Why Did Thrift Goodwill Matter in 1989?

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Abstract

The Financial Institutions Reform, Recovery, and Enforcement Act of 1989 limits thrift goodwill that can be counted as regulatory capital. This paper examines if and why the goodwill clause adversely affected the market value of thrifts. Main findings are that good will had a large negative effect on stock returns of low-capital thrifts in 1989 and that the negative effect persisted in the following two years. These findings suggest that a reduced put option value accounted for a large portion of the stock-price decline. The role of asymmetric information appears to have been small.

Key Words: Put option value; Asymmetric Information; FIRREA; goodwill

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1. Introduction

The Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA) tightened bank and thrift regulation to restore the soundness of financial institutions. A notable provision in the act was the limitation of thrift goodwill that can be counted as regulatory capital. Many thrifts claimed that the goodwill provision caused damages to them. In July 1996, the Supreme Court ruled that the government must pay for damages caused by the provision, which rescinded a previous agreement between many thrifts and their regulators.

This legal controversy raises an interesting economic question. As a result of the limited eligibility of goodwill as regulatory capital, many thrifts failed to meet the minimum capital requirement. In a frictionless market where firms can issue stocks at fair prices, however, the failure to meet capital requirements should not reduce the economic value of solvent thrifts. Without market frictions, therefore, the goodwill clause of the act should decrease only the book value, as opposed to the economic value, of thrifts. Thus, it is an interesting question if and why a reduced book value of goodwill affected the market value of thrifts.

This paper estimates the effect of goodwill on thrift stock returns and discusses why would goodwill matter. Economists generally praised the goodwill provision for stemming excessive risk taking by thrifts. The ability to count goodwill as capital allowed undercapitalized thrifts to stay in business and to enjoy large put-option values arising from limited liability. One possibility, therefore, is that the goodwill provision may have lowered the market value of thrifts by decreasing the put-option value.

The thrift industry complained that equity financing was too expensive. The goodwill provision, therefore, caused damages to the shareholders of many thrifts that were forced to

increase capital ratios. In the finance literature, equity financing can be expensive because of asymmetric information between managers and outside investors. Managers of a firm, who are assumed to maximize the wealth of existing shareholders, have an incentive to issue stock when the firm's stock is overvalued. Knowing this incentive, investors demand "lemon premiums" to firms issuing stock. Thus, another possibility is that an anticipated need to raise equity may have decreased the market value of thrifts. I explore the two possibilities by examining stock returns of various subgroups of thrifts in the year of FIRREA legislation (1989) and the following two years.

In 1989 when the FIRREA was proposed, debated, and enacted, stocks of many high-goodwill thrifts underperformed those of low-goodwill thrifts, confirming that the goodwill clause caused damages to the shareholders of those thrifts. The effect of goodwill, however, was insignificant among well capitalized thrifts. The negative abnormal stock return for low-capital high-goodwill thrifts was very large, over 30 percentage points. During the following two years, the cumulative stock-return gap between high-goodwill thrifts and low-goodwill thrifts remained fairly constant. These findings are more consistent with the put-option value hypothesis, though they do not rule out the possibility of asymmetric information. A firm may not have to pay a large lemon premium when it has a clear reason to issue stock (meeting capital requirements in this case). In addition, stock undervaluation caused by asymmetric information should not be permanent.

The rest of this paper is organized as follows. Section 2 describes the background and key provisions of the FIRREA. Section 3 discusses possible reasons why the book value of goodwill may affect the economic value of thrifts and their empirical implications. In the fourth section, I

examine the effect of goodwill on thrift stock returns. Lastly, the article's findings are summarized.

2. FIRREA and Thrift Goodwill

Increased interest rates in the late 1970s and early 1980s impaired the financial structure of many thrifts whose balance sheets were composed of long-term assets and short-term liabilities. To reduce the resolution cost, thrift regulators arranged mergers between failing thrifts and solvent ones. In those mergers, acquiring institutions were permitted to use the purchase accounting method, which had been rarely used in the thrift industry until 1980. This accounting method treats the excess of the purchase price over the fair market value of the acquired firm as goodwill. Under generally accepted accounting principles (GAAP), goodwill is to be amortized over its useful life (40 years maximum). For regulatory purposes, the full amount of goodwill created by mergers (supervisory goodwill) was counted as capital before the FIRREA. The purchase accounting method, therefore, enabled solvent thrifts to acquire failing ones without raising capital.

In the 1980s, the financial condition of most thrifts deteriorated because of aggressive risk taking and problems in real estate markets. To reverse this trend, President Bush proposed a plan to restructure the regulation of thrifts and banks on February 6, 1989, which became the basis of the FIRREA. After prolonged political debates, the FIRREA was enacted on August 9, 1989. Key aspects of the act include the recapitalization of the thrift insurance fund, the creation of the Resolution Trust Corporation, strengthened enforcement authority of regulators, restrictions on thrift activities, and tightened capital requirements.

Thrift capital requirements, which are the focus of this paper, can be summarized as

follows. Within 120 days of the enactment of the FIRREA, all thrift institutions are required to have core capital of not less than 3 percent of assets, of which 1.5 percent must be tangible capital. Core capital consists mainly of common stock, perpetual preferred stock, and supervisory goodwill, and tangible capital is defined as core capital minus supervisory goodwill. Supervisory goodwill must be fully amortized by the end of 1994. Ultimately, thrift capital standards will be no less stringent than those imposed on national banks. Thrift regulators are authorized to close institutions that fail to meet the capital requirements.[1] Before the enactment of the FIRREA, capital regulation was based on informal guidelines, and regulators were not allowed to close institutions with positive net worth.

Under the new capital requirements, many thrifts had to increase the capital ratio to avoid failure. *American Banker* (August 10, 1989) reports that based on the balance sheets of the first quarter, 1989, 305 solvent thrifts would fail to meet the initial phase of the capital requirements. The shortage of capital was greater for thrifts with large goodwill. Only a limited amount of goodwill was counted as core capital, and it had to be amortized over a shorter period, 5 years as opposed to the maximum of 40 years.

Soon after the enactment of the FIRREA, Long Island Savings Bank in Syosset, New York, sued the federal government for a breach of contract. The thrift claimed that the new capital rules rescinded the agreement between thrifts and regulators to allow goodwill to be counted as regulatory capital, which was an important part of the merger deals arranged by regulators. The lawsuit was followed by other thrifts including CenTrust Savings Bank and

[1]An undercapitalized thrift can continue operation if federal regulators approve its plan specifying business activities and recapitalization schedules.

Glendale Federal Bank. In July 1996, the Supreme Court ruled that the government must pay the plaintiffs for damages caused by the new capital rules.

3. Why Would Goodwill Matter?

The provision of the FIRREA restricting the applicability of goodwill to regulatory capital forced many thrifts to increase the capital ratio. In a frictionless capital market, solvent firms can raise capital at fair prices that do not affect the wealth of existing shareholders. In this case, a shortage of capital would not affect the market value of a firm. Then the goodwill clause, which basically changes the book value of capital by mandating a different accounting method, should not cause damages to thrifts. Thus, we need to identify deviations from the ideal situation and analyze their effects on thrift market values to understand why goodwill would matter.

The most plausible explanation is the put-option value arising from limited liability. It is widely recognized that stockholders of depository institutions enjoyed significant put-option values. With limited liability and risk-insensitive funding costs, stockholders can transfer wealth from debtholders to themselves by taking more risks (Merton, 1977 and Keeley, 1990). In the 1980s, risky thrifts were able to raise funds at low costs thanks to the government-backed deposit insurance charging fixed premiums. Thus, the cost of taking risk was born by the deposit insurer, while the benefit was captured by insured institutions. Holding the riskiness of asset portfolios constant, the put-option value is higher for thrifts with lower capital ratios because their stock holders absorb smaller parts of expected losses from risk taking (Park, 1997). Increasing the capital ratio, therefore, may decrease the stock price of a thrift by transferring wealth back to the deposit insurer.

A second possibility is asymmetric information between insiders and outside investors.

Myer and Majluf (1984) show that managers who are better informed about earnings prospects have incentives to issue equity shares when stocks are overvalued. Thus, investors interpret equity issuance as a signal of overvaluation and negatively react to it. This signaling effect can make equity financing unduly expensive. Provided that issuing stocks elicits negative responses, an anticipated need for new equity can lower the stock price of a thrift. If shareholders know that they will have to pay lemon premiums, stock prices should reflect the anticipated cost.

Both hypotheses imply that the goodwill clause would have larger effects on stock returns of thrifts with lower capital ratios. Given its negative relationship with the capital ratio, the put option value is zero or very small for a well capitalized thrift. When the option value is already small, a higher capital ratio does not matter much. Furthermore, many well capitalized thrifts do not need to raise capital because they may meet the new capital requirements even after deducting goodwill from capital. Without a change in the capital ratio, of course, the put option value remains constant. On the other hand, when a low-capital thrift that enjoyed a large option value increases the capital ratio, it may experience a substantial decrease in the option value. Asymmetric Information is also expected to cause a larger effect of goodwill on the stock prices of thrifts with lower capital ratios that need to increase the capital ratio. To increase the capital ratio, thrifts must either raise equity or reduce assets. Both options are costly. The anticipated costs should be reflected in the stock prices of thrifts experiencing capital shortfalls.

The potential effect of asymmetric information is more limited than that of the put option. Before the enactment of the FIRREA, many thrifts with low capital pursued highly risky investment strategies. In addition to the option value resulting from risky investments in the past, thrift stock prices may have reflected the opportunity to increase the option value further. Thus,

the elimination of the put-option component would have had a large effect on thrift stock returns. The lemon premium, on the other hand, is not likely to have been large for thrifts in 1989 because the stock market may not have interpreted stock issuances to meet capital requirements as a sign of overvaluation. Empirically, Cornett and Tehranian (1994) report that the average abnormal stock return was only -1.53 percent when commercial banks involuntarily issued common stock to meet capital requirements in the 1980s. Undercapitalized thrifts may further reduce the lemon premium by reducing assets instead of raising equity. Although shrinking assets involves other costs such as forgoing profitable lending opportunities and cutting ties with loyal customers, some thrifts may find it cheaper than raising equity.

The two hypotheses offer different implications about the long-term performance of stocks. The effect of the put-option value is likely to be permanent and stable. The one-time reduction in the put-option value will last until regulators allow lower capital ratios and/or riskier asset portfolios. However, the long-term performance of stocks might be less stable if the initial disturbance was caused largely by asymmetric information. Since most information eventually becomes public, asymmetric information is a temporary phenomenon. Thus, if thrifts increased capital ratios by raising equity, stocks would regain substantial parts of their lost values later. Lemon premiums should disappear when earnings prospects are better known to outside investors. Suppose that a thrift with n_o outstanding shares issue n_n new shares at x-€ per share, where x and € are the true per-share value of the thrift's stock and the lemon premium. With the dilution, the true per-share value is $[n_o x+n_n(x€€)]/(n_o+n_n)$. In this case, the stock price will initially decrease by € and later increase by $(n_o €)/(n_o+n_n)$. When the number of new shares relative to old shares (n_n/n_o) is moderate, most of the lost value will be recovered. For example,

when the number of shares increases by 10 percent (n_n/n_o=0.1), the stock will regain 91 percent of the initial decline. Even when the number of shares doubles (n_n/n_o=1), the stock will regain 50 percent of the initial decline. Stock prices may also recover if thrifts manage to meet capital requirements using a cheaper alternative, i.e., by reducing assets.

Asymmetric information can result in a large and lasting stock return gap when the experimental group consists of undervalued or overvalued firms. For example, Loughran and Ritter (1995), Ritter (1991), and Spiess and Affeck-Graves (1995) find that stocks of firms issuing new equity significantly underperformed the market in the long run. This result suggests that firms issue equity when their stocks are overpriced and that stock markets underreact to the lemon problem. This possibility is not relevant to my study that divides the sample based on the need to raise equity, as opposed to the actual issuance. There is little reason to believe that firms with capital needs are either undervalued or overvalued.

Another possibility is that the thrift industry as a whole was undervalued because of a negative public perception at the time. In this case, equity financing would have been costly. This possibility, however, does not imply that a need to raise equity should decrease the stock price. Shareholders may not anticipate the dilution of stocks because they are not supposed to know the undervaluation. If they knew, stocks would have not been undervalued. Information asymmetry is not between existing shareholders and potential investors but between insiders and outside investors. If thrift stocks were held mostly by insiders, existing shareholders would negatively react to an anticipated need to issue undervalued stocks. In this unlikely case, the stock return gap between well-capitalized and under-capitalized thrifts can be large initially, but it is not likely to be stable. The cost of raising equity should decrease as undervalued stocks recover and may

vary with the investors' perception about the industry.

In sum, we may conclude that the put-option value played the major role if high-goodwill thrifts suffered very large decreases in stock prices. In the environment examined by this study, the lemon premium should be of limited magnitude. The stability of the initial decrease in stock prices would further support the importance of the put-option value.

4. Thrift Goodwill and Stock Returns

This section looks at cumulative stock returns of various subgroups of thrifts between 1989 and 1991 to examine the validity of the possibilities discussed in the previous section: the put option value hypothesis and the asymmetric information hypothesis. Specific questions to be addressed are if goodwill affected stock returns of thrifts, if its effect was related to capital ratios, and if the effect was permanent.

4.a. Data and Methodology

The sample consists of 66 thrifts whose stocks were publicly traded during the entire year of 1989 (see Table 1 for descriptive statistics).[2] Stock returns were obtained from the Center for Research in Security Prices data base. I combined the stock market data with the Thrift Financial Reports filed to the Office of Thrift Supervision, which contains balance-sheet and income-statement data. The matching was aided by Securities and Exchange Commission filings that contain the address and asset size of firms. The sample includes only those thrifts for which the matching could be double-checked. For holding companies that own multiple institutions to be included in the sample, the asset of the matched thrift had to account for at least 80 percent of the

[2]Most thrifts that failed in 1989 experienced lower stock returns and had more goodwill than other thrifts. Thus, the inclusion of those thrifts would widen the stock-return gap between low-goodwill and high-goodwill thrifts.

consolidated asset. There were some high-capital thrifts whose capital consists mostly of goodwill. Those thrifts were excluded because it is problematic to classify them as well-capitalized thrifts. It is not reasonable to classify them as under-capitalized either. If goodwill had some economic value other than meeting capital requirements, those thrifts would have had little put option value. Another criterion of sample selection was solvency because insolvent firms would not be able to raise equity. As of December 31, 1988, all thrifts in the sample met this criterion based on the GAAP net worth. Thus, assuming that the GAAP accurately measures the fair market value, they would be able to raise capital in a frictionless market.

For legislative changes, it is difficult to apply standard event study methodology because of uncertainties about event dates (Binder, 1985 and MacKinlay, 1997). Legislation of an act can be anticipated as soon as, or even sooner than, the act is proposed. As political debates proceed, the probability of the enactment changes almost continuously, and not necessarily into one direction (see Table 2 for the list of key events related to the capital requirements). In some cases, therefore, the enactment is fully anticipated and hence a non-event. Furthermore, an event may not be completed with the enactment of an act when its interpretation is not clear. In the case of the FIRREA, Henry Gonzalez, chairman of the House Banking Committee, sent a letter to Treasury Secretary Nicholas Brady to clarify the new capital requirements about three weeks after the enactment of the act (*American Banker*, September 7, 1989). The letter claims that the act caused confusion even among regulators.

To overcome these difficulties, I focus on cumulative monthly returns, which can capture changing probability estimates of investors during the relevant period (see Brown and Warner, 1980, for discussion of the usefulness of cumulative abnormal returns). An alternative approach is

to examine the effects of a series of announcements leading up to the passage of an act. Despite uncertainties about event dates, this approach is more sensible when we examine the effect of an act on an entire industry. For example, Cornett and Tehranian (1989), Cornett and Tehranian (1990), and Madura et al. (1993) analyze the effects of major banking acts on stock returns of depository institutions at the industry level. In their cases, following stock returns for a long period of time is problematic because stock returns at the industry level are influenced by some macroeconomic or industry-specific factors. For example, interest rate movements may significantly affect returns on thrift stocks in general. This paper compares subsamples of thrifts classified based on the values of firm-specific variables. In this case, differences in stock returns should result largely from firm-specific factors. Binder (1985) also shows that excess returns linked to firm-specific variables are more reliable.

The normal or benchmark return in this study is the average stock return of the control group, and the abnormal return is the difference between the return on the concerned thrift's stock and the normal return. For the purpose of testing the significance of goodwill effects, for example, the abnormal return of a high-goodwill thrift is the return on the high-goodwill thrift stock minus the average stock return of low-goodwill thrifts. I rely on the intraindustry comparison because the thrift industry was rather idiosyncratic during the sample period. The industry experienced severe and dynamic problems in the 1980s. Thus, parameters derived from past returns may not produce reliable estimates of normal returns.

I also employ regressions to confirm the results of the subsample comparison. The event window is long, and the FIRREA contains other provisions that may affect the profitability of thrifts. Thus, many other factors may have influenced thrift stock prices during the sample period.

The regressions use cumulative stock returns as the dependent variable and include goodwill and other relevant variables as explanatory variables.

4.b. Changes in the Financial Structure of Sample Thrifts

This section analyzes how the financial structure of the sample thrifts changed between 1989 and 1991. By analyzing how thrifts responded to the new law, we may interpret more clearly the relationship between thrift goodwill and stock returns, which will be presented in the following sections.

Table 3 reports the frequency distribution of thrift financial structure: the tangible capital ratio, changes in capital components, and asset growth. Most undercapitalized thrifts failed to increase the tangible capital ratio, and many of them went out of business during the period examined. Many thrifts raised a moderate amount (less than 0.5 percent of 1988 assets) of equity (common stock and surplus), and/or reduced assets. However, retained earnings declined for most thrifts because of operating losses. In sum, thrifts attempted to meet the new capital requirement both by raising equity and reducing assets, although these efforts were not successful because of operating losses.

4.c. Effects of Goodwill on Thrift Stock Returns

The sample is divided based on the ratio of supervisory goodwill to GAAP net worth (goodwill ratio) and the ratio of GAAP net worth to assets (capital ratio) at the end of 1988. The goodwill ratio represents the proportion of the capital base eroded by the FIRREA. Thrifts report two categories of intangible assets: purchased mortgage servicing rights and goodwill, which is created by mergers. Thus, it is reasonable to assume that the whole amount of goodwill is supervisory goodwill that was affected by the FIRREA. The FIRREA did not significantly affect

the status of mortgage servicing rights; it permitted thrifts to count 90 percent of the fair market value of mortgage servicing rights toward the *tangible* capital standard. Furthermore, mortgage servicing rights can be sold. Thus, they were almost equivalent to tangible assets.

Instead of arbitrarily choosing cutoff levels, I divide the sample equally. An ideal criterion is the capital ratio at which the put option value becomes zero, but it is difficult to identify such a ratio. Given that the sample size is relatively small, it is important to divide the sample evenly to minimize the effect of random noise. Although the results are not reported, I divided the sample using various other cutoff levels. The key results are not sensitive to cutoff levels.

Firstly, stock returns of high-goodwill (33 thrifts whose goodwill ratio was higher the median, 0.065) and low-goodwill thrifts (33 thrifts) are compared to ascertain if the goodwill clause caused negative abnormal returns. Figure 1 shows that stocks of high-goodwill thrifts underperformed those of low-goodwill thrifts in 1989. The performance gap, which was first noticeable in May, substantially increased until October and fluctuated between 20 and 25 percentage points for the rest of the year. Based on this figure, investors do not appear to have taken the President's proposal seriously. In February and March, the proposal was intensely debated by opposing groups and viewed somewhat problematic even by some regulators (refer to Table 2). Thus, legislation of the FIRREA may have not been perceived to be probable until late April when the Senate and the House approved their versions of the act.

Statistical tests also reject the hypothesis that the cumulative average returns of the two groups are equal (Table 4). The t-test rejects the hypothesis at the 5-percent level for the last

three months of the year.[3] Kothari and Warner (1997) show that parametric tests for long-horizon abnormal security returns can be biased. Thus, I also employ a rank test, which is nonparametric.[4] The rank test improves statistical significance; the equality is rejected at the 1-percent level for the same months.

Secondly, I compare stock returns of high-goodwill and low-goodwill thrifts within each capital group. Goodwill may have mattered only to thrifts with insufficient capital because its effect was largely through capital requirements. This hypothesis is supported by Figure 2.a, which restricts the comparison to low-capital thrifts (33 thrifts whose capital ratios were lower than the median, 0.049). The underperformance of high-goodwill thrifts (17 thrifts whose goodwill ratio was higher than the group median, 0.15) is much more pronounced in this case; the cumulative stock return gap was over 30 percentage points in the last three months of the year. Since subsamples are smaller in this case (17 high-goodwill and 16 low-goodwill thrifts), average returns can be significantly influenced by outliers. To check this possibility, Figure 2.b compares samples that exclude the highest and the lowest return from each group based on the year-end cumulative return. This adjustment does not result in noticeable differences. Statistical significance is very high too. For the last three months of the year, both the t-test and the rank test reject the hypothesis that the cumulative average returns of the two groups are equal at the 1-percent level.

When the two groups of high-capital thrifts (16 high-goodwill thrifts whose goodwill ratio

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[3]Note that the test for each month conveys similar information because this study compares cumulative returns.

[4]I apply the two-sample t-test to the ranks of stock returns. This method is equivalent to the Wilcoxon rank sum test.

was higher than the group median, 0.05, and 17 low-goodwill thrifts) were compared, the cumulative return gap was very small throughout the year and was only about 3 percentage points at the year-end (Figure 3.a).[5] Excluding extreme observations does not produce a clear pattern either (Figure 3.b). Statistically, the equality of the means is not rejected at the 10-percent level for any month. These results strongly suggest that the goodwill clause did not adversely affect the stock prices of well capitalized thrifts.

To control for the effects of other relevant variables, I regress the cumulative stock return during 1989 on the goodwill ratio and other variables that may affect thrift stock returns. The explanatory variables are the capital ratio (CAPITAL; see Table 5 for detailed variable definitions), the square of CAPITAL (SQCAPTL), the goodwill ratio (GOODWILL), the increase in earnings (PROFIT), the ratio of direct investment (INVESTDR), the ratio of nonmortgage loans (NONMLOAN), thrift size (SIZE), a merger dummy (DUMMYMGR), and a stock-issuance dummy (DUMMYSTK).

The capital ratio and the goodwill ratio are relevant because the FIRREA tightened overall capital requirements and limited the application of goodwill as regulatory capital. The square term of the capital ratio is included because capital requirements should have larger effects on low-capital thrifts. PROFIT undoubtedly is a critical variable in explaining stock returns. The FIRREA restricts thrift asset portfolios, which are key determinants of profitability. In particular, the act requires thrifts to maintain 70 percent of their assets in housing-related loans and

[5]Although the median goodwill ratio is lower for this group than for the low-capital group, the cutoff levels are comparable in terms of the ratio of goodwill to assets. In addition, the qualitative results do not change when the universal median, as opposed to the group median, of the goodwill ratio is used as the cutoff level.

authorizes regulators to restrict direct investments in real estate. INVESTDR and NONMLOAN intend to capture the effects of these changes. Firm size is frequently used in explaining stock returns, and previous studies find that mergers influence stock returns (e.g., Jarrell and Poulsen, 1989). DUMMYSTK is included to examine if thrifts issuing stocks paid large lemon premiums.

Table 5 reports the results of the regressions estimated by ordinary least squares. In the first regression, which uses the full sample, GOODWILL is statistically significant at the 5-percent level. The only other variable statistically significant at the 10-percent level is PROFIT. The second regression employs the sample of low-capital thrifts. Both the statistical and the economic significance of GOODWILL improve in this regression. The coefficient indicates that an increase in the goodwill ratio by 1 percentage point decreases the stock return by about 0.45 percentage points. No variable is statistically significant in the third regression using the sample of high-capital thrifts. In sum, these regressions controlling for the effects of other variables produce fundamentally the same result; goodwill negatively influenced the stock returns of low-capital thrifts in 1989.

Another noteworthy result is that DUMMYSTK is statistically insignificant and has the positive sign in the first two regressions. This result suggests that thrifts issuing stock, especially the ones with low capital, did not pay large lemon premiums. Based on this finding, the effect of lemon premiums should be of limited magnitude.

4.d. Long-Term Performance of Thrift Stocks

To ascertain if the effect of goodwill was stable, this section follows thrift stock returns

for two more years, 1990 and 1991.[6] In addition to help determine the relative importance of the put option value and asymmetric information, this analysis may improve our confidence in the magnitude of the goodwill effect. Stock markets often overreact or underreact to economic events because of short-term sentiments of investors. Thus, it can be misleading to estimate the effect of an economic event from a short-term analysis.

Figure 4.a compares cumulative average returns of the two groups of low-capital thrifts whose stocks were actively traded during the entire three-year period (6 high-goodwill thrifts and 9 low-goodwill thrifts). The gap between cumulative stock returns of low-goodwill and high-goodwill thrifts remained fairly stable between December 1989 and December 1991, suggesting that the effect of goodwill was permanent.

To increase the sample size and guard against survivor biases, I also examined a sample including delisted thrifts. In calculating cumulative average returns for each group, the cumulative returns for delisted thrifts were assumed to remain the same as those on the delisting dates. This assumption is somewhat problematic because stock prices tend to decline after delisting.[7] Ignoring this delisting bias, however, is a conservative way to test the permanence of the goodwill effect. A larger number of high-goodwill thrift stocks (11 as opposed to 7 low-

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[6]It is not practical to follow more than two years because many thrifts failed in the early 1990s. Two years may not be enough for asymmetric information to be fully resolved but should be enough for partial resolution. Loughran and Ritter (1995), who compare the long-term stock performance of firms offering new shares and that of nonissuers, detect a significant underperformance of the former group in the first two years, though the underperformance lasts beyond two years.

[7]Shumway (1997) shows that delisting announcements decrease stock prices by 14 percent on average. Accordingly, stock prices are expected to decline after delists that surprised investors. Delisting returns are not available for the thrifts in my sample.

goodwill thrifts) were delisted during the two years. Thus, when lower returns were assumed for delisted thrifts, the cumulative return gap is likely to become wider. The sample including delisted thrifts produces a similar result. The stock return gap appears to have been fairly constant (Figure 4.b).

To confirm this result, I test the hypothesis that abnormal cumulative returns for high-goodwill thrifts at the end of 1991 (month 36) were equal to those in earlier months after the FIRREA (from month 12 to month 35). The abnormal cumulative return for a low-capital, high-goodwill thrift is defined here as the difference between its cumulative stock return and the cumulative average stock return for low-capital, low-goodwill thrifts in a given month. Both the t-test and the rank test using the sample including delisted thrifts fail to reject the hypothesis at the 10 percent level for all of the 24 months (Table 6).

4.e. Estimate of the Put Option Value

The large and lasting gap between cumulative stock returns of low-goodwill and high-goodwill thrifts suggests that a decreased put option value was largely responsible for the underperformance of high-goodwill thrift stocks in 1989. From the cumulative return gap, we can roughly estimate the magnitude of the put option value deriving from the ability to count goodwill as regulatory capital, i.e., the right to be in business with low capital ratios and gamble for resurrection.

The cumulative stock return gap between low-capital high-goodwill thrifts and other thrifts averaged about 0.33 between October, 1989 and December, 1989. The combined market value of low-capital high-goodwill thrifts (stock price times the number of shares outstanding) was about 0.7 billion dollars, and the amount of goodwill at these thrifts was about 2 billion

dollars at the end of 1988. These figures suggest that the permission to count 1 dollar of goodwill as regulatory capital resulted in about 12 cents of the put option value for low-capital thrifts.

In aggregate, low-capital thrifts (1,628 thrifts whose capital ratio was lower than 0.05) had $16.6 billion in goodwill at the end of 1989. Then based on the above analysis, the goodwill clause of the FIRREA eliminated $2 billion of the put option value enjoyed by thrift shareholders.

5. Summary

This paper has examined the relationship between thrift goodwill and stock returns in the year of FIRREA legislation and the following two years. The main finding is a large and lasting negative effect of goodwill on stock returns of low-capital thrifts. While goodwill did not have a significant effect on stock returns of well capitalized thrifts, it adversely affected those of poorly capitalized thrifts in 1989, when the FIRREA was enacted. Furthermore, stock prices of the affected thrifts failed to rebound in the following two years.

These findings favor, though not decisively, the hypothesis that goodwill mattered mainly because of the reduced put option value. The goodwill clause, which reduced the put option value by forcing thrifts to increase the capital ratio, would not affect the put option value of high-capital thrifts that had a small or no option value and did not need to make adjustments. Once low-capital thrifts raised capital, their put option values would decrease permanently.

Another possibility considered by this paper is an excessive cost of equity financing caused by asymmetric information. The effect of asymmetric information is not expected to be large because stock issuances to meet capital requirements do not necessarily signal that the issuing firms' stocks are overvalued. Furthermore, the effect of asymmetric information is not likely to be stable in the long run. The lemon premium may dissipate over time, and the anticipated cost of

equity financing may vary with conditions in the stock market. Thus, the effect of asymmetric information appears to have been minor.

In sum, the goodwill provision of the FIRREA had a large negative effect on the market value of thrifts, and the effect of goodwill appears to have derived largely from reduced put option values possessed by thrift shareholders. A rough estimate indicates that the put option value eliminated by the goodwill clause amounts to $2 billion.

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Table 1: Descriptive Statistics of 66 Sample Thrifts

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Assets	3,147	1,726	4,769	83	30,837
GAAP Net Worth	0.0523	0.0492	0.0260	0.0105	0.1502
Goodwill	0.0120	0.0030	0.0160	0.0000	0.0571
Tangible Capital	0.0405	0.0378	0.0308	-0.0310	0.1429
Stock Returns	-0.1718	-0.1677	0.4190	-0.9176	1.0624

Notes: Assets are in millions of dollars.
GAAP net worth, goodwill, tangible capital (GAAP net worth - Goodwill) are ratios to assets.
Stock return is the rate of return during 1989.

Table 2: Key Developments Related to Capital Requirements in 1989

Date	Event
February 6	The White House released President Bush's proposal to reform the regulation of thrifts. The proposal requires thrifts to meet capital requirements applicable to commercial banks by June 1, 1991. Details about supervisory goodwill were not reported by major newspapers.
March 22	William Seidman, chairman of the Federal Deposit Insurance Corporation, cited heavy burdens imposed on thrifts by the President's proposal and expressed his doubt about the success of the proposal in a Congressional hearing.
March 28	Treasury Secretary Nicholas Brady publicly advocated giving thrifts more time to write off goodwill than proposed in the Bush plan (10 years).
April 19	The Senate approved a bill that sets the minimum tangible capital at 1.5 percent.
April 27	The House Banking Committee approved an amendment that would require thrifts to meet a 3-percent tangible capital requirement by 1995 (1.5 percent in 1990).
June 15	The House defeated a measure that sought to protect supervisory goodwill.
July 13	The Senate proposed a plan compromising with the House bill, which included a 3-percent capital standard for thrifts.
August 4	Congress approved the FIRREA.
August 9	President Bush signed the FIRREA into law.

Sources: *American Banker* and *Wall Street Journal*.

Table 3: Frequency Distribution of Thrift Financial Structure between 1989 and 1991

A. Ratio of Tangible Capital to Assets at Year-end

Year	> 0.01	0.01-0.03	0.03-0.05	0.05 ≤	Missing
1988	8	17	21	20	0
1989	11	14	15	23	3
1990	7	0	14	14	21
1991	2	4	12	15	33

B. Ratio of the Change in Common Stock and Surplus to 1988 Assets

Year	> 0	0-0.005	0.005-0.01	0.01 ≤	Missing
1989	24	31	4	4	3
1990	27	17	1	0	21
1991	23	9	1	0	33

C. Ratio of the Change in Retained Earnings to 1988 Assets

Year	> 0	0-0.005	0.005-0.01	0.01 ≤	Missing
1989	41	20	2	0	3
1990	34	8	2	1	21
1991	10	16	6	1	33

D. Growth Rates of Assets

Year	> -0.1	-0.1-0	0-0.1	0.1 ≤	Missing
1989	21	23	11	5	3
1990	11	20	8	6	21
1991	12	12	7	2	33

Table 4: Test of Equality of Means (All Thrifts)

Month	High Goodwill	Low Goodwill	Difference	T-Stat	P-Value T-test	P-Value Rank Test
			a. All Thrifts			
10	-0.1650	0.0648	-0.2298	-2.59	0.0121	0.0068
11	-0.1898	0.0173	-0.2072	-2.14	0.0372	0.0043
12	-0.2924	-0.0512	-0.2411	-2.42	0.0189	0.0006
			b. Low-Capital Thrifts			
10	-0.2998	0.0374	-0.3371	-2.82	0.0085	0.0077
11	-0.3440	-0.0193	-0.3247	-2.77	0.0095	0.0095
12	-0.4711	-0.1322	-0.3389	-3.00	0.0053	0.0047
			c. High-Capital Thrifts			
10	0.0164	0.0547	-0.0384	-0.30	0.7675	0.6740
11	0.0074	0.0203	-0.0130	-0.09	0.9320	0.4412
12	-0.0540	-0.0207	-0.0333	-0.21	0.8326	0.3257

Table 5: Regression Results

Dependent Variable - Cumulative Stock Return during 1989

Variable	All Thrifts	Low-Capital Thrifts	High-Capital Thrifts
CONSTANT	0.2082	-0.4008	1.4158
	(0.35)	(-0.49)	(0.77)
CAPITAL	11.3933	-42.6677	8.8666
	(1.55)	(-1.50)	(0.25)
SQCAPTL	-69.6223	637.3361	-72.4305
	(-1.21)	(1.48)	(-0.36)
GOODWILL	-0.3289	-0.4419	-0.0525
	(-2.21)	(-3.16)	(-0.11)
PROFIT	17.7120	33.2101	15.3530
	(1.91)	(3.28)	(0.79)
INVESTDR	-1.5810	-1.2895	0.3939
	(-0.74)	(-0.51)	(0.09)
NONMLOAN	-0.3659	-0.1922	-0.2042
	(-0.42)	(-0.21)	(-0.11)
SIZE	-0.0393	0.0710	-0.1167
	(-0.85)	(1.30)	(-1.42)
DUMMYMGR	0.0825	0.0862	-0.0690
	(0.46)	(0.51)	(-0.17)
DUMMYSTK	0.0576	0.1285	-0.0897
	(0.47)	(1.10)	(-0.33)
Adjusted R-Square	0.2680	0.5120	-0.0884
No of Obs	63	33	30

Note: Numbers in parentheses are t-statistics.

Variable Definitions: CAPITAL - ratio of GAAP net worth to assets; SQCAPTL - square of CAPITAL; GOODWILL - ratio goodwill to GAAP net worth; PROFIT - Change in earnings on assets (net income divided by assets) from the fourth quarter 1988 to the fourth quarter 1989; INVESTDR - ratio of aggregate direct investment limited by the FIRREA to assets; NONMLOAN - ratio of nonmortgage loans to assets; SIZE - log of assets; DUMMYMGR - 1 if the thrift acquired other thrift in 1989 and 0 otherwise; DUMMYSTK - 1 if the number of common shares outstanding increased by 5 percent or more during 1989 and 0 otherwise.

Table 6: Test of Equality of Abnormal Mean Returns
(Between Month i and Month 36)

Month	Abnormal Return	Difference Month I-36	T-Statistic	P-Value T-Test	P-Value Rank Test
12	-0.3389	-0.0232	-0.21	0.8377	0.7749
13	-0.3845	-0.0688	-0.64	0.5252	0.6985
14	-0.3256	-0.0099	-0.09	0.9287	0.9330
15	-0.3678	-0.0521	-0.49	0.6302	0.6737
16	-0.3884	-0.0727	-0.69	0.4963	0.4270
17	-0.4336	-0.1179	-1.18	0.2481	0.3696
18	-0.3639	-0.0482	-0.49	0.6306	0.7490
19	-0.3881	-0.0724	-0.74	0.4664	0.6249
20	-0.3447	-0.0290	-0.31	0.7621	0.7490
21	-0.3342	-0.0185	-0.20	0.8406	0.4891
22	-0.2846	0.0311	0.34	0.7376	0.1474
23	-0.2975	0.0182	0.20	0.8438	0.2413
24	-0.2904	0.0253	0.28	0.7837	0.1788
25	-0.2700	0.0457	0.50	0.6196	0.1288
26	-0.2949	0.0208	0.23	0.8286	0.3697
27	-0.2842	0.0315	0.31	0.7554	0.3341
28	-0.2891	0.0266	0.25	0.8031	0.4469
29	-0.2651	0.0506	0.46	0.6463	0.3696
30	-0.2749	0.0408	0.39	0.6983	0.2696
31	-0.2766	0.0391	0.38	0.7074	0.2549
32	-0.2889	0.0268	0.26	0.8005	0.3172
33	-0.2657	0.0500	0.47	0.6405	0.2850
34	-0.2930	0.0227	0.21	0.8375	0.4676
35	-0.2631	0.0526	0.49	0.6258	0.3516
36	-0.3157	0.0000	0.00	1.0000	1.0000

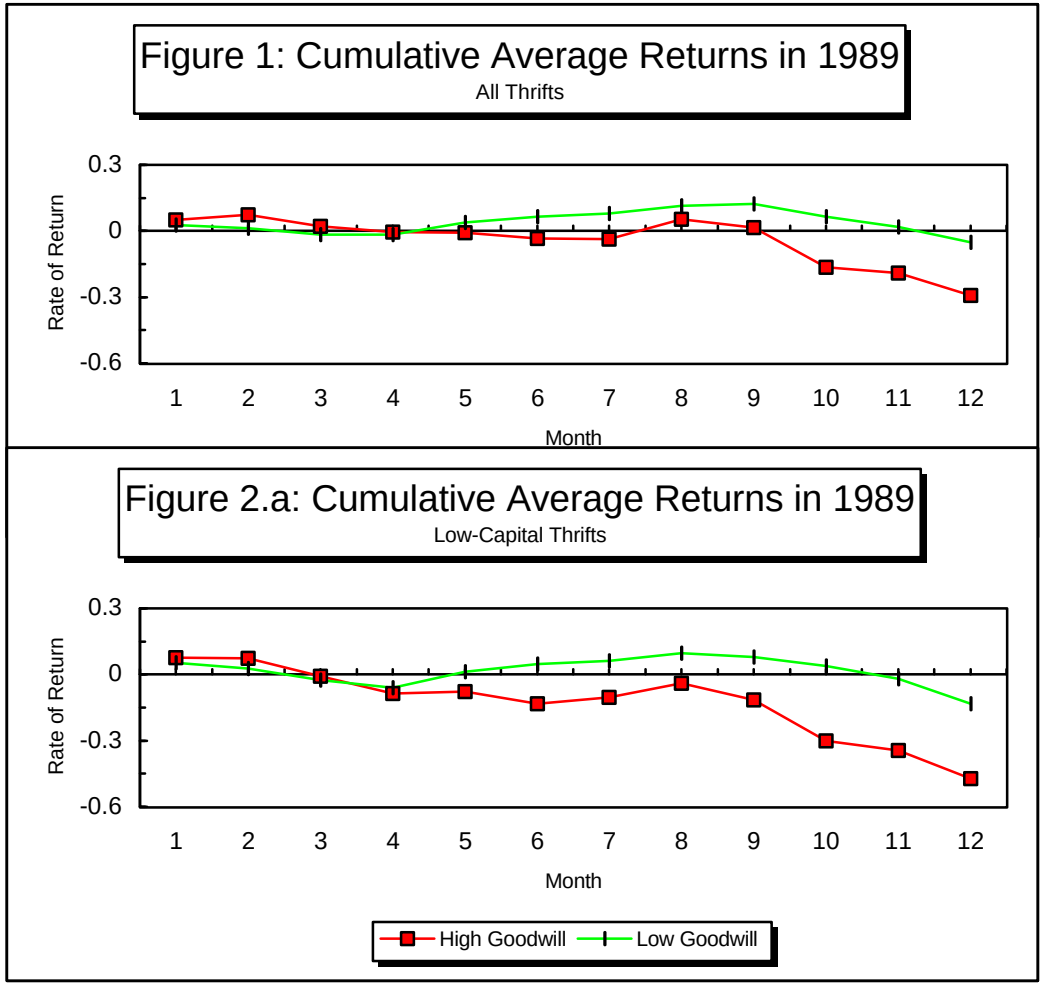
Figure 1: Cumulative Average Returns in 1989
All Thrifts
Rate of Return
0.3
0
-0.3
-0.6
1
2
3
4
5
6
7
8
9
10
11
12
Month

Figure 2.a: Cumulative Average Returns in 1989
Low-Capital Thrifts
Rate of Return
0.3
0
-0.3
-0.6
1
2
3
4
5
6
7
8
9
10
11
12
Month
High Goodwill
Low Goodwill

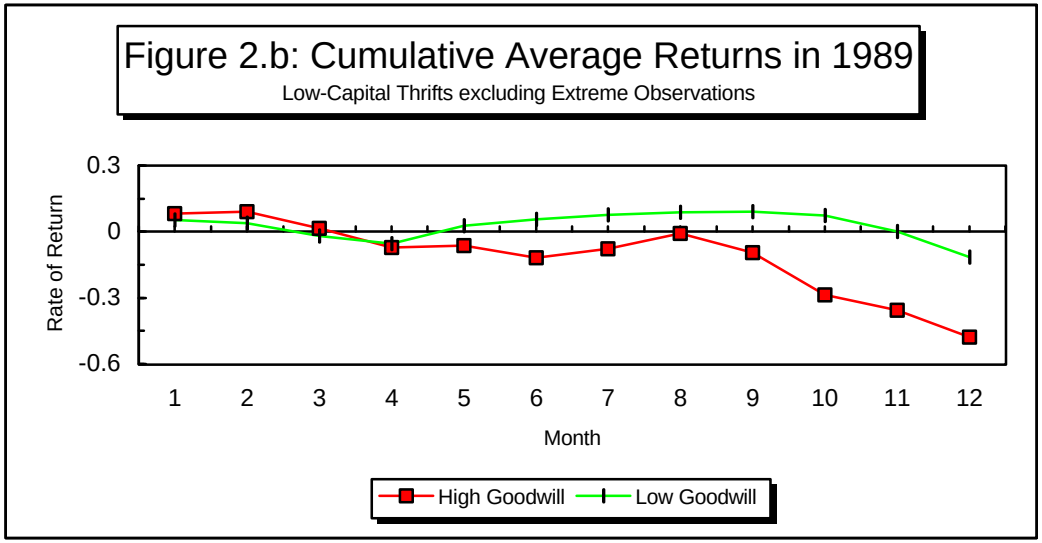
Figure 2.b: Cumulative Average Returns in 1989
Low-Capital Thrifts excluding Extreme Observations
0.3
0
-0.3
-0.6
Rate of Return
1
2
3
4
5
6
7
8
9
10
11
12
Month
High Goodwill
Low Goodwill

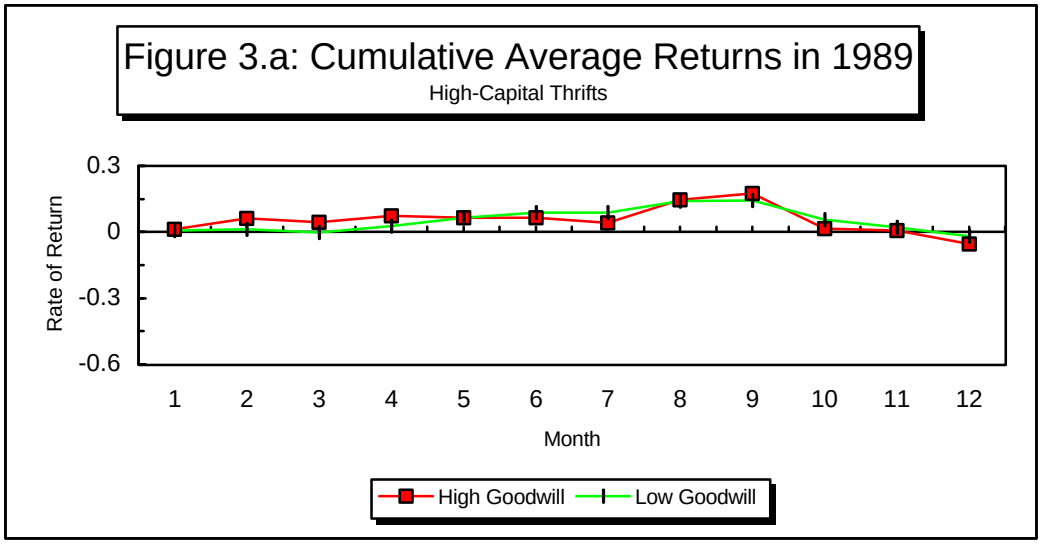
Figure 3.a: Cumulative Average Returns in 1989
High-Capital Thrifts
0.3
0
-0.3
-0.6
Rate of Return
1
2
3
4
5
6
7
8
9
10
11
12
Month
High Goodwill
Low Goodwill

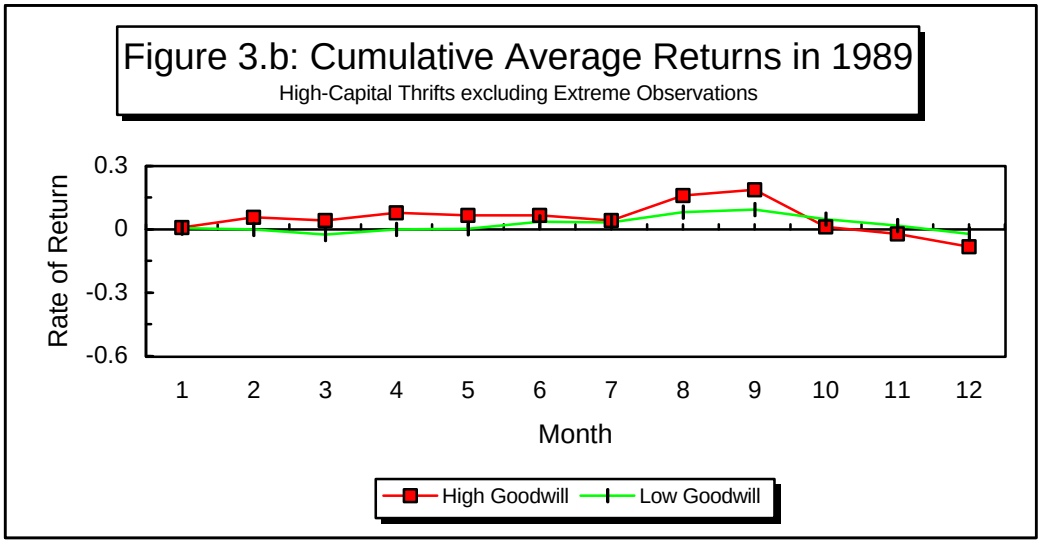
Figure 3.b: Cumulative Average Returns in 1989
High-Capital Thrifts excluding Extreme Observations
Rate of Return
0.3
0
-0.3
-0.6
1
2
3
4
5
6
7
8
9
10
11
12
Month
High Goodwill
Low Goodwill

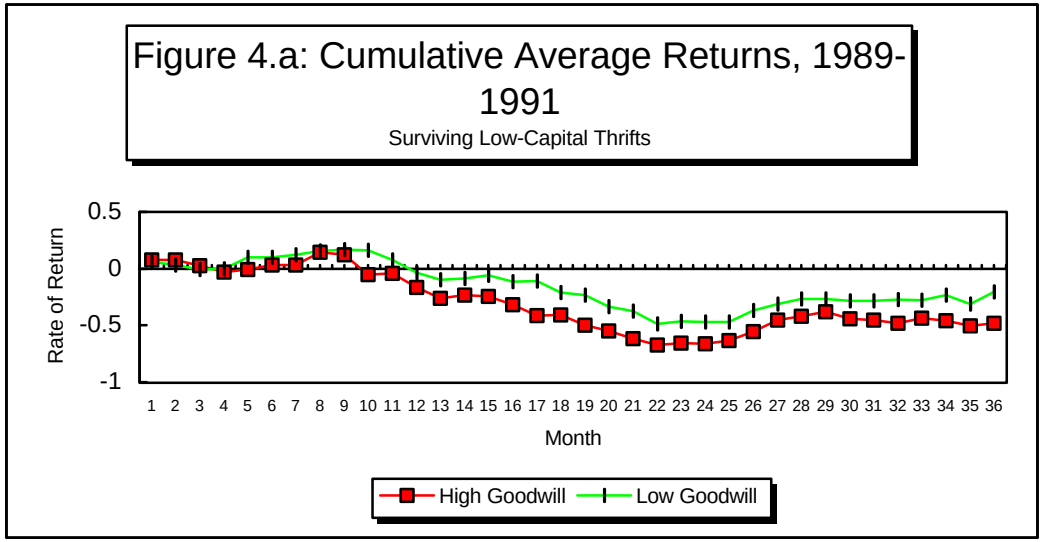
Figure 4.a: Cumulative Average Returns, 1989-1991
Surviving Low-Capital Thrifts
Rate of Return
0.5
0
-0.5
-1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Month
High Goodwill
Low Goodwill

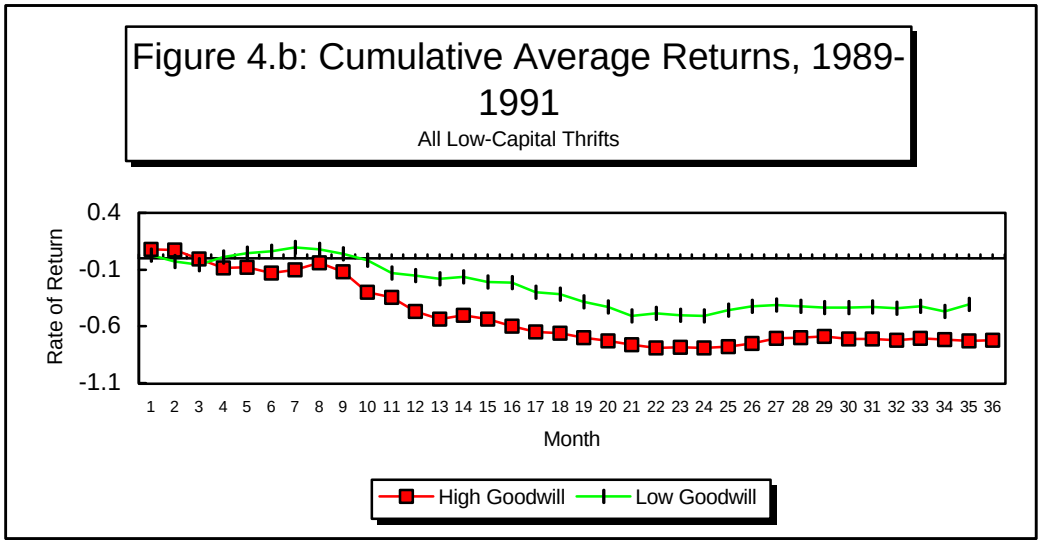
Figure 4.b: Cumulative Average Returns, 1989-1991
All Low-Capital Thrifts
Rate of Return
0.4
-0.1
-0.6
-1.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
Month
High Goodwill
Low Goodwill