

 Open access • Journal Article • DOI:10.2307/796766

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**Published on:** 01 Oct 1990 - Yale Law Journal (JSTOR)

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# Notes

## **FIRREA: Controlling Savings and Loan Association Credit Risk Through Capital Standards and Asset Restrictions**

Alex M. Azar II

On August 9, 1989, President Bush signed the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA)<sup>1</sup> in an attempt both to resolve the current savings and loan association (S&L) crisis and to insure the future health of the S&L industry. FIRREA seeks to prevent a recurrence of the present crisis by both encouraging and forcing S&L's to reduce the riskiness of their asset portfolios.<sup>2</sup> Through stricter capital requirements, FIRREA tries to create incentives for S&L owners and managers to adopt lower risk asset portfolio strategies. To supplement these new incentives, FIRREA attempts directly to limit the riskiness of S&L asset portfolios by imposing new limitations on the amount of certain high credit risk assets that an S&L may hold.

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1. Pub. L. No. 101-73, 103 Stat. 183 (1989). FIRREA abolishes the Federal Savings and Loan Insurance Corporation (FSLIC), the insurer of federally chartered and qualified state chartered savings and loan associations (S&L's). The Federal Deposit Insurance Corporation (FDIC) now insures these institutions in addition to federally chartered and qualified state chartered commercial banks. FIRREA also abolishes the Federal Home Loan Bank Board (FHLBB), the charterer and primary regulator of federal S&L's, and in its place establishes the Office of Thrift Supervision (OTS) as an office in the Department of the Treasury subject to the very limited oversight of the Secretary of the Treasury.

2. This Note analyzes only those provisions of FIRREA that attempt to control the "credit risk" of S&L asset portfolios. Credit risk, sometimes called "default risk," is the risk that borrowers will default on their loans, leaving collateral the value of which may be less than the remaining loan balance. See *infra* notes 11-13 and accompanying text.

This Note applies some basic economic principles to the two asset portfolio risk controlling provisions of FIRREA. It argues that increasing the required amount of shareholder capital in an S&L will provide incentives for those S&L's that are controlled by nondiversified shareholders to adopt lower risk investment strategies. It concludes, however, that higher capital standards will not substantially alter the investment policies of S&L's that are controlled by diversified shareholders because diversified shareholders are largely indifferent to the credit risk assumed by their S&L's, regardless of the amount of capital held. This Note also argues that FIRREA's direct restrictions on the amount and type of assets that an S&L may hold are based upon the false premise that the relevant measure of risk is the riskiness of certain categories of assets. In fact, the proper measure of risk is the riskiness of the entire asset portfolio, considered as a whole. FIRREA's restrictions actually limit the opportunities for S&L's to diversify their asset portfolios, thus potentially increasing rather than decreasing overall credit risk.

Part I of this Note provides an introduction to the operations of S&L's, risk in the S&L industry, and the causes of the two recent S&L crises. Part II sets out the theory behind the need for, and the methods of, credit risk control in the S&L industry. Part III details the changes in S&L capital standards mandated by FIRREA. Part IV, likewise, analyzes the changes in asset portfolio limitations. Part V then applies economic theory to these provisions of FIRREA in order to predict their effectiveness in controlling credit risk in the S&L industry. This Note concludes by advocating the repeal of FIRREA's categorical asset restrictions and the initiation of congressional and regulatory inquiries into the feasibility of measuring and regulating total asset portfolio credit risk.

## I. THE SAVINGS AND LOAN INDUSTRY

### A. *Savings and Loan Association Operations*

Three types of financial institutions are commonly referred to as "thrift" institutions: savings and loan associations, mutual savings banks, and credit unions.<sup>3</sup> S&L's may be chartered under either federal or state law, and they may have either a mutual or stock form of organization.<sup>4</sup> As of 1988, 48% of all S&L's were federally chartered; these federal S&L's held approximately

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3. Both S&L's and mutual savings banks invest primarily in residential mortgages, but mutual savings banks have traditionally had more authority to invest in commercial-type loans and assets. This distinction has blurred with the congressional enhancement of S&L investment powers in the last decade. See *infra* notes 26-29 and accompanying text. Credit unions typically accept deposits and make loans only for members of groups, such as employees of a firm or members of a union. They invest primarily in consumer loans and are insured by the National Credit Union Administration. A. CARRON, *THE PLIGHT OF THE THRIFT INSTITUTIONS* 1-3 (1982).

4. Under a mutual form of organization, the depositors are the owners. Stock organizations are owned by stockholders. *Id.* at 2.

60% of all S&L assets.<sup>5</sup> For simplicity's sake, this Note will consider primarily federally chartered S&L's; unless otherwise stated, the term "savings and loan association" encompasses only federally chartered S&L's.<sup>6</sup>

The primary business of S&L's consists of borrowing money, in the form of checking and savings deposits, and loaning out the proceeds as long-term residential mortgages. The high percentage of residential lending in S&L asset portfolios distinguishes S&L's from commercial banks.<sup>7</sup>

The activities of an S&L can best be described by reference to the components of an S&L balance sheet. A balance sheet is a table of a firm's assets, liabilities, and owners' equity.<sup>8</sup> Assets include all tangible and intangible items owned by the firm and may be either in the possession of the firm or owed to the firm. For example, mortgage loans owed by borrowers to an S&L, cash, government securities held by an S&L, building facilities owned by an S&L, and goodwill<sup>9</sup> are all considered assets of a firm. Liabilities encompass all obligations by the firm to pay, including such items as savings and checking deposits held by the S&L's customers, certificates of deposit, commercial paper, and funds borrowed from the Federal Reserve. Capital, often referred to as "owners' equity" or "net worth," can best be thought of as the residual share; if an S&L closes, whatever remains of the assets after all liabilities have been paid would be distributed by share to the stockholders of the firm.<sup>10</sup> In other words, assets minus liabilities equal capital. Capital is the owners' stake in the firm, and its value, by definition, fluctuates with changes in the value of the assets and liabilities of the firm.

S&L's face three major types of risk: credit risk, interest rate risk, and liquidity risk.<sup>11</sup> Credit risk reflects the possibility that borrowers will default on their loans, leaving collateral the value of which may be less than the remaining loan balance.<sup>12</sup> Interest rate risk arises from the possibility that the market interest rate might rise, increasing the rate that S&L's must pay for

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5. U.S. LEAGUE OF SAVINGS INSTITUTIONS, SAVINGS INSTITUTIONS SOURCEBOOK 47 (1989) [hereinafter SAVINGS SOURCEBOOK].

6. Because state chartered S&L's are subject to individual state regulation, in addition to federal regulation, any comprehensive discussion of state chartered S&L's is beyond the scope of this Note. The conclusions of this Note, which are based upon general economic theories, are equally applicable to the regulation of state S&L's and federal and state commercial banks.

7. Commercial banks hold approximately 12% of their assets in residential mortgage loans while S&L's (federal and state combined) hold 47% of their assets in residential mortgages. SAVINGS SOURCEBOOK, *supra* note 5, at 28, 45 (calculated by dividing each type of institution's total residential mortgage loans (Table 14) by its total assets (Table 51)).

8. S. DAVIDSON, C. STICKNEY & R. WEIL, FINANCIAL ACCOUNTING: AN INTRODUCTION TO CONCEPTS, METHODS, AND USES 717 (5th ed. 1988) [hereinafter FINANCIAL ACCOUNTING].

9. Goodwill consists of "the value of good customer relations, high employee morale, a well-respected business name, and so on." *Id.* at 748.

10. RISK AND CAPITAL ADEQUACY IN COMMERCIAL BANKS 35-36 (S. Maisel ed. 1981) [hereinafter RISK AND CAPITAL ADEQUACY].

11. See R. LITAN, WHAT SHOULD BANKS DO? 81 (1987); E. KANE, THE GATHERING CRISIS IN FEDERAL DEPOSIT INSURANCE 7-9 (1985) (describing economic risks faced by S&L's).

12. R. LITAN, *supra* note 11, at 81.

short-term liabilities (e.g., savings deposits) while the S&L's return on long-term assets (e.g., mortgages) remains fixed at the old, lower interest rate. Liquidity risk reflects the possibility that the creditors of an S&L, its depositors, might suddenly seek withdrawal of their funds, forcing the S&L to liquidate long-term assets at below market values.<sup>13</sup> Although interest rate risk and liquidity risk are often very significant components of an S&L's overall risk profile, this Note focuses on FIRREA's attempt to control credit risk, the principal cause of the current S&L crisis.<sup>14</sup>

### B. *The First S&L Crisis: The Interest Rate Risk Crisis*

Seventy-five percent of the failures of FSLIC-insured institutions between 1934 and 1986 occurred after 1979.<sup>15</sup> R. Dan Brumbaugh forcefully argues that this series of failures can be divided into two distinct crises.<sup>16</sup> The first crisis spread from October 1979 to the end of 1982 and resulted primarily from interest rate risk. The second crisis followed closely on its heels and continues to this day. This crisis resulted from the excessive credit risk assumed by many S&L's at the conclusion of the first crisis.

Throughout the 1970's, the increasing rate of inflation increased the market interest rate that S&L's had to pay for short-term liabilities.<sup>17</sup> In an effort to curb inflation, the Federal Reserve announced in October 1979 that it would no longer try to contain the market interest rate and would instead worry about controlling the growth rate of the money supply.<sup>18</sup> This policy resulted in a sudden decrease in the money supply, and interest rates skyrocketed; demand for money outstripped its supply, and the price of money, the interest rate, increased. As a result, the S&L's were saddled with a great interest rate mismatch, paying high rates for funds but receiving lower returns on their old, long-term, fixed-rate loans. By 1982 the average cost of funds<sup>19</sup> for S&L's was just *over* 11%, and the average return on mortgages was just *under* 11%.<sup>20</sup> The annual number of S&L failures soared, from 35 in 1980 to 252 in 1982. In 1982 alone over 7% of all FSLIC-insured institutions failed.<sup>21</sup>

The S&L crisis of the early 1980's was the result of the dramatic increase

13. *Id.*

14. See *infra* notes 28-33 and accompanying text.

15. R. BRUMBAUGH, *THRIFTS UNDER SIEGE: RESTORING ORDER TO AMERICAN BANKING* 31 (1988).

16. See *id.* at 31-88.

17. See F. MISHKIN, *THE ECONOMICS OF MONEY, BANKING, AND FINANCIAL MARKETS* 110-12 (1986) (showing that when expected inflation rises, interest rates will rise; table illustrating correlated increase in inflation and interest rate in 1970's).

18. *Id.* at 392-94. The Federal Reserve policy reflected the monetarist theory that inflation is a function of the rate of growth of the money supply. R. DORNBUSCH & S. FISCHER, *MACROECONOMICS* 438-40 (3d ed. 1984).

19. The cost of funds is the rate S&L's must pay for deposits.

20. R. BRUMBAUGH, *supra* note 15, at 36.

21. *Id.* at 40.

in market interest rates and its adverse effect on the high interest rate risk inherent in an S&L industry characterized by long-term, fixed-rate assets and short-term liabilities.<sup>22</sup> In response to this interest rate mismatch crisis, Congress passed the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA),<sup>23</sup> which phased out Regulation Q, the ceiling on interest rates paid to depositors, and allowed S&L's to invest in consumer loans, commercial paper, corporate debt securities, and service corporations.<sup>24</sup> Congress then passed the Garn-St Germain Depository Institutions Act of 1982,<sup>25</sup> which increased S&L powers to invest in consumer loans, loans secured by nonresidential real estate, personal property for rent or sale, educational loans, and state and local government obligations.<sup>26</sup>

By increasing the opportunities for portfolio diversification, Congress hoped to enhance the ability of S&L's to minimize the high interest rate risk inherent in the traditional S&L activities of short-term deposits and long-term residential mortgages. Thus, by 1982 Congress had armed the S&L's with new powers in hopes of alleviating the interest rate crisis. But by the end of 1982, market interest rates had declined again, and the average return on mortgages once again exceeded the savings and loan associations' average cost of funds, thus easing the first crisis.<sup>27</sup>

### C. *The Second S&L Crisis: The Credit Risk Crisis*

The crisis of 1979-1982, the interest rate crisis, left many insolvent S&L's in its wake. The FSLIC lacked the political will to close every S&L that was left technically insolvent<sup>28</sup> at the end of that crisis,<sup>29</sup> so it developed various means to keep many insolvent S&L's open, including accounting tricks to make insolvent S&L's appear solvent and direct assistance in the form of subsidized loans.<sup>30</sup> The FSLIC concentrated its interventionist activities on only the most insolvent and illiquid S&L's.

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22. See, e.g., G. BENSTON, AN ANALYSIS OF THE CAUSES OF SAVINGS AND LOAN ASSOCIATION FAILURES 2 *passim* (New York University Graduate School of Business Administration Monograph Series in Finance and Economics No. 1985-4/5) (statistical study showing that principal cause of failures in early 1980's was interest rate mismatch); R. BRUMBAUGH, *supra* note 15, at 15, 31-58 (rapid increase in interest rate caused S&L crisis of early 1980's); Payne, *Nonperforming Assets: Observations and Lessons Learned*, in THRIFT FINANCIAL PERFORMANCE AND CAPITAL ADEQUACY 57 (Proceedings of the Twelfth Annual Conference of the Federal Home Loan Bank of San Francisco, 1986) (vast majority of S&L failures in early 1980's were due to staggering interest rate mismatch).

23. Pub. L. No. 96-221, 94 Stat. 132 (1980) (codified as amended in scattered sections of 12 U.S.C.).

24. R. BRUMBAUGH, *supra* note 15, at 196 (table outlining major provisions of DIDMCA). For a definition of "service corporations," see *infra* note 74.

25. Pub. L. No. 97-320, 96 Stat. 1469 (1982) (codified as amended in scattered sections of 12 U.S.C.).

26. R. BRUMBAUGH, *supra* note 15, at 196-97 (table outlining major provisions of Garn-St Germain).

27. *Id.* at 56.

28. Technical insolvency occurs at the point when an S&L's capital level is zero. E. KANE, *supra* note 11, at 10-11.

29. See *infra* Part II.B.1.

30. E. KANE, *supra* note 11, at 39-40.

The insolvent S&L's that were allowed to continue to operate were able to take advantage of their increased investment powers to gamble their way back into solvency.<sup>31</sup> Insolvent S&L's had nothing to lose, so they "bet the farm," assuming great amounts of credit risk. Some made risky investments that went bad, while many others concentrated their investments in certain regions and natural resources. The negative income of many insolvent S&L's "reflects failed risk-taking interacting with unexpected regional deflation in real estate values and national resources, primarily oil and timber."<sup>32</sup>

In 1984, 80% of the FSLIC's problem cases reflected deteriorated asset quality rather than the effect of high interest rates on the value of existing loans, whereas between 1980 and 1984 only 20% of its caseload resulted from asset quality problems.<sup>33</sup>

## II. THE THEORY OF CREDIT RISK MANAGEMENT

### A. Causes of Credit Risk in the S&L Industry

The FDIC, and previously the FSLIC, insures all deposits in federal S&L's up to \$100,000 per depositor. To fund this insurance program, the FDIC assesses all S&L's a premium that is calculated as a fixed percentage of each S&L's deposits. Thus, all S&L's pay the same premium rate regardless of the credit risk they have assumed in their asset portfolios.

Given this insurance system, insured depositors have no incentive to discipline S&L's for assembling risky asset portfolios by demanding higher interest rates; if an S&L fails because of its risky investments, the FDIC will reimburse insured depositors.<sup>34</sup> As a result, the cost of an S&L's primary source of funds, insured deposits, is largely insensitive to the riskiness of its asset portfolio.<sup>35</sup>

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31. See R. BRUMBAUGH, *supra* note 15, at 59-88 (discussing "gambling for resurrection" activities of insolvent S&L's).

32. *Id.* at 62. See also Payne, *supra* note 22, at 60-61 (citing concentration of troubled assets in California, Texas, and Florida).

33. R. BRUMBAUGH, *supra* note 15, at 67.

34. Regulatory bailout procedures have also eroded the incentives that uninsured depositors (those with accounts over \$100,000) and uninsured creditors would naturally have to discipline S&L risk-taking activities. The FDIC and FSLIC practice of merging failed institutions with healthy institutions rather than liquidating failed S&L assets and paying off insured depositors effectively insures all depositors and creditors. See THE BROOKINGS INSTITUTION, BLUEPRINT FOR RESTRUCTURING AMERICA'S FINANCIAL INSTITUTIONS: REPORT OF A TASK FORCE 6-7 (1989).

35. The fact that many failed S&L's, in their waning days, paid higher interest on deposits does not necessarily indicate that depositors were charging these institutions a risk premium. The higher interest rates at failing institutions may reflect supply-side forces rather than demand-side powers. An S&L wishing to increase the riskiness of its asset portfolio must increase its deposits; otherwise, it would have to sell off lower risk assets and then reinvest the proceeds in riskier assets. And "[o]ne way for unhealthy institutions to grow is to offer rates on liabilities that exceed the rates paid by other thrifts . . ." R. BRUMBAUGH, *supra* note 15, at 71. See also Horvitz, *The Case for High Capital Requirements*, in THRIFT FINANCIAL PERFORMANCE AND CAPITAL ADEQUACY, *supra* note 22, at 33, 35 (with riskier, higher expected earnings, institution

This system, referred to as fixed-premium deposit insurance, creates what many have called a "moral hazard" for S&L's. An S&L can invest in higher earning, yet riskier, assets and still pay the same interest rate to depositors and the same premiums to the FDIC.<sup>36</sup> By a risky asset, this Note means an asset with a high variance of possible returns.<sup>37</sup> This moral hazard gives S&L's perverse incentives to invest in very risky asset portfolios. The following example<sup>38</sup> illustrates, a fortiori, this moral hazard by showing how the presence of fixed-premium deposit insurance creates incentives for an S&L to invest in an asset portfolio that would, in the absence of fixed-premium deposit insurance, be sure to lead to that S&L's failure.

In the absence of deposit insurance, whether depositors get their money back depends entirely upon the value of the S&L's assets at the time of withdrawal. Thus, the riskier depositors believe the S&L's asset portfolio to be, the more compensation they will demand from the S&L, in the form of higher interest rates, for the use of their money. As in the following example, an S&L may assemble an asset portfolio that is so risky that depositors will demand such a high interest rate on deposits that the asset portfolio could never be profitable for the S&L.

Assume for now that an S&L has zero capital; in other words, the S&L borders on insolvency.<sup>39</sup> It must decide whether to assemble an asset portfolio costing \$500 which after one year has an equal chance of being worth either \$200 or \$600. This portfolio has an expected value<sup>40</sup> at the end of one year of \$400; in other words, we expect this portfolio to decline in value by \$100 in one year. Without deposit insurance, depositors will demand high interest rates to compensate for the statistical probability that the S&L will fail. Assume that the risk-free market interest rate is 5%, i.e., the interest rate depositors

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can attract funds by paying higher interest rate to depositors). George Benston has found that the higher cost of funds incurred by failed S&L's could be explained by a desire to obtain funds for investing in risky assets or by the need to replace funds withdrawn from low-yielding deposits, or both. G. BENSTON, *supra* note 22, at 34-35.

36. See, e.g., R. LITAN, *supra* note 11, at 103-04 (Fixed-rate deposit insurance "encourages risk taking because it allows [S&L's] to gather funds at costs that do not reflect the risks that their asset and liability structures may pose.") (footnote omitted); Flannery, *Deposit Insurance Creates a Need for Bank Regulation*, BUS. REV. FED. RESERVE BANK PHILADELPHIA, Jan.-Feb. 1982, at 17, 19-20 ("Since riskier assets offer higher expected returns and since deposit costs don't vary with the bank's perceived risk, the bank maximized expected profits by purchasing the riskiest available assets."); Scott & Mayer, *Risk and Regulation in Banking: Some Proposals for Federal Deposit Insurance Reform*, 23 STAN. L. REV. 857, 886-87 (1971) (fixed-premium deposit insurance creates moral hazard incentives for S&L's to make excessively risky investments).

37. See W. KLEIN & J. COFFEE, *BUSINESS ORGANIZATION AND FINANCE: LEGAL AND ECONOMIC PRINCIPLES* 208-10 (3d ed. 1988) ("[R]isk' refers to the degree of dispersion or variation of possible outcomes."); S. ROSS & R. WESTERFIELD, *CORPORATE FINANCE* 128 (1988) (spread of possible outcomes is measure of risk).

38. This example is adapted from Flannery, *supra* note 36, at 25-27.

39. We will consider the impact of a positive capital level on this incentive structure in Part V.A.

40. Expected value is simply "the weighted average . . . of all possible outcomes." W. KLEIN & J. COFFEE, *supra* note 37, at 207-08. In this case, expected value =  $1/2(200) + 1/2(600) = \$400$ .



would demand even if they were certain to be repaid in full. If the bad outcome occurs, depositors will receive \$200 for their \$500 in initial deposits. To compensate for this potential loss, depositors will demand an interest rate (R), should the good outcome occur, sufficient to result in an overall expected return greater than or equal to the risk-free rate they could receive on, say, Treasury bills.<sup>41</sup> For the S&L to raise \$500 without the insurance of deposits, these depositors must be promised an interest rate (R) of at least 70%, i.e., the weighted average of expected returns from their deposits must at least equal the expected return on risk-free Treasury bills.<sup>42</sup>

Because the S&L must pay such a high interest rate to depositors, the net expected return from this project to *shareholders*, who are entitled only to the residual gains, is zero; the S&L will fail under either outcome. If the bad outcome occurs, the S&L will go bankrupt, and the remaining assets (\$200) will be distributed to depositors; although the shareholders get nothing, they are no worse off than at the beginning of the year when the S&L had zero net worth. Even if the good outcome occurs, the S&L will be unable to pay depositors their 70% interest; the S&L will fail, and the remaining assets (\$600) will be distributed among depositors. Without deposit insurance this asset portfolio presents a lose-lose proposition for shareholders, and no shareholder or manager using sound economic judgment would invest in it.

Thus, in the absence of deposit insurance, depositors will discipline an S&L by demanding higher interest rates on deposits to compensate for risky asset portfolios assembled by that S&L.

We will now see that deposit insurance removes the incentive for depositors to discipline an S&L and that fixing the insurance premium irrespective of risk prevents the insurer from fulfilling that disciplinary function by charging higher premiums for increased risk. If an S&L's deposits are insured by the FDIC, depositors will demand no more than their risk-free rate of return on deposits because of their confidence that the FDIC will reimburse them in the event of failure. Assume that the FDIC charges the S&L a \$1 premium for insuring these deposits.<sup>43</sup> Once again, if the bad outcome occurs, the S&L will fail, and the shareholders will be left with nothing. Should the good outcome occur, however, the shareholders need only pay the promised 5% interest to depositors and the fixed \$1 insurance premium; they reap the rewards of the fortuitous occurrence of the good outcome. The expected return to shareholders is now a positive \$37.<sup>44</sup> With fixed-premium deposit insurance, the S&L can increase

41. In other words, depositors will insist that their expected return from this deposit, a 50% chance of \$200 plus a 50% chance of getting their \$500 deposit back plus interest, is at least as great as the return they could expect by investing their \$500 in a risk-free U.S. government security.

42.  $1/2(200) + 1/2(500(1 + R)) \geq 500(1 + .05)$   
 $R \geq 70\%$ .

43. The current premium is .208 percent of insured deposits, which equals \$1.04 in this example. 12 U.S.C.A. § 1817(b)(1)(D)(i) (West 1989).

44. Return to Shareholders =  $1/2(0) + 1/2(600 - 500(1.05) - 1) = \$37$ .

its expected value by \$37 if it invests in this asset portfolio. This example, then, illustrates the moral hazard that fixed-premium deposit insurance imposes on S&L's. Fixed-premium deposit insurance enables S&L's to invest in riskier (though potentially higher yielding) asset portfolios without paying more for deposits or higher premiums for insurance.

The issue for regulators is how best to minimize the potential liability of the FDIC that results from that moral hazard or, in the alternative, how to reduce that moral hazard itself.

## B. *Controlling Credit Risk*

### 1. *Prompt Closure*

In theory, the FDIC would never suffer more than administrative expenses if it could close all S&L's as their net worth, or capital, approaches zero.<sup>45</sup> As we have seen from our discussion of the S&L balance sheet, if an S&L were closed with exactly zero capital, by definition, the liquidated assets would be sufficient for the FDIC to pay off all depositors and creditors of the S&L.

But prompt closure has, as yet, proven impossible. First, rapid closure requires accurate and timely measurements of capital, both of which have remained elusive for regulators. With some exceptions, current accounting procedures value assets at their "book value," or price at the time of purchase, rather than their "market value," or the price the S&L could currently receive for the asset in a competitive market.<sup>46</sup> As such, the value of many assets is fixed at a particular point in time. When the market value of these S&L assets declines, those assets will be overvalued on the balance sheet. A second and related problem is that S&L's may obscure their activities by fraud, thus preventing the accurate and timely measurement of S&L capital levels. Third, regulators often face great public and political pressures (e.g., from S&L owners, local communities, and uninsured depositors and creditors) to refrain from closing S&L's merely because they have zero capital.<sup>47</sup> These interest groups encourage regulators to allow technically insolvent S&L's to remain open in the hopes that the S&L will be able to improve its fortunes if given just one more chance. Fourth, the closure of large S&L's may involve significant administrative expenses on the part of the FDIC, perhaps sufficient to persuade the FDIC to refrain from taking rapid action in the hope that the

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45. R. BRUMBAUGH, *supra* note 15, at 49.

46. Book value accounting is necessary for the many assets for which pricing markets do not exist.

47. See G. BENSTON, *supra* note 22, at 59 (public pressures regulators to avoid closing S&L's); Scott, *Deposit Insurance and Bank Regulation: The Policy Choices*, 44 BUS. LAW. 907, 919-20 (1989) (political environment is hostile to prompt closure).

situation might improve.<sup>48</sup>

Given the demonstrated inability to close S&L's at the point of zero capital, regulators have sought means of controlling the credit riskiness of S&L asset portfolios and the resulting risk to the FDIC insurance fund.

## 2. *Capital Standards*

Regulators have used two principal devices to encourage S&L's to assume less risk in their asset portfolios, one indirect and one direct.<sup>49</sup> The indirect method is a minimum capital standard, intended to alter an S&L's incentives to acquire a high credit risk asset portfolio. Capital standards require S&L's to maintain a certain amount of capital on their balance sheet. The direct method prohibits S&L's from holding certain assets considered by regulators to be per se excessively risky.

The justification proffered for capital standards as a means of reducing moral hazard is that a positive and substantial level of shareholder equity, or capital, gives S&L owners a stake in the S&L.<sup>50</sup> If the S&L has zero net worth, the shareholders have nothing to lose, and, as we have seen, they will encourage the S&L to invest in asset portfolios that would be unprofitable in the absence of deposit insurance. With a positive capital level, S&L owners actually have something to lose if the asset portfolio goes bad. By requiring S&L's to hold a minimum level of capital, regulators hope to align the goals of shareholders with the interests of the FDIC—to prevent insolvency through the assumption of excessive credit risk. A minimum capital level functions as a sort of insurance deductible that shareholders must forfeit if they want to take advantage of the floor on losses provided by FDIC deposit insurance.<sup>51</sup>

Proponents of minimum capital standards also justify their use as a means of preventing loss to the FDIC insurance fund by aiding the FDIC in its efforts to implement a prompt closure policy. First, a minimum capital level gives regulators sufficient time to notice that an S&L is slipping towards insolvency. If S&L's are required to hold capital at the level of, say, 6% of total assets,

48. See Scott, *supra* note 47, at 918 (FDIC lacks resources and personnel to handle liquidation of assets and to process hundreds of thousands of depositor claims if large institution fails).

49. A "direct" restriction purports to prescribe on its face the riskiness of an S&L's asset portfolio. An "indirect" restriction, on the other hand, seeks to create disincentives for an S&L's owners and managers to accumulate high levels of credit risk in their S&L's asset portfolio.

50. See H.R. CONF. REP. NO. 222, 101st Cong., 1st Sess., *reprinted in* 2 U.S. CODE CONG. & ADMIN. NEWS 432, 443 (1989) (strong capital standards give owners incentive to limit risks taken with depositors' funds); THE BROOKINGS INSTITUTION, *supra* note 34, at 2-3 ("Deposit insurance has little effect on risk-taking when depository institutions are well capitalized, because the owners have a substantial stake at risk."); Flammia, *Bank Capital Requirements: Placebo or Cure?*, 7 ANN. REV. BANKING L. 485, 488 (1988) ("[H]igh capital levels instill discipline and encourage sound business decisions . . ."); Horvitz, *supra* note 35, at 36 ("[A]n equity capital requirement assures that the owners of the institution are playing with their own money.").

51. R. BRUMBAUGH, *supra* note 15, at 117.

even the most inefficient supervisory system should be able to detect the decreasing fortunes of an S&L as its capital sinks from 6% of assets to zero.<sup>52</sup> Second, a forced capital cushion allows S&L's to survive temporary periods of loss. Instead of pushing an S&L to the point of insolvency, a bad year, a year of negative income, will only eat away at the S&L's capital cushion; thus, the shareholders, and not the FDIC, will bear the losses in periods of bad fortune. Third, because the presence of a capital cushion actually reduces the risk to the FDIC that it will have to pay depositors, that capital requirement could theoretically be set at such a level to reduce an S&L's asset portfolio credit risk to the point where the fixed-premium on deposit insurance becomes actuarially correct given that credit risk level.<sup>53</sup> Fourth, by forcing publicly traded S&L's to raise additional capital in the market, regulators expose S&L management to the watchful eye of the securities marketplace. Securities disclosure requirements and analyst investigation will help prevent and detect the fraud that may prevent regulators from accurately measuring S&L capital levels.<sup>54</sup>

Why do regulators have to force S&L's to maintain substantial capital levels? Once again, this quirk of the S&L industry is due to the unique role of fixed-premium deposit insurance. A firm can raise funds either by borrowing money or selling stock—in the case of an S&L, by collecting deposits or selling stock. Because of the guarantee of deposit insurance, depositors do not demand a higher interest rate to compensate for the riskiness of an S&L's asset portfolio. The stock market, on the other hand, does adjust its demanded expected return to compensate for risk. As such, deposits are simply a cheaper source of funds than capital for an S&L. The owners of an S&L realize this cost differential and pressure the S&L to increase its leverage, or ratio of debt to capital.<sup>55</sup>

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52. See THE BROOKINGS INSTITUTION, *supra* note 34, at 12-15 (proposing system under which level of regulatory supervision and control increases as S&L capital level decreases); R. BRUMBAUGH, *supra* note 15, at 116 (capital provides buffer large enough to accommodate time delay caused by insurer's inability to monitor conditions of institutions); Goodman & Shaffer, *The Economics of Deposit Insurance: A Critical Evaluation of Proposed Reforms*, 2 YALE J. ON REG. 145, 159-60 (1984) (capital buffer increases FDIC's ability to spot problems).

53. An individual S&L's minimum capital level would be set as a function of its asset portfolio credit risk. See RISK AND CAPITAL ADEQUACY, *supra* note 10, at 40 ("With a high enough level of capital, risks could be reduced to any acceptable level."); Scott, *supra* note 47, at 912-13 ("In theory, one could set the capital ratio which makes the statutorily-fixed insurance premium actuarially correct for a particular level of asset risk."); Sharpe, *Bank Capital Adequacy, Deposit Insurance, and Security Values*, in RISK AND CAPITAL ADEQUACY, *supra* note 10, at 187, 196 ("For any amount of risk, there will be some amount of capital that will make the per-unit liability equal to any preselected premium . . .").

54. Goodman & Shaffer, *supra* note 52, at 161.

55. See A. CARRON, REFORMING THE BANK REGULATORY STRUCTURE 3 (1984) (high levels of capital reduce expected profits of S&L's); E. KANE, *supra* note 11, at 23 (increased capital is not found by managers to be cost effective); R. LITAN, *supra* note 11, at 161-62 (capital requirements increase cost of doing business for S&L's); RISK AND CAPITAL ADEQUACY, *supra* note 10, at 112-13 ("[S]tockholders can profit by increasing leverage."); Peltzman, *Capital Investment in Commercial Banking and Its Relationship to Portfolio Regulation*, 78 J. POL. ECON. 1, 20 (1970) (statistical study showing that incentive to maintain high leverage is so strong that early capital requirements, which lacked strong enforcement provisions, could

### 3. *Categorical Asset Restrictions*

As a supplement to minimum capital standards, regulators also attempt to control directly the riskiness of S&L asset portfolios by dictating the type and amount of certain assets that an S&L may hold.<sup>56</sup> Regulators perceive certain assets to be per se high credit risks. After examining the historical default rates of various types of assets, regulators then restrict S&L holdings of those assets with particularly high default rates. For instance, they view "junk bonds," or non-investment grade bonds, as high credit risks because of the large possibility of default on this type of bond.<sup>57</sup> The restrictions may consist of a complete prohibition on holdings or simply a maximum percentage of total assets that may be held in a particular "risky" type of asset.

The two methods of credit risk control, categorical asset restrictions and capital standards, can be intertwined in risk-based capital standards. By this method, an S&L's required capital level depends on the amount of its holdings of certain categories of per se risky assets. Thus, the standard supposedly both provides a disincentive to holding risky assets and increases the cushion on FDIC losses from S&L's that do decide to hold risky assets.

## III. CAPITAL STANDARDS

The pre-FIRREA minimum capital regulation<sup>58</sup> required S&L's to hold a certain amount of "regulatory capital" as a percentage of total liabilities, adjusted slightly to account for an individual S&L's interest rate and credit risk exposure.<sup>59</sup> The total capital requirement<sup>60</sup> was the sum of a fully phased-in liability component plus a contingency component minus a maturity matching credit. The fully phased-in liability component<sup>61</sup> required S&L's to hold 6% of their total liabilities<sup>62</sup> as capital. A contingency component was added to

not significantly alter S&L behavior).

56. Peltzman, *supra* note 55, at 3 ("[M]ore adequate capital and a less risky asset portfolio are substitutes in the eyes of the regulators . . .").

57. "Junk bonds" are bonds which promise extremely high returns to purchasers in compensation for the high probability of default. *See* S. ROSS & R. WESTERFIELD, *supra* note 37, at 496-97 (describing relationship between risk and return for bonds).

58. Regulatory Capital Requirement, 12 C.F.R. § 563.13 (1989).

59. For the definition of the components of "regulatory capital," see 12 C.F.R. § 561.13 (1989).

60. For an excellent summary of this capital regulation see R. BRUMBAUGH, *supra* note 15, at 119-20, 190-91.

61. This "liability component" of the regulation was to be gradually phased-in depending on the S&L industry's median return on assets and the individual S&L's return on assets. 12 C.F.R. § 563.13(b)(2) (1989). All new liabilities had to be capitalized at six percent immediately. 12 C.F.R. § 563.13(b)(3) (1989).

62. 12 C.F.R. § 563.13(b)(4)(i)(A) (1989). A requirement of 6% of liabilities is slightly less onerous than 6% of assets. We have seen that an S&L's assets equal its liabilities plus its capital. *See supra* notes 8-10 and accompanying text. If, for instance, an S&L has \$100 in assets, 6% of assets is \$6. Under the liability component of the capital requirement, this S&L would only have to hold 6% of liabilities. The sum of 6% of liabilities and total liabilities must equal the amount of assets, \$100. Thus,  $\$100 = .06(\text{liabilities}) + \text{liabilities}$ . Solving this simple equation, we find that liabilities must equal \$94.34, and the required capital

this required amount of capital to increase the total capital requirement if an S&L held certain risky assets. The regulation classified certain assets as risky and required S&L's to hold an additional amount of capital equal to a set percentage multiplied by the S&L's holdings of each asset.<sup>63</sup> The maturity matching credit allowed an S&L to reduce its total capital requirement (liability component plus contingency component) by as much as 2% of total liabilities if its balance sheet showed low interest rate risk exposure.<sup>64</sup> These regulations also authorized regulators to impose more stringent capital requirements on a case-by-case basis if necessary.<sup>65</sup>

Pursuant to the mandates of FIRREA,<sup>66</sup> the Office of Thrift Supervision has issued new capital regulations for S&L's.<sup>67</sup> FIRREA requires the establishment of three separate capital standards: a leverage limit, a tangible capital requirement, and a risk-based capital requirement. Unlike the pre-FIRREA capital standards, these three requirements are separate and independent minimums, each of which an S&L must meet. The leverage limit requires an S&L to maintain core capital of 3% of total assets.<sup>68</sup> The tangible capital requirement specifies that an S&L must hold tangible capital in the amount of 1.5% of total assets.<sup>69</sup> The risk-based capital requirement requires an S&L to maintain total capital in the amount of 8% of its total risk-weighted assets. The regulation assigns every asset that an S&L may hold a risk weight, based upon OTS's assessment of the riskiness of that asset. These risk weights vary from 0% for cash and U.S. Government securities to 100% for most loans.<sup>70</sup> The amount held of each asset is to be multiplied by the appropriate risk weight,

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holding must be only \$5.66.

63. 12 C.F.R. § 563.13(b)(4) (1989). For instance, an S&L that was not meeting its capital requirement (liability component minus maturity matching credit) would have had to hold additional capital in the amount of 4% of its land loans and non-residential construction loans. 12 C.F.R. § 563.13(b)(4)(ii)(E)(1)(i) (1989); 12 C.F.R. § 563.13(b)(4)(ii)(F)(1)(i) (1989). The size of the percentage figure was a function of the S&L's compliance with its base capital requirement, thus penalizing noncomplying S&L's.

64. Interest rate risk exposure was to be calculated as a function of an institution's "hedged gap," or the difference between the dollar value of assets maturing within a time period and the liabilities maturing during that time period, divided by total assets. 12 C.F.R. § 563.13(b)(5)(i)(A) (1989).

65. 12 C.F.R. § 563.14 (1989).

66. 12 U.S.C.A. § 1464(t) (West Supp. 1990).

67. 12 C.F.R. § 567 (1990) (removing sections 561.13 and 563.13, the previous capital regulations).

68. 12 C.F.R. § 567.8 (1990). In simplified form, core capital consists of common stockholders' equity, including retained earnings, and noncumulative perpetual preferred stock and surplus minus most intangible assets. Initially, S&L's are allowed to include qualifying supervisory goodwill in their core capital, up to 1.5% of total assets. This percentage will decrease to zero by January 1, 1995. Supplementary capital includes other "debt or equity instruments that are not as permanent as or have less certain value than the components of core capital." 54 Fed. Reg. 46,845, 46,861 (1989). For more technical and detailed definitions of these terms see 12 C.F.R. § 567.5 (1990). Total capital is the sum of core and supplementary capital, but supplementary capital may not constitute more than 50% of the total. 12 C.F.R. § 567.5(c) (1990).

69. 12 C.F.R. § 567.9(a) (1990). Tangible capital, in abridged form, includes common stockholders' equity, including retained earnings, and noncumulative perpetual preferred stock, and related earnings minus intangible assets. For a more technical and comprehensive definition of this term see 12 C.F.R. § 567.9(b) (1990).

70. 12 C.F.R. § 567.6(a) (1990). All repossessed assets or assets that are more than ninety days past due, other than one to four family residential real estate loans, have a special 200% weight.

and then these numbers are totaled to arrive at the total risk-weighted assets of an S&L. Under the regulation, an S&L must hold 8% of that total as capital.<sup>71</sup>

#### IV. ASSET RESTRICTIONS

Even before FIRREA, Congress had placed restrictions on the amount and type of assets that an S&L could hold in its portfolio.<sup>72</sup> For example, S&L's were allowed to invest up to 40% of their assets in secured nonresidential real property loans and up to 30% of their assets in consumer loans, commercial paper, and corporate debt securities. They could hold up to 10% of their assets in secured or unsecured loans for commercial, corporate, business, or agricultural purposes. S&L's also had the power to invest up to 10% of their assets in tangible personal property for rental or sale.<sup>73</sup> Congress also restricted federally chartered S&L investment in service corporations to 3% of assets.<sup>74</sup> Unlike state chartered S&L's, federal S&L's have never had authority to hold direct equity investments in real estate or equity securities.<sup>75</sup>

FIRREA makes only two major changes in the asset powers of S&L's. First, S&L's may only hold secured nonresidential real property loans in an amount up to 400% of their capital.<sup>76</sup> Under the previous statutory framework, S&L's could hold these loans up to 40% of total assets.<sup>77</sup> Assume an S&L holds an absolute amount of capital equal to 8% of total assets. Under pre-FIRREA regulations then, this S&L could invest 40% of its total assets, or 500% of capital, in these loans. Under FIRREA, the S&L could invest up to 400% of its capital requirement, or 32% of total assets, in these commercial-type real property loans. Thus, the new guidelines amount to a restriction of investments in secured nonresidential real property loans.

Second, FIRREA prohibits S&L's from acquiring or retaining any corporate

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71. 12 C.F.R. § 567.2(a)(1)(i) (1990). This regulation is to be phased in gradually, with 6% standard in 1990 and a 7% minimum in 1991 and 1992.

72. 12 U.S.C. § 1464(c) (1988).

73. For an excellent summary of these restrictions, see R. BRUMBAUGH, *supra* note 15, at 152-54.

74. Service corporations are wholly owned subsidiaries of savings institutions, which may engage in activities otherwise forbidden for savings institutions such as real estate development and management, insurance agency and brokerage services, or the sale of clerical and computer services. SAVINGS SOURCEBOOK, *supra* note 5, at 74.

75. State chartered S&L's have had varying amounts of authority to make direct equity investments, depending on state S&L investment authority regulations. Unlike a loan, an equity investment constitutes actual ownership of a business or project, with all of the rights and liabilities normally attached thereto. G. BENSTON, *supra* note 22, at 84-85. Under FIRREA, however, state chartered S&L's may not directly acquire or retain any equity investment of a type or in an amount that is not permissible for a federal S&L. 12 U.S.C.A. § 1831e(c) (West 1989).

76. 12 U.S.C.A. § 1464(c)(2)(B) (West Supp. 1990).

77. 12 U.S.C. § 1464(c)(1)(B) (1988).

debt security not of investment grade, i.e., junk bonds.<sup>78</sup> S&L's must divest themselves of all junk bond holdings by July 1, 1994.

## V. ECONOMIC CRITIQUE OF FIRREA'S RISK CONTROL PROVISIONS

### A. Capital Standards

Capital standards can help alter the moral hazard incentive structure, which encourages S&L's to assume high credit risk asset portfolios. This section shows how positive and significant levels of capital affect an S&L's calculations of net expected returns from any given asset portfolio by creating a form of deductible which shareholders must pay to take advantage of the FDIC floor on losses. It also demonstrates that the extent to which the changes in expected returns affect an S&L's investment decision will depend upon the characteristics of the individuals who control that S&L, i.e., whether diversified or nondiversified shareholders control its investment decisions.

First, a general principle of economic common sense: Regardless of an S&L's form of ownership, no S&L would assemble an asset portfolio that promises a zero or negative net expected return.<sup>79</sup>

Let us return to our example where we saw that the presence of fixed-premium federal deposit insurance eliminates controls on an S&L's credit riskiness by making deposit interest rates and deposit insurance premiums insensitive to asset portfolio credit risk. We also saw that this lack of discipline creates a moral hazard by converting what would otherwise be an unprofitable asset portfolio into a profitable one from the perspective of an S&L's owners. Recall the example from Part II.A. An S&L can assemble an asset portfolio at a cost of \$500 which has an equal chance of being worth either \$200 or \$600 after one year. With zero capital, the shareholders have a 50% chance of losing nothing and having the FDIC pay off depositors, and a 50% chance of being able to pay depositors their accounts plus interest and the FDIC its fixed insurance premium and still managing to reap a \$74 profit. Thus, we found an expected value to shareholders from this portfolio of \$37, the weighted average of the two potential outcomes of \$0 and \$74 profit.<sup>80</sup>

Positive capital levels can help erode that moral hazard by making an S&L's owners assume the full costs of their investment decisions. With a positive capital level, the shareholders begin the decisionmaking process with something to lose. For instance, if the S&L has a net worth of \$50 at the

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78. 12 U.S.C.A. § 1831e(d)(1) (West 1989). FIRREA defines an investment grade security as any security within one of the four highest rating categories of at least one nationally recognized statistical rating organization. 12 U.S.C.A. § 1831e(d)(4)(A) (West 1989). For a definition of junk bonds, see *supra* note 57.

79. See S. ROSS & R. WESTERFIELD, *supra* note 37, at 62.

80.  $\text{Return} = 1/2(0) + 1/2(600 - 500(1.05) - 1) = \$37$ .



beginning of the year, the shareholders stand to lose that \$50 if the bad outcome occurs; the \$50 will be applied to depositor claims on the defunct S&L, with the FDIC covering the remainder and the shareholders taking home nothing. The shareholders would still have a 50% chance of turning a \$74 profit on the portfolio. As such, the expected value of this project to shareholders is only \$12, the weighted average of a loss of their \$50 capital and a profit of \$74.<sup>81</sup>

The moral hazard of fixed-premium deposit insurance begins to disappear at the point when the shareholder capital at risk is equal to or greater than the potential profit from the asset portfolio. In our example, if the S&L has a capital value greater than \$74, shareholders will begin to perceive this asset portfolio as carrying a negative net return; the 50% chance of losing \$74 will offset the 50% chance of earning \$74.<sup>82</sup>

This example shows that minimum capital requirements can remove the moral hazard for S&L's to assume what would be unprofitable asset portfolios in the absence of fixed-premium deposit insurance. As the capital level increases, S&L owners begin to perceive objectively unprofitable investments as bad investments, and they will shy away from them.<sup>83</sup>

But what about asset portfolios that, although quite high credit risks, promise a positive net expected return even without federal deposit insurance? Positive capital levels, no matter how large, cannot give S&L owners a negative net expected return perception of these portfolios. The expected return calculations (without deposit insurance) already assume that the S&L will absorb the full downside risk of the portfolio and still, on average, stand to make a profit from the portfolio. The presence of fixed-premium deposit insurance, by preventing depositors and the FDIC from demanding credit risk premiums, only makes these already profitable portfolios seem even more attractive from the perspective of the S&L owners.

The effectiveness of capital standards in dissuading S&L's from assuming this type of high credit risk asset portfolio will depend upon the S&L's form of ownership and control. If an S&L is owned and controlled by diversified shareholders, capital standards will have no effect on the S&L's investment decision. Regardless of the capital level of an S&L, the S&L acts in its diversified shareholders' best interests by assembling *any* asset portfolio with a positive net expected return.<sup>84</sup>

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81.  $\text{Return} = 1/2(-50) + 1/2(600 - 500(1.05) - 1) = \$12$ .

82.  $\text{Return} = 1/2(-74) + 1/2(600 - 500(1.05) - 1) = \$0$ .

83. This example also highlights the practical problem that the required capital level could be quite high depending on the variance of expected returns from the portfolio, higher than legislators and regulators may be willing to require of S&L's. In our example the S&L has total book value assets of \$500; regulators would have to require a minimum capital level of 14.8% of total assets (\$74/\$500) to create a negative expected return from the perspective of shareholders.

84. For a rigorous defense of this generally accepted principle, see S. ROSS & R. WESTERFIELD, *supra* note 37, at 61-66.

Diversified shareholders hold shares in a large number of companies. As such, their portfolios average together the potential returns of the asset portfolios of all their companies. By averaging together the potential returns, the diversified shareholder can cancel out the variation, or risk of return, and the expected return becomes to him a "sure thing." Suppose a portfolio costs \$300 and has an equal chance of being worth \$200 or \$600 at the end of the year. One company may invest in it and get the bad outcome; another may get the good outcome. Given the 50% chance of both outcomes, if a diversified shareholder assembles a large enough number of companies that assume asset portfolios with similar return structures, he can expect, in the aggregate (neglecting the costs of raising funds to purchase the asset), to receive a positive net return of \$100, the weighted average of expected returns.<sup>85</sup> The extremes in return, ranging from \$200 to \$600, will cancel each other out, and the realized return will approach the expected return of \$100. Because the diversified shareholder holds stock in a sufficient number of companies to achieve this averaging function for all asset portfolios, he will profit if any of his companies invest in any asset portfolio which has a positive net expected return.

Given the existence of diversified shareholders, capital standards can do nothing to alter this driving mechanism. To the extent that S&L's are publicly traded and held by diversified shareholders, this principle should hold valid.

Many smaller S&L's, however, are owned by nondiversified shareholders, i.e., investors with most of their money invested in one S&L's stock, or mutual-form S&L's in which depositors own the institution. These S&L's are controlled by people with "all of their eggs in one basket." These shareholders are unable to average away the potential variance of returns and create a "sure thing" as diversified shareholders can. As long as they have something to lose, i.e., a positive capital level, these shareholders will fear asset portfolios with high levels of credit risk. As an example, suppose an S&L can invest in an asset portfolio that costs \$300 and has an equal chance of being worth \$100 or \$700 at the end of the year. Diversified shareholders would want the S&L, regardless of its capital position, to invest in this portfolio because it has a positive expected return of \$100, the weighted average of expected profits and losses.<sup>86</sup>

Nondiversified shareholders, with most of their money invested in one S&L, would quite likely think otherwise. These individuals are not diversified across many S&L's; thus, they are not able to average away the credit risk of this asset portfolio. As in the case of the diversified shareholders, the existence of a positive and substantial capital level will reduce the nondiversified shareholder's expected return from this asset portfolio. But unlike the diversified shareholder, the nondiversified shareholder must balance this lower expected

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85.  $\text{Return} = 1/2(200 - 300) + 1/2(600 - 300) = \$100.$

86.  $\text{Return} = 1/2(100 - 300) + 1/2(700 - 300) = \$100.$

return against a very high credit risk, or risk of insolvency.

Thus, to the extent that capital standards decrease the expected return from high credit risk asset portfolios, they also decrease the incentive for nondiversified shareholders to have their S&L's assume high credit risk asset portfolios.

As the above analysis demonstrates, regulators should not rely heavily upon capital standards to curb the credit riskiness of publicly traded S&L's that are controlled by diversified shareholders. Regulators can, however, expect increased capital standards to help deter high credit risk investment by S&L's that are controlled by nondiversified shareholders or mutual-form S&L's.

### B. *Categorical Asset Restrictions*

If regulators do wish to pursue the goal of lowering the credit risk in S&L asset portfolios, direct restrictions on the composition of those asset portfolios make perfect sense. Unfortunately, legislators and regulators have chosen a means of portfolio regulation that makes little sense. They have determined that certain categories of assets have historically high variances of returns, or high credit risk, and have limited S&L holdings of the riskier categories of assets.

Certainly, held in isolation some types of assets carry a higher degree of credit risk than others.<sup>87</sup> However, regulators appear to have forgotten a fundamental precept of modern finance theory: The riskiness of a portfolio is determined not by measuring the riskiness of the component assets in isolation, but rather by examining the riskiness of the entire portfolio taken as a whole.<sup>88</sup> The credit risk of an individual asset is reflected by the variance of returns from that asset. The credit risk of two assets held together, however, is not simply the weighted average of their respective variances; it is also a function of the extent to which the returns of the two assets move together, the "covariance" of returns.<sup>89</sup>

A simple example illustrates the hazards of relying on categorical assess-

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87. The categories chosen by Congress, however, often may not reflect the true degree of credit risk of the assets within that category. For instance, an S&L can make a small home loan to a millionaire, a lower credit risk loan, or a large home loan to a poorer individual, a higher credit risk loan. See THE BROOKINGS INSTITUTION, *supra* note 34, at 4 (S&L's are permitted substantial discretion within broad asset categories); R. LITAN, *supra* note 11, at 103 (S&L's can increase risk by simply extending riskier loans within any asset category).

88. See G. BENSTON, *supra* note 22, at 174 (variance of returns on individual assets is not sufficient measure of risk; need to examine entire portfolio variance); R. BRUMBAUGH, *supra* note 15, at 77 (risk is not function of given asset but rather of behavior of all assets taken together); RISK AND CAPITAL ADEQUACY, *supra* note 10, at 26, 29, 44-45 (total risk is function of interrelationships, or covariances, among individual assets); O'Driscoll, *Bank Failures: The Deposit Insurance Connection*, 6 CONTEMP. POL'Y ISSUES 1, 6-7 (1988) ("The categorical view of risk is inconsistent with modern finance and economic theory, which focuses on portfolio risk." (emphasis removed)); Scott, *supra* note 47, at 911 (Categorical restrictions on assets are contrary to the basic tenet of modern portfolio theory that portfolio risk is determined by overall variance, not individual variance.).

89. For a technical discussion of portfolio variance finance theory, see S. ROSS & R. WESTERFIELD, *supra* note 37, at 148-54.

ments of credit risk. Assume that two equally probable states of the world can exist at the end of the year. Asset A will be worth \$100 if state one occurs and \$500 if state two occurs. Asset B, on the other hand, will be worth \$500 if state one occurs and \$100 if state two occurs. Two other assets, C and D, have identical profiles: each will be worth \$200 if state one occurs and \$400 if state two occurs. The following table shows the possible values of each asset in each of the two states:

	<i>Portfolio 1</i>			<i>Portfolio 2</i>	
	A	B		C	D
State 1	\$100	\$500	State 1	\$200	\$200
State 2	\$500	\$100	State 2	\$400	\$400

Examined in isolation, each of these four assets offers the same \$300 expected value at the end of the year, the weighted average of the expected values. But the expected values of assets A and B are much more uncertain than the values of assets C and D. If an investor could choose only one of these assets, she would certainly prefer to buy assets C or D because they offer the same expected value as A or B but much less variance of possible returns.<sup>90</sup>

Assume now that an S&L can invest in either portfolio one, containing assets A and B, or portfolio two, containing assets C and D. Portfolios one and two offer identical overall expected values of \$600 (i.e., \$300 plus \$300). But portfolio one offers a certain \$600 in either state one or two, and portfolio two will yield either \$400 in state one or \$800 in state two. Thus, portfolio two, the portfolio containing the *least* credit risky individual assets is actually the *more* credit risky portfolio.

This example illustrates the importance of examining both the credit risk of the entire portfolio, which can be calculated as a function of both the credit risk, or variance, of the individual assets in the portfolio and the extent to which the returns of the individual assets move together or are related, the covariance of returns.<sup>91</sup> The current regulatory approach of classifying certain categories of assets as per se risky could lead to the perverse result of encouraging S&L's to hold the riskier portfolio two rather than the less risky portfolio one in our example.<sup>92</sup>

Restricting investments in certain categories of assets also limits an S&L's opportunities to diversify risk. George Benston has shown that the risk of

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90. A rational investor will assume greater credit risk only in exchange for a greater expected return. *Id.* at 128.

91. *Id.* at 153.

92. Even accepting, arguendo, the theoretical soundness of categorical asset restrictions, FIRREA is hardly a major departure from the previous regulatory system for federal S&L's. A possibly minor reduction in S&L holdings of secured nonresidential real property loans and the elimination of junk bond holdings simply do not, by themselves, seem to offer any prospect of substantially reducing the credit risk of S&L asset portfolios.

failure was actually statistically lower for state chartered S&L's that held direct equity investments in their portfolios, assets which if held in isolation are often considered very high credit risks.<sup>93</sup>

The risk-based capital regulations promulgated under FIRREA fall victim to the same criticism. They penalize the holdings of certain assets as per se credit risky. As with basic portfolio regulation, risk-based capital standards should, if possible, be pegged to the credit risk, or variance, of the entire asset portfolio, not the variance of individual assets held in isolation.<sup>94</sup>

## VI. CONCLUSIONS

Before the S&L bailout debacle is finished, the American taxpayer will spend possibly hundreds of billions of dollars to close the hundreds of S&L's left insolvent by the current credit risk crisis. By enacting FIRREA, Congress and the President sought to prevent a recurrence of the present credit risk crisis.

This Note has applied basic economic theories to the two major credit risk reducing provisions of FIRREA. It has demonstrated that positive and significant minimum capital levels will help reduce the moral hazard of S&L's to invest in objectively unprofitable asset portfolios (portfolios in which an uninsured firm would not invest). Capital standards will not, however, prevent S&L's controlled by diversified shareholders from investing in objectively profitable asset portfolios that happen to have high credit risk. Thus, regulators should be especially alert to the level of credit risk assumed by S&L's that are controlled by diversified shareholders.

This Note has also demonstrated that categorical asset restrictions, as a supplement to capital standards, serve no function in preventing asset portfolio credit risk, and in fact, may actually prevent efficient diversification of risk. Congress should remove these restrictions and should require regulators to report on the feasibility of measuring and controlling overall portfolio variance.

These conclusions suggest that neither risk controlling provision of FIRREA is an adequate substitute for a more fundamental restructuring of the federal deposit insurance system. Such a restructuring might include risk sensitive premiums, which would remove the moral hazard problem itself, and/or prompt closure rules, which would require regulators to close any S&L as soon as it becomes insolvent.

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93. G. BENSTON, *supra* note 22, at 121-22. *But see* 49 Fed. Reg. 47,852, 47,862 (1984) (FHLBB reports that direct equity investments lead to higher asset portfolio credit risk).

94. *See* R. BRUMBAUGH, *supra* note 15, at 78 (criticism of categorical restrictions applies equally to categorical risk-based capital standards).