate that the coefficients of DDIRECT, DNONMORT, DOASSET are significantly greater than the coefficient of DFRM for the high-risk S&Ls.

Two additional tests were conducted. The first examines whether one-period lagged changes in balance sheet variables have any additional informational content that is not already captured by current changes in the variables. The

empirical results indicate that none of the lagged terms have a statistically significant positive impact on high-risk S&L common stock returns (The null hypothesis that coefficients are all equal to zero cannot be rejected [$F_{6,349}$ = 1.2133]).[15] This result suggests that current variables capture "pure" announcement effects on S&L stock returns. The second set of tests examines whether GAAP net worth insolvent high-risk institutions have coefficients different than those for solvent high-risk S&Ls.[16] The null hypothesis that coefficients are equal for the two groups can be rejected at the 0.01 level ($F_{6,349}$ =3.8930).

Alternative Decomposition of the Mortgage Portfolio

In this section, we employ an alternative decomposition of the mortgage portfolio. In particular, the mortgage portfolio is divided into four categories: residential mortgage loans (RMORT), commercial mortgage loans (CMORT), acquisition and development loans (ADL), and other mortgage assets (OMORT) which include multifamily mortgage loans and mortgage-backed securities. During the early 1980s S&Ls were given broader powers to hold commercial mortgage loans. If S&Ls altered the composition of their mortgage assets (moving, for example, from residential mortgage loans to commercial mortgage loans), this may have a similar favorable impact on S&L stock returns as shifts from traditional mortgage loans to nontraditional nonmortgage assets. We would expect that returns on commercial mortgage loans and acquisition and development loans would be more volatile than the returns on residential mortgage loans.

The implications of this alternative decomposition of the mortgage portfolio may be modelled as follows

$$R_{j,t} = \beta_0 + \beta_1 RMKT_t + \beta_2 RTBOND_t + \delta_1 LIBGROW_{j,t} + \delta_2 DRMORT_{j,t}$$
$$+ \delta_3 DCMORT_{j,t} + \delta_4 DADL_{j,t} + \delta_5 DOMORT_{j,t} + \delta_6 DDIRECT_{j,t}$$
$$+ \delta_7 DNONMORT_{j,t} + \delta_8 DOASSET_{j,t} + \upsilon_{j,t} \qquad (19)$$

where DRMORT is the change in residential mortgage loans divided by S&L market value of common stock; DCMORT is the change in commercial mortgage loans divided by market value of common stock; DADL is the change in acquisition and development loans divided by market value of common stock; DOMORT is the change in other mortgage assets divided by

market value of common stock; and $\upsilon_{j,t}$ is a stochastic error term. Equation (19) is estimated for high- and low-risk S&Ls over the July 1984-December 1987 period using Zellner's [21] seemingly unrelated regression techniques.

The results are presented in Table 9. For both high- and low-risk S&Ls the sign and significance pattern of the variables measuring direct investment, nonmortgage loans, and other assets are quite similar to those reported in Table 7. Of the four mortgage-mix variables, only two are significant and positive for high-risk S&Ls: commercial mortgage loans (DCMORT) and acquisition and development loans (DADL). Surprisingly, the coefficient of ADL for low-risk S&Ls is significant and negative.

Tests were conducted for each group of S&Ls to examine the differences in the coefficients between DRMORT and DCMORT, DOMORT, DADL, DDIRECT, DNONMORT, and DOASSET. These tests are presented in Table 10. The results indicate that the coefficients of DCMORT, DADL, DDIRECT, DNONMORT, and DOASSET are significantly greater than the coefficient of DRMORT for the high-risk S&Ls.

The high-risk S&L results indicate that the stock market responded favorably to shifts in mortgage assets from residential mortgage loans to commercial mortgage loans and acquisition and development loans. Barth and Bradley [3] find that within the mortgage category, insolvent institutions have dramatically and rapidly increased their commercial mortgage lending. Barth, Bartholomew, and Labich [2] present evidence indicating that acquisition and development loans have a positive and statistically significant effect on resolution costs. These results, coupled with the evidence that the stock market responded positively to increased risk-taking, support the view that federal deposit insurance created a moral hazard problem.

Overall, the above results point out, especially for the high-risk S&Ls, that changes in nontraditional mortgage and nonmortgage activities tend to lead to higher common stock returns. If, as many believe, deposit insurance is subsidized, high-risk federally-insured institutions may be more likely to receive government subsidies through underpriced insurance premiums than low-risk firms. The empirical results for high-risk S&Ls support this point. In the presence of underpriced deposit insurance, changes in both nontraditional mortgage and nonmortgage activities at high-risk S&Ls will tend to raise common stock returns. An important implication of this result is that under a system of deposit insurance which allows insolvent firms to

remain open, increases in nontraditional and nonmortgage assets will raise common stock returns since risk-taking is borne mainly by the deposit insurer.

Summary

This study tests the hypothesis that deposit insurance has distorted shareholders' risk/return trade-offs for financially distressed S&Ls. S&L common stock returns were regressed on a market returns index, a bond returns index, liability growth rates, traditional mortgage loans, nontraditional mortgage loans, direct investments, nonmortgage (business plus consumer) loans, and other assets as a percent of market value of common stock. The differential behavior of high-risk S&Ls compared to low-risk S&Ls was analyzed. Shifts from traditional mortgage loans to more volatile commercial mortgage loans, acquisition and development loans, direct investments, and nonmortgage (business plus consumer) loans tend have a favorable impact on the common stock returns of high-risk S&Ls. These results support the concerns of many that the current system of deposit insurance provides incentives for a high-risk S&L to shift the firm's investment strategy from low-risk to high-risk projects.

This study provides the first empirical evidence that financial markets responded positively to announcements of increased risk-taking. Taken together with evidence that S&Ls at risk of failure actually invested more heavily in these high-risk activities, this paper suggests that the losses at S&Ls in the late 1980s were the result of a deliberate management policy to pursue high-risk strategies. These strategies were only made possible by a combination of inept supervision, lax closure policy, and deposit insurance guarantees.

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Footnotes

[1]A rather thorough study by Barth, Brumbaugh, Sauerhaft, and Wang [4] examines the factors influencing the costs to the insurance fund when a S&L fails.

[2]Barth, Bartholomew, and Labich [2] present evidence showing that a substantial number of the 205 resolved thrifts in 1988 had been insolvent since the early 1980s. Resolution refers to liquidation or assisted merger. Using data from an earlier period, Calomiris [10] finds that the time delays for liquidation of insured institutions were much longer than of uninsured firms.

[3]See, for example, Barth, Bartholomew, and Bradley [1]; Barth, Bartholomew, and Labich [2]; Kane [15]; and Furlong and Keeley [12].

[4]See Barth and Bradley [3] for an excellent discussion of regulatory and legislative developments for 1980 through 1988.

[5]See Barth, Bartholomew, and Labich [2].

[6]For large $[A_{j,t}/L_{j,t}]$, $f_{11} < 0$.

[7]Alternatively, the sample of S&Ls was divided into equally sized categories with little change in the basic results.

[8]For each of the holding companies included, the S&Ls were the major activity of the holding company in terms of assets. The mean ratio of S&L assets to total company assets was 97.9 in 1987. Other holding company activity included real estate property management; housing development; brokerage services; insurance products; data processing services; corporate debt and equity securities; and real estate appraisal services. Assets for the holding companies were obtained from Moody's *Banking and Finance Manual.*

[9]S&L stock returns are dividend-unadjusted because the S&P500 market index excludes dividends. This omission might result in not finding any impact on S&L stock returns of shifts from low-risk to high-risk assets. To the extent that we are able to find such an impact provides a strong test of our hypothesis.

[10]The definitions of direct investments and nonmortgage loans are identical to those used by Barth, Bartholomew, and Bradley [1].

[11]Junk bonds are included in this asset category.

[12]The simple correlation coefficient between RMKT and RTBOND is 0.34 and is statistically significant from zero. Because these two factors exhibit some degree of multicollinearity, previous studies have suggested that an orthogonalization procedure be used to remove this multicollinearity (see Lynge and Zumwalt [18] and Flannery and James [14]). This procedure orthogonalizes changes in RTBOND by regressing changes in RTBOND against RMKT (or RMKT against changes in RTBOND). However, Giliberto [15] has shown that both approaches can generate bias in the t-statistics against interest rate sensitivity (market beta) depending on the causality assumed in the orthogonalizating procedure. Consequently this paper uses unorthogonalized RTBOND.

[13]An additional test was conducted to examine the relationship between S&L stock returns and the market return index, bond index, growth in brokered deposits, and growth in other liabilities. The results indicates that the stock market does not appear

to respond to growth in either brokered deposits or other liabilities. These results are available from the author on request.

[14]Recall that direct investment is the sum of equity securities (except Federal Home Loan Bank Stock), real estate investments, and equity investments in service corporations or subsidiaries. We re-estimated the equations using the individual components of direct investment rather than the composite variable. Equity investments in service corporations appear to be responsible for the positive and significant coefficient of the composite variable. These results are available from the author on request.

[15]However, for low-risk S&Ls, the one-period lagged DARM has a positive and significant impact on stock returns. The contemporaneous term has an identical but negative impact on stock returns of low-risk S&Ls. These results are available from the author on request.

[16]The equation below is representative of these tests:

$$
\begin{aligned}
R = {} & -0.0077 + 1.6074\,RMKT + 0.4661\,RTBOND \\
& \quad (5.558) \quad (10.797) \qquad (2.554) \\
& - 0.0077\,LIBGROW_s + 0.0002\,DFRM_s - 0.0004\,DARM_s \\
& \quad (0.293) \qquad (0.357) \qquad (0.789) \\
& + 0.0020\,DDIRECT_s + 0.0036\,DNONMORT_s \\
& \quad (1.914) \qquad (3.295) \\
& + 0.0011\,DOASSET_s - 0.0566\,LIBGROW_{is} \\
& \quad (2.363) \qquad (0.313) \\
& + 0.0006\,DFRM_{is} + 0.0000^{1}\,DARM_{is} \\
& \quad (0.716) \qquad (0.053) \\
& + 0.0041\,DDIRECT_{is} + 0.0260\,DNONMORT_{is} \\
& \quad (1.682) \qquad (4.207) \\
& + 0.0005\,DOASSET_{is} \\
& \quad (1.272)
\end{aligned}
$$

[1]Rounded to zero.

for which $\bar{R}^2 = 0.3654$; N = 364; the subscript (s) refers to those high-risk S&Ls with GAAP net worth greater than zero; and the subscript (is) refers to those with GAAP net worth less than or equal to zero. The GAAP insolvent high-risk S&Ls' coefficients of direct investments and nonmortgage loans are greater than those for solvent high-risk S&Ls.

Table 1
Asset composition for all FSLIC-insured institutions as of December 31, 1988

	Net worth Category	Net mortgages[1]	Commercial loans	Consumer loans	Liquid assets[2]	Equity securities	Direct investments	Deferred losses[3]	Intangible assets
					(Percent of total assets)				
Total industry	Less than or = to 0%	61.2	2.6	5.7	12.0	0.2	8.9	1.3	2.5
	Between 0 and 6%	68.8	2.9	4.7	13.2	0.3	3.4	0.2	1.8
	Greater than 6%	74.8	1.3	4.0	12.7	0.5	1.8	0.1	1.5
	Total industry	69.7	2.5	4.6	13.0	0.3	2.8	0.2	1.8
California	Less than or = to 0%	63.2	0.6	0.9	21.3	0.1	6.4	0.2	0.4
	Between 0 and 6%	74.6	4.2	2.7	10.0	0.1	3.1	0.0	1.1
	Greater than 6%	82.1	0.0	1.2	8.5	0.3	1.9	0.0	2.7
	Total state	75.4	3.6	2.5	10.0	0.1	3.0	0.0	1.3
Florida	Less than or = to 0%	65.3	2.4	8.3	11.2	0.1	6.2	0.6	0.3
	Between 0 and 6%	67.2	2.7	6.8	13.7	0.6	2.4	0.2	2.0
	Greater than 6%	74.3	1.1	4.0	12.1	0.7	2.0	0.0	3.0
	Total state	68.3	2.4	6.4	13.2	0.6	2.6	0.2	2.1
Illinois	Less than or = to 0%	69.4	0.4	5.0	14.3	0.0	2.0	3.0	2.1
	Between 0 and 6%	70.2	0.4	4.0	15.6	0.2	1.4	0.5	3.6
	Greater than 6%	73.1	0.4	3.9	13.6	0.3	1.1	0.0	0.5
	Total state	72.1	0.4	4.1	14.9	0.2	1.4	0.6	2.3
Louisiana	Less than or = to 0%	61.4	1.8	6.7	9.9	0.2	6.5	1.6	0.7
	Between 0 and 6%	67.6	0.3	4.1	12.8	1.4	3.9	0.5	6.1
	Greater than 6%	68.1	0.2	5.9	8.5	0.2	11.6	0.1	3.1
	Total state	66.1	0.7	5.4	10.7	0.7	7.0	0.7	3.7
Oklahoma	Less than or = to 0%	67.3	0.5	9.3	7.6	0.4	10.7	0.3	0.0
	Between 0 and 6%	61.9	1.3	4.3	20.6	0.2	6.9	0.0	1.4
	Greater than 6%	45.7	0.7	2.6	23.8	1.9	9.9	-0.0*	8.4
	Total state	59.2	1.1	4.4	20.1	0.6	7.8	0.0	2.6
Texas	Less than or = to 0%	51.0	3.3	3.4	11.3	0.1	19.4	0.2	4.4
	Between 0 and 6%	46.5	2.1	2.5	24.1	0.1	15.6	0.2	1.6
	Greater than 6%	53.5	1.3	8.4	21.6	0.7	5.2	0.1	2.8
	Total state	48.2	2.4	3.0	20.0	0.1	16.4	0.2	2.5

[1]Mortgage loans, contracts, and pass-through securities net of contra-assets.
[2]Cash, deposits, and investment securities (excluding equity securities).
[3]Negative amount indicates deferred gains.
*Rounded to zero.

Table 2
Savings and loan organizations

Large S&Ls	Asset size end of 1987 (in millions)
Ahmanson H.F. and Co.	$30,533
Atlantic Financial Federal	6,703
Calfed, Inc.	23,443
Carteret Savings Bank F.A.	5,947
Columbia Savings and Loan Association	10,059
Financial Corp. of Santa Barbara	5,360
First Federal of Michigan	11,524
Florida Federal Savings and Loan Association	5,496
Gibraltar Financial Corp.	14,984
Glenfed Inc.	22,470
Golden West Financial Corp.	12,894
Great American First Savings Bank	11,845
Great Western Financial Corp.	27,642
Home Federal Savings and Loan Association	14,150
Homestead Financial Corp.	5,423
Imperial Corporation of America	10,886
Transcapital Financial Corp.	5,746
Western Savings and Loan Association	6,053
Medium-sized S&Ls	
Altus Bank	$2,706
American Savings and Loan Association of Florida	3,013
Atlantic Federal Savings and Loan Association of Fort Lauderdale	1,930
Broadview Financial Corp.	1,887
Buckeye Financial Corp.	1,251
Citadel Holding Corp.	3,848
Citizens Savings Financial Corp.	3,005
Coast Federal Savings and Loan Association, Sarasota	1,185
Collective Federal Savings Bank	1,992
Commonwealth Savings and Loan Association	1,541
Downey Savings and Loan Association	3,212
Far West Financial Corp.	3,757
First Columbia Financial Corp.	2,862
First Federal Savings and Loan Association of Austin, Texas	1,036
First Western Financial Corp.	1,272

Table 2 (continued)
Savings and loan organizations

Medium-sized S&Ls	Asset size end of 1987 (in millions)
Great Lakes Bancorp.	$3,143
Great Southern Federal Savings Bank	1,005
Investors Savings Bank	2,069
Mercury Savings and Loan Association	2,379
Metropolitan Financial Corp.	2,281
Nafco Financial Group, Inc.	1,566
Old Stone Corp.	4,387
Sooner Federal Savings and Loan Association	1,452
Valley Federal Savings and Loan Association	3,308
Washington Federal Savings and Loan Association	1,898
Western Federal Savings and Loan Association, Marina Del Rey, California	2,188
Small S&Ls	
American Century Corp.	$818
American Federal Savings and Loan Association, Colorado Springs	842
Charter Federal Savings and Loan Association	897
Continental Federal Savings and Loan Association	716
Cypress Savings Association	202
Financial Security Savings and Loan Association	190
Firstcorp Inc.	689
Frontier Savings Association	347
Germania, F.A.	779
Great Western Savings Bank	831
Hawthorne Financial Corp.	859
Home Federal Savings and Loan Association of Meridian	79
Home Federal Savings Bank	191
Local Federal Savings and Loan Association	810
North Carolina Federal Savings and Loan Association	660
Progressive Savings and Loan Association	559
Savers, Inc.	937
Virginia First Savings Bank F.S.B.	471
Wesco Financial Corp.	351

Table 3
Composition of selected assets and liabilities
Averages (September 1984-December 1987)

Item	High-risk	Medium-risk	Low-risk	Difference[1]	"t" values
(Deposit plus FHLB advances)/Total assets	0.8545	0.8285	0.8290	0.0255	4.22***
Broker deposits/Total assets	0.0552	0.0529	0.0445	0.0107	1.66
Fixed-rate mortgage loans/Total loans	0.3977	0.4193	0.4165	-0.0188	1.52
Adjustable-rate mortgage loans/Total loans	0.3341	0.3014	0.2861	0.0480	3.54***
Direct investments/Total assets	0.0321	0.0285	0.0287	0.0034	0.94
Nonmortgage loans/Total assets	0.0457	0.0582	0.0581	-0.0124	2.93***
Commercial mortgage loans/Total assets	0.1280	0.0898	0.1022	0.0258	4.06***
Residential mortgage loans/Total assets	0.3888	0.4258	0.4105	-0.0217	2.34**
Acquisition and development loans/Total assets	0.0484	0.0206	0.0293	0.0191	3.66***
Other mortgage loans/Total assets	0.2176	0.2158	0.2110	0.0066	0.82

[1]The difference measures the value reported for the high-risk group less that for the low-risk group.
**Significant at the 5 percent level.
***Significant at the 1 percent level.

Table 4
Variables used in regression equations (17), (18), and (19)

R	Quarterly average of weekly returns unadjusted for dividends.
RMKT	Quarterly average of weekly returns on S&P 500 stock index.
RTBOND	Quarterly average of weekly holding period returns on U.S. government securities.
LIBGROW	Quarterly growth rate in liabilities.
DFRM	Change in outstandings of fixed-rate mortgage loans divided by market value of common stock.
DARM	Change in outstandings of adjustable-rate mortgage loans divided by market value of common stock.
DDIRECT	Change in direct investments divided by market value of common stock.
DNONMORT	Change in nonmortgage loans divided by market value of common stock.
DRMORT	Change in outstandings of one-to-four-family mortgage loans divided by market value of common stock.
DCMORT	Change in commercial mortgage loans divided by market value of common stock.
DADL	Change in acquisition and development loans divided by market value of common stock.
DOMORT	Change in other mortgage assets (including mortgage-backed securities and other mortgage loans) divided by market value of common stock.

Table 5
The response of S&L stock returns to changes in asset components[1]
Three risk classes

CONSTANT		-0.0057	
		(8.065)***	
RMKT		1.3300	
		(17.965)***	
RTBOND		0.5687	
		(6.232)***	
	High-risk S&Ls	Medium-risk S&Ls	Low-risk S&Ls
LIBGROW	-0.0286	0.0875	0.0037
	(1.944)**	(1.958)**	(0.240)
DFRM	0.0004	-0.0015	0.0004
	(1.396)	(1.212)	(0.826)
DARM	0.0002	-0.0014	0.0003
	(0.932)	(1.072)	(0.560)
DDIRECT	0.0023	-0.0026	0.0004
	(3.438)***	(1.146)	(0.214)
DNONMORT	0.0049	-0.0018	-0.0000[2]
	(6.680)***	(0.712)	(0.011)
DOASSET	0.0010	-0.0014	0.0002
	(4.912)***	(1.227)	(0.505)
$\bar{R}^2$	0.3574		
F	25.50		
N	882		

[1]Numbers in parentheses below the regression coefficients are the absolute value of the corresponding t-ratios.
[2]Rounded to zero.
**Significant at the 5 percent level.
***Significant at the 1 percent level.

Table 6
Tests for the equality of asset coefficients with that on DFRM (F-statistics) Using Table 5 coefficients

Variable	High-risk S&Ls	Medium-risk S&Ls	Low-risk S&Ls
DARM	0.2934	0.0093	0.0496
DDIRECT	6.8685**	0.1593	0.0001
DNONMORT	33.9536**	0.0049	0.1244
DOASSET	3.5979*	0.0078	0.1450

*Significant at the 10 percent level.
**Significant at the 1 percent level.

Table 7
Seemingly unrelated regression results of the response of S&L stock returns to changes in asset components[1]
High- and low-risk S&Ls

Equation	High-risk S&Ls	Low-risk S&Ls
CONSTANT	-0.0088	-0.0028
	(6.333)***	(3.885)***
RMKT	1.6059	1.0727
	(10.620)***	(14.301)***
RTBOND	0.4691	0.5893
	(2.539)***	(6.336)***
LIBGROW	-0.0078	0.0009
	(0.384)	(0.844)
DRFM	0.0003	0.0001
	(0.706)	(0.180)
DARM	0.0003	-0.0004
	(0.744)	(1.158)
DDIRECT	0.0022	-0.0002
	(2.527)***	(0.134)
DNONMORT	0.0049	-0.0004
	(5.063)***	(0.600)
DOASSET	0.0008	0.0001
	(3.163)***	(0.329)
R^2	0.3344	0.4261
F	23.798	34.683
The weighted R-square for the system = 0.3960		

[1]Numbers in parentheses below the regression coefficients are the absolute value of the corresponding t-ratios.
***Significant at the 1 percent level.

Table 8
Tests for the equality of asset coefficients with that on DFRM (F-statistics) Using Table 7 coefficients

Variable	High-risk S&Ls	Low-risk S&Ls
DARM	0.0006	1.9739
DDIRECT	4.2111*	0.0339
DNONMORT	20.5929**	0.4076
DOASSET	2.0233	0.0033

*Significant at the 5 percent level.
**Significant at the 1 percent level.

Table 9
Seemingly unrelated regression results of the response of S&L stock returns to changes in asset components[1]
Alternative decomposition of mortgage portfolio
High- and low-risk S&Ls

Equation	High-risk S&Ls	Low-risk S&Ls
CONSTANT	-0.0082	-0.0029
	(5.853)***	(4.174)***
RMKT	1.6270	1.0797
	(11.029)***	(14.426)***
RTBOND	0.4046	0.5566
	(2.238)**	(6.040)***
LIBGROW	-0.0136	0.0004
	(0.677)	(0.324)
DRMORT	-0.0001	0.0002
	(0.198)	(0.590)
DCMORT	0.0018	0.0003
	(4.395)***	(0.408)
DADL	0.0022	-0.0037
	(2.870)***	(2.974)***
DOMORT	0.0005	-0.0002
	(1.528)	(0.571)
DDIRECT	0.0021	-0.0003
	(2.447)**	(0.219)
DNONMORT	0.0044	-0.0002
	(4.488)***	(0.261)
DOASSET	0.0008	0.0000[2]
	(3.059)***	(0.008)
R^2	0.3581	0.4361
F	21.255	29.068
The weighted R-square for the system = 0.4148		

[1]Numbers in parentheses below the regression coefficients are the absolute value of the corresponding t-ratios.
[2]Rounded to zero.
**Significant at the 5 percent level.
***Significant at the 1 percent level.

Table 10
Tests for the equality of asset coefficients with that on DRMORT (F-statistics) Using Table 10 coefficients

Variable	High-risk S&Ls	Low-risk S&Ls
DCMORT	15.9873**	0.0088
DADL	7.2534**	9.6680**
DDIRECT	5.7018*	0.1657
DNONMORT	21.0550**	0.3027
DOASSET	5.2576*	0.2849

*Significant at the 5 percent level.
**Significant at the 1 percent level.

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