

**Predicting Excess Returns  
With Public and Insider Information:  
The Case of Thrift Conversions**

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For their comments and suggestions, we thank participants at seminars at Berkeley, the Office of Thrift Supervision, and the Office of the Comptroller of the Currency. Financial support from the Berkeley Program in Finance is gratefully acknowledged. Any errors are the responsibility solely of the authors.

# **Predicting Excess Returns With Public and Insider Information: The Case of Thrift Conversions**

## **ABSTRACT**

We hypothesize that mutual thrifts often converted to stock ownership when the returns to conversion were predicted to be high. We show that excess returns on the initial public offerings (IPOs) of thrift conversions during the 1990s were predictable with publicly available data. The same conditions that predicted higher excess returns on thrift conversions also predicted that conversion was more likely. Higher predicted excess returns significantly raised the amounts of the IPOs that insiders at converting thrifts purchased. Data for insider purchases, which were publicly available before the first day of trading, further helped the public predict excess returns.

First-day returns on the initial public offerings (IPOs) of equity shares generally have been very large. Ibbotson, Sindelar, and Ritter (1994) reported that, on average, studies found first-day IPO returns of about 15 percent. Krigman, *et. al.* (forthcoming) documented that over the 1993-1995 period first-day returns averaged nearly 14 percent.

First-day, or excess, returns on the IPOs of equities for thrift institutions that converted from mutual to stock ownership during the mid-1990s were even higher.<sup>1</sup> SNL Securities reported that excess returns on shares of converting thrifts averaged over 20 percent during the 1993-1997 period. Figure 1 plots excess returns for converting thrifts for the years 1993-1997. After averaging over 40 percent in 1993, excess returns averaged about 16 percent during 1994-1996 before soaring to 39 percent during 1997. Excess returns on converting thrifts averaged 50 percent during the first quarter of 1998 (not shown).

Very large average excess returns did not stem from extremely large gains on just a few thrift conversions. In recent years, returns on thrift conversions mostly have been positive and very large. Figure 2 shows, for example, that during 1997 the share prices of the vast majority of converting thrifts rose by large amounts: Only one of the 31 thrift conversions had a first-day capital gain as low as 15 percent.<sup>2</sup>

The numbers of converting thrifts, as well as their excess returns, have ebbed and flowed over the years. After falling in the late 1980s, the number of thrifts converting to stock ownership rebounded during the 1990s. Figure 3 shows that during the mid-1990s

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<sup>1</sup> The term “thrifts” usually includes credit unions in addition to savings banks and savings and loan institutions. Here it does not include credit unions. Through the end of 1997 virtually no credit unions had converted from their mutual status to stock ownership.

about 9 percent of mutual thrifts converted annually. Conversions were common in the later 1990s as well. The Office of Thrift Supervision (OTS) reported an average of 55 conversions annually during 1995-1997 and 16 during the first quarter of 1998.

Barth, *et. al.* (1994), Dunham (1985), Eccles and O'Keefe (1995), Simons (1992), and Smith and Underwood (1997) reviewed some of the possible motives, legal aspects, and regulatory processes for converting thrifts to stock ownership. Each suggested that at least until the 1990s many thrifts' conversions stemmed from their low capital-to-assets ratios. Because conversion under the reigning regulatory regime raised their capital ratios, some thrifts converted to avoid sanction or even closure by regulators; some converted to permit faster asset growth.<sup>3</sup> Since a mutual thrift could not issue stock and accumulating capital via earnings retention was slow and uncertain, conversion was often the only way a capital-deficient but economically solvent mutual thrift could raise enough capital quickly.

Figures 3 and 4 support the low-capital motive for conversion during the 1980s. Figure 4 plots the mean equity capital-to-asset ratios for converting and for non-converting mutual thrifts for the years 1985-1994. During the second half of the 1980s, capital ratios at converting thrifts were low in absolute terms and also were low relative to the capital ratios of mutual thrifts that did not convert. Figure 3 shows that during the second half of the 1980s larger numbers and shares of thrifts converted. During the period around 1990, mutual thrifts had higher average capital ratios, and fewer converted. By the middle of the 1990s, the share of mutual thrifts converting again rose sharply. By

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<sup>2</sup> Of the 49 thrift conversions reported in the SNL data for 1996, when excess returns averaged 14 percent, 46 conversions had positive excess returns and 38 conversions had excess returns of 5 percent or more.

<sup>3</sup> Below we explain why the particular method of conversion implied that converting to stock ownership raised a thrift's capital-to-assets ratio.

then, however, converting thrifts' capital ratios were higher in absolute terms and higher relative to the capital ratios of mutual thrifts that did not convert than they had been in the 1980s. Thus, the low-capital-ratio motive for thrift conversion was presumably less common and less pressing during the 1990s than it had been earlier.

Two prominent studies investigated thrift conversions econometrically. Masulis (1987) used data for 1976-1983 to estimate models of the probability that a mutual thrift filed an application to convert and then, given that it filed, actually converted to stock ownership. He found that the probability of conversion rose with the size of the thrift, recent growth of the thrift's assets, and the thrift's non-interest income. Not surprisingly in light of Figures 3 and 4, Masulis (1987) also found that the probability of conversion was higher if the thrift had a lower equity capital-to-asset ratio.

Maksimovic and Unal (1993) focused not on identifying which thrifts converted but, rather, on the relations between IPO pricing, first-day returns, and depositors' and "insiders'" purchases of shares in conversion IPOs.<sup>4</sup> Using data for 1980-1988, they found that the return to conversion was higher the greater the portion of the IPO purchased by depositors and insiders. They concluded that the greater the portion of the IPO that was purchased by insiders, the greater the insiders' optimism about the thrift's growth opportunities.

Here we provide an alternative explanation of which thrifts converted, and why. We hypothesized that the higher the predicted excess return to conversion the more likely a thrift would convert. Our hypothesis also suggests relations between pricing, first-day return, and insiders' purchases of IPO shares. Our hypothesis implied that insiders, who can initiate conversion, and depositors, who vote whether to approve conversion, used

privately and publicly available information to predict the return to conversion. Like the insiders, depositors would be more likely to approve conversion the higher the predicted return to conversion.

Once the conversion process was underway, insiders could use their private information in addition to the publicly available information to predict the return to conversion and then to decide how much of the IPO to purchase. Later, the public was given the opportunity to purchase shares, either in the IPO or in secondary markets. By then, depositors' and insiders' purchases were public knowledge. The public could use this knowledge, as could depositors and insiders considering additional IPO purchases, to better predict excess return. Thus, our hypothesis links the decision to convert, which Masulis (1987) focused on, to the predictability of the excess return, which Maksimovic and Unal (1993) focused on.

We provide econometric evidence on each these four implications of our hypothesis: (1) the excess return on a thrift conversion was predictable with publicly available data, (2) a higher predicted return raised the probability of conversion, (3) a higher predicted return raised insiders' purchases of shares in a conversion IPO, and (4) publicly available data for insiders' purchases conveyed additional information beyond that contained in other publicly available information about excess return.

The estimates presented in Section IV show that publicly available data for a thrift's financial condition did indeed help predict the excess return on its conversion. In Section V we show how conditions that raised the predicted excess return also raised the probability of conversion. The results presented in Section VI indicate that insiders bought a larger portion of a conversion IPO when the predicted return was higher.

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<sup>4</sup> "Insiders" refers to high-level executives and members of the boards of directors.

Section VII then shows that a measure of “excess” insider purchases provided additional information to the public about the excess return. Section VIII presents our conclusions.

## **I. Conversion of a Thrift from Mutual to Stock Ownership**

The mutual form of organization of a thrift has several important features. One important feature of a mutual thrift is that it cannot issue stock to raise capital. Another is that the thrift’s depositors are its legal owners. What are commonly referred to as “deposits” in a mutual thrift are actually shares. A mutual thrift depositor’s ownership claims, however, are very different from those typically implied by share ownership. A depositor cannot transfer ownership rights to third parties. Nor can a depositor receive payouts of retained earnings or realize capital gains as a consequence of share ownership. A depositor is entitled to a share of the “liquidation account” maintained by a mutual thrift. However, cash cannot be paid out from the liquidation account except in the event of failure, which virtually guarantees that the balance in liquidation account would be negligible. A depositor can indirectly benefit from share ownership if deposits in the mutual thrift entitle the depositor to favorable deposit or loan rates.

Deposits in mutual thrifts are no differently insured than deposits in stock thrifts are, which means that a depositor typically bears little, if any, default risk. Since a depositor in an ongoing mutual thrift has little potential gain or loss from deposit ownership rights, a depositor has the same weak incentives to monitor a thrift that a depositor at a stock thrift does.

The current mutual-to-stock conversion process for a thrift was established in 1976 when, after a 13-year moratorium, the Federal Home Loan Bank Board (FHLBB)

began to permit conversion. The FHLBB selected the “sale-of-stock” method for conversion to stock status, whereby IPO shares in the converting thrift are offered for purchase in turn to depositors, insiders, and the public.

Conversion of a mutual thrift begins with a vote of the its board of directors on a resolution that details the conversion plan. The second step is that the thrift is required by regulators to obtain an independent appraisal of its value. The appraiser is required to assess the thrift’s value immediately after conversion, or its “pro-forma” value.

Regulatory guidelines require that the appraised value reflect the market values of the thrifts selected by the appraiser as being comparable to the converting thrift. The regulators’ appraisal guidelines require the appraiser to calculate price-to-earnings, market-to-book value, price-to-assets ratios for the comparable thrifts and to use, but not match, these ratios in calculating appraised values of the converting thrift.<sup>5</sup> The appraiser submits an “appraisal midpoint,” which is the average of the highest and lowest appraised values of the converting thrift.

After the thrift is appraised, a conversion application is filed with the regulators. A conversion application includes the appraisal, a business plan that details the intended uses for the additional capital, and an offering circular. If the regulators and then the depositors by vote approve, the conversion can proceed.

Next, IPO shares in amounts proportional to the amounts of their deposits are offered to depositors of the converting thrift.<sup>6</sup> Any shares remaining after depositor purchases are offered to the converting thrift’s “priority subscribers”, who are so

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<sup>5</sup> Generally, the implied ratios of pro-forma conversion price to earnings, to book value of equity capital, and to assets were lower than those of the comparable stock thrifts. See the actual appraised values in Unal (1997) for a striking example.

designated by its board of directors. Typically, priority subscribers are the high-level executives and the members of the board of directors of the converting thrift.

After depositors and priority subscribers have been given the opportunity to purchase shares, the appraiser selects the final appraised value and thus the size of the IPO. Typically, the size of the IPO, or equivalently the IPO share price, equals the original appraised value midpoint. The size of the IPO may differ from the appraised value midpoint because of changes in market conditions, in interest rates, or in the appraiser's assessment of the attractiveness of the offering since the appraisal was completed.<sup>7</sup> Regulations require that the size of the IPO fall within a range that extends from 15 percent below to 15 percent above the original midpoint of the appraised values. Thus, a thrift with an appraised value midpoint of \$100 million would have an offering size between \$85 million and \$115 million.

Finally, underwriters offer to the public any remaining shares for purchase. Shares are then issued to all those who participated in the IPO and secondary market trading begins.

Some have argued that a positive vote for conversion by the board of directors essentially determines that a thrift will convert. Masulis (1987), Maksimovic and Unal (1993), and Smith and Underwood (1997) suggested that a mutual thrift's insiders were likely to control whether a thrift converted. In principle, depositors could vote down a proposed conversion; in practice, they rarely have done so. One reason was that opening a deposit account often simultaneously gave a perpetual proxy for the depositor's vote to

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<sup>6</sup> Depositors subscribe to the issue at the maximum price of the appraisal range. After shares are issued, depositors are entitled to receive refunds or additional shares reflecting the amount that the maximum price of the appraisal range exceeds the actual price.

the board of directors. Another reason may be that many depositors perceived few disadvantages to conversion. And some financially astute depositors may have recognized the opportunity for excess return that conversion presented them.

## II. Appraised Values and Market Valuation

Here we show that the sale of stock method produces excess returns when a converting thrift is economically solvent.<sup>8</sup> We denote the initial equity capital of a mutual thrift as  $K_0$  and the present value of its expected per-share earnings as  $PVE$ . (For simplicity, we assume that these terms are independent of each other.) Then the pre-conversion market value of a thrift,  $P_0$ , is given by:

$$(1) \quad P_0 = PVE + K_0$$

Suppose that the appraised value for a converting thrift,  $A$ , is chosen to mimic the pro-forma value, or market value of a thrift immediately after conversion,  $P_1$ :

$$(2) \quad A = P_1$$

Recall that the IPO raises funds equal to the appraisal,  $A$ , and that these funds accrue to the thrift and not to the lawful owners of the thrift before its conversion, the depositors. Thus, the market value of the thrift immediately after the IPO,  $P_1$ , equals the thrift's pre-conversion market value,  $P_0$ , plus the appraised value,  $A$ :

$$(3) \quad P_1 = P_0 + A$$

The economic solvency of a thrift implies that  $P_0$  is positive. A positive  $P_0$  means that  $P_1$  is greater than the appraised value,  $A$ , and therefore that the first-day market price

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<sup>7</sup> Maksimovic and Unal (1993) show that the IPO share price systematically deviates from the appraisal midpoint when interest rates and the share prices of stock thrifts change.

<sup>8</sup> Masulis (1987) implied and Barth, *et.al.* (1994) and Unal (1997) made explicit the point that the sale of stock method virtually guarantees excess returns on the conversion of an economically solvent thrift.

exceeds the IPO price. Thus, for an economically solvent thrift, any positive appraised value,  $A$ , bestows a windfall gain on those who acquire shares at the IPO price.

The reason that excess returns are so predictable on these conversions is that the those who participate in the IPO essentially receive the pre-conversion market value of the thrift for free. Recall that conversion adds the proceeds of the IPO to the economic net worth of the thrift, since the pre-conversion depositors get nothing directly for having been the owners. Thus, having invested an amount equal to the appraised value, the new owners now own the converted thrift and their thrift owns those proceeds from the IPO. Peter Lynch (1993) noted that this feature of conversion IPOs, from the perspective of the purchaser of IPO shares rather than from the perspective of a pre-conversion depositor, was equivalent to buying a house, moving in, and finding that the seller had left the proceeds of the sale in the house for the buyer to keep!

This makes it is easy to see why purchasers of IPO shares benefit from the sale of stock method. It is also easy to see that the pre-conversion depositors might be less enamored of the method but not really opposed. Apart from depositors having the first chance to purchase IPO shares, which in the aggregate they already own, conversion generally changes their wealth little. This is why depositors rarely vote down a conversion: Some depositors benefit from purchasing IPO shares and the rest are likely to be either unaffected or uninformed. Being uninformed about the value of exercising the option to purchase IPO shares would seem to be the reason that far fewer than 10 percent of pre-conversion depositors purchase IPO shares of converting thrifts.

Table I shows some summary statistics for the thrifts that converted during the years 1993-1997. On average, converting thrifts were medium-sized: They had assets of

nearly \$300 million and equity capital of over \$23 million. Their financial ratios were similarly unexceptional: They had equity capital-to-assets ratios of nearly 9 percent, and had both earnings-to-assets and non-performing assets-to-assets ratios of about 1 percent. The average converting thrift had an appraised pro-forma value of about \$34 million. Suppose that during this period its book value of equity capital reasonably well approximated the market value of a converting thrift. Given an infusion of \$34 million of IPO proceeds into a representative thrift with \$23 million of pre-conversion equity capital, an IPO investor might well have predicted a first-day return 68 percent ( $=100*(23/34)$ ). In Section IV we present estimates of how much returns typically responded to a thrift's pre-conversion equity capital. Table I also shows that insider purchases of conversion IPOs averaged nearly \$2 million and nearly 9 percent of the typical IPO offering. Thus, insiders took large but not dominating positions in conversion IPOs.

### **III. Data**

Here we note our data sources and some of the variables we used. We provide more detailed descriptions in the following sections, which discuss our regression results. Our first data source was SNL Securities, which provided data for about 200 thrift conversions that took place during the years 1990-1997. For each of these converting thrifts, the SNL dataset included a few variables based on financial statements, the IPO share price, the proceeds from the offering (or size of the issue), the amount of the offering purchased by insiders, and the share price at the end of the first day of trading in the secondary market. These data were used to study the relations between financial

conditions at the converting thrift, its appraised value, first-day return, and insider purchases. Our other data source was the year-end Statements of Income and Condition (i.e., “Call Reports”) filed by individual thrifts with their regulators for the years 1983-1993.<sup>9</sup> For each mutual thrift, we obtained several financial statement variables from the Call Reports.

We also constructed a dummy variable that indicated whether a thrift was a mutual and a dummy variable that indicated whether a thrift converted during the following year. We defined as a “mutual” any thrift that identified itself as a mutual savings bank, mutual savings and loan, or mutual cooperative *and* reported a year-end value of zero for its common stock. A thrift institution was defined as a “conversion” if it was a mutual one year and was not the next year.

#### **IV. Predicting Excess Returns**

In this section we model excess return to a thrift conversion. The prediction model for excess return uses only information available to depositors, insiders, and the public before a thrift began the conversion process.

Equation (3) shows that the market value of a converted thrift,  $P_1$ , equaled its pre-conversion value plus the IPO proceeds,  $A$ :

$$(3) \quad P_1 = P_0 + A$$

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<sup>9</sup> We obtained the Call Report data from the Wharton Research Data Service (WRDS) at the Wharton School of the University of Pennsylvania. WRDS provides electronic access to Call Report data as well as financial ratios calculated from that data. More detailed information about the service and the precise definitions of the ratios are available from WRDS.

The appraised value,  $A$ , in equation (3) netted out an estimate of direct conversion costs like underwriting fees. We approximated any conversion costs beyond those captured in the appraisal,  $C$ , as a function of appraised value:<sup>10</sup>

$$(4) \quad C = c_0 + c_1A$$

This implies that equation (3) can be modified to:

$$(5) \quad P_1 = PVE + K_0 + A - C$$

Substituting equation (4) into equation (5) produces the relation for excess return,  $r$ :

$$(6) \quad r = (P_1 - A)/A = PVE/A + K_0/A - c_0(1/A) - c_1$$

Estimating a regression based on equation (6) required a specification of  $PVE$ , the market value of expected earnings. We specified  $PVE$  as the product of the market price of earnings for the thrift industry and a proxy for future earnings:

$$(7) \quad PVE = p * EXNPA$$

where  $p$  was the average price/earnings ratio for the thrift industry and  $EXNPA$  was a proxy for the expected earnings.  $EXNPA$  adjusted future earnings for current loan quality, which we proxied with the thrift's non-performing assets ( $NPA$ ):

$$(8) \quad EXNPA = e_0 + e_1 * E + e_2 NPA$$

Substituting equations (7) and (8) into (6) produces:

$$(9) \quad r = -c_1 - c_0/A + K_0/A + e_0 (p/A) + e_1 (p * E/A) + e_2 (p * NPA/A)$$

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<sup>10</sup> In addition to the estimated direct conversion costs allowed for in the appraised value, total conversion costs also included both the deviation of actual direct conversion costs from those used to calculate appraised values and the earnings reduction associated with conversion. One reason that conversion may have indirectly lowered earnings was that conversion reduced or even terminated the depositors' and loan customers' sense of ownership or membership status at their formerly-mutual thrifts. As a consequence, earnings may have been reduced due to either (or both) the supply of and demand for funds having fallen at converting thrifts. Another reason is that the disruptions associated with conversion were likely to distract management from their usual business practices and thereby reduced earnings.

Because we were especially interested in the role of pre-conversion capital in post-conversion pricing, we added a coefficient to be estimated for the  $K_0/A$  term in equation (9), which generated the following estimation equation:

$$(10) \quad r = b_0 + b_1(I/A) + b_2(K_0/A) + b_3(p^*E/A) + b_4(p^*NPA/A) + b_5(p/A)$$

where:

$$b_0 = -c_1,$$

$$b_1 = -c_0,$$

$$b_2 = \text{coefficient on } K_0/A,$$

$$b_3 = e_1,$$

$$b_4 = e_2,$$

$$b_5 = e_0$$

Row 1 of Table II presents the results of estimating equation (10). First, the adjusted R-squared of 0.3012 and the associated F-statistic of 18.07 were significant at better than the 0.01 percent level. Thus, excess returns were indeed predictable with pre-conversion data.

As expected, the estimated coefficient for the earnings variable,  $b_3$ , was significantly positive, consistent with higher current earnings being associated with higher expected earnings and thus higher predicted returns. Since this coefficient was estimated to have been significantly greater than zero and less than one, expected earnings responded only partially but in the same direction as actual earnings. This is what we would expect if the time series of earnings contained both permanent and temporary components. The significantly negative estimated coefficient on non-performing assets,  $b_4$ , suggested that expected earnings adjusted current earnings for the

quality of a thrift's loan portfolio. No particular importance attaches to the positive sign and statistical significance of the estimate of the coefficient on the thrift industry price-earnings ratio divided by the appraised value,  $b_5$ .

The estimated coefficient on the inverse of the appraised value of a thrift,  $b_1$ , was significantly negative, which meant that the fixed component of conversion cost in equation (4),  $c_0$ , was significantly positive. The estimated coefficient on the constant term,  $b_0$ , was negative but not statistically significantly so. That meant that  $c_1$  was positive but insignificant. More specifically, the estimated coefficients in Table II implied that conversion costs beyond those allowed for in appraisals typically equaled about \$2 million plus five percent of the appraised value for the thrift:

$$(11) C = 1.992 + 0.0543A$$

Other conditions equal, a fixed component of conversion cost implies that the return was higher the more equity capital the converting thrift had. The lure of higher returns may have been the reason why Masulis (1987), Eccles and O'Keefe (1995), and others found that larger thrifts were more likely to convert.

Equation (5) above suggests that an extra dollar of equity capital would have raised the first-day closing price of a share of a converting thrift by one dollar. Equation (9) implies that the coefficient on pre-conversion capital scaled by appraised value,  $b_2$ , should also be one. We estimated it to be 0.31. Though this estimate was statistically significantly above zero, it was also economically and statistically far below one. Thus, excess return on a conversion did reflect, albeit incompletely, the equity capital that IPO purchasers received as a windfall.

One possible reason for the low response of excess return may have been that economic net worth was not well approximated by the book value of equity capital. Such measurement error might have biased the estimated coefficient down toward zero. At the same time, the extent of measurement error was not so severe that it led to a large standard error of the estimate of  $b_2$ . Indeed,  $b_2$  was estimated with considerable precision, its standard error was only 0.046.

We also tested whether the market prices of conversion IPOs varied with thrift industry price-to-earnings ratios. Equation (7) embodies the hypothesis that the prices of shares of converting thrifts reflect the capitalization rate, or price/earnings ratios, applied to the publicly traded thrifts. An alternative specification was that the prices of shares of converting thrifts were not affected by changes in the price/earning ratios for the thrift industry. The alternative specification had a calculated F-value of 0.03, compared with an F-value of 18.07 for the specification in row 1 of Table II, which was based on equation (7).

We tested the hypothesis in equation (7) that the capitalization rate varied with the thrift industry capitalization rate against the alternative that the capitalization rate was a constant with a Davidson-McKinnon test. To do so, we estimated the alternative specification with the addition of the fitted values from the maintained specification given in equation (10). The estimated coefficient on the variable that consisted of the fitted values from the maintained specification was 0.9950. None of the variables based on the alternative specification had a t-statistic as large in absolute value as 0.3. By contrast, when it was added to the maintained specification, the variable that consisted of the fitted values from the alternative specification had a small and statistically

insignificant coefficient. Thus, the alternative specification added virtually nothing to the maintained specification and the maintained specification rendered the variables of the alternative specification superfluous. Thus, the evidence clearly favored the maintained hypothesis that first-day-of-trading prices reflected the thrift industry capitalization rate. Of course, it would have been rather surprising if the result had been otherwise.

## V. Which Thrifts Converted?

An implication of our hypothesis was that conditions raised predicted excess return also raised the likelihood that a thrift would convert to stock ownership. To assess this implication, we modeled a thrift's probability of choosing to convert using a logistic regression model:

$$(12) \log(p/(1-p)) = f(X)$$

where  $p$  was the probability of converting and  $X$  was a vector of conditions of a thrift. We used a specification for  $X$  in equation (12) as close to that used in equation (10) as our data would permit. Of course, there were no appraisal data for the mutual thrifts that did not convert. Nor did we have data for the price/earnings ratio for the thrift industry for the 1991-94 time period. In place of the inverse of the appraised value variable,  $1/A$ , we used the inverse of a thrift's equity capital,  $1/K_0$ . In place of the appraised value as the denominator, we used the book value of assets,  $ASSET$ . These modifications produced the following specification:

$$(13) \log(p/(1-p)) = a_0 + a_1(K_0/ASSET) + a_2(NPA/ASSET) + a_3(E/ASSET) + a_4(1/K_0)$$

The results of estimating equation (13) are shown in Row 1 of Table III. Row 1 shows that a mutual thrift with a higher ratio of equity capital to assets had a lower estimated probability of converting. This result based on data for the 1990s is similar to

that based on data for the 1980s reported by Masulis (1987). The statistically significant, negative estimated coefficient on the inverse of a thrift's equity capital,  $a_4$ , meant that the more capital a thrift had, the *higher* its estimated probability of converting. Taken together, the estimates in Tables II and III suggest that a thrift that had more equity capital was more likely to convert and to have a higher predicted first-day return on its IPO, consistent with our hypothesis that the latter led to the former.

Just as fewer non-performing assets predicted higher returns in Table II, they also predicted significantly higher probabilities of conversion in Table III. In Table III, the coefficient on the non-performing assets variable,  $a_2$ , was  $-0.12$ , which was a little over three standard deviations from zero. Somewhat surprisingly, the estimated coefficient on the earnings variable,  $a_3$ , was not statistically significant, though it was positive. Most of the same conditions that led to a higher predicted return to conversion—larger size of the thrift, fewer non-performing assets, and higher earnings—also led to a higher probability of conversion.

In Row 2 we show the results obtained when we added to equation (13) the recent rate of loan growth as an explanatory variable. The estimates for the other included variables changed very little when we added loan growth to the specification. But, contrary to Masulis (1987) and Eccles and O'Keefe (1995), who used data for the 1980s, we found that loan growth significantly *reduced* the probability of conversion. Hence it appears that acquiring equity capital to underpin additional assets was not a factor in conversion decisions in the 1990s.

The specifications used to obtain the results shown Rows 3 and 4 mimic the specifications used in rows 1 and 2. The estimates in rows 3 and 4, however, were based

on restricting the sample to those mutual thrifts that had equity capital-to-assets ratios of at least five percent. These thrifts were much less likely to be under regulatory or management pressure to convert in order to raise capital. We expected smaller coefficient estimates if the capital pressure, or “desperation”, motive were less important in the subsample that excluded low capital-ratio mutual thrifts. Indeed, the results in Rows 3 and 4 show that the estimated coefficients on the equity capital-to-assets variable,  $a_1$ , were about one-third smaller than those reported in rows 1 and 2. Even in this subsample, however, a lower capital ratio produced a higher estimated probability of conversion. Note also that, although the coefficients’ statistical significance shifted a bit when we excluded the low capital-ratio mutual thrifts from the sample, the picture of which conditions stimulated conversion changed very little.

## **VI. Predicted Excess Returns and Insider Purchases of IPO Shares**

The higher the predicted return to conversion, the more conversion IPO shares insiders would be expected to purchase. To assess the statistical performance of this implication of our underlying hypothesis, we specified the following function for the demand by insiders for IPO shares. The dollar amount of insiders’ purchases of IPO shares,  $\$I$ , was a function of a constant term,  $c$ , the appraised value of the converting thrift,  $A$ , its predicted return,  $RHAT$ , and the interaction of these latter two terms,  $A * RHAT$ :

$$(14) \ \$I = f(c, A, RHAT, A * RHAT)$$

where RHAT was the vector of fitted values from row 1 of Table II, which in turn implemented equation (10). We divided each of the terms in equation (14) by the appraised value for a converting thrift,  $A$ , and then estimated this form of equation (14):

$$(15) \quad \$I/A = I = f(c/A, I, RHAT/A, RHAT)$$

Estimation of equation (15) produced:

$$(16) \quad I = 0.514(c/A) + 0.0497 - 0.707 RHAT/A + 0.0287 RHAT$$

(5.39)                      (3.22)      (2.14)                      (0.42)

where t-statistics appear in parentheses underneath the estimated coefficients. The adjusted R-square of equation (16) was 0.1937, which was significant at better than the 0.01 percent level. The coefficient estimates in equation (16) show that the share of the conversion IPO issue that insiders purchased fell significantly as the appraised value, or issue size, rose. One reason that insiders purchased smaller percentages of larger offerings may be that they faced financing constraints that prevented their purchasing as many shares as they wished. We interpreted these results as indicating that depositors, who had available the information to predict returns, did not purchase so many shares that insider purchases were significantly constrained. Nor were financing constraints on insiders so binding that the estimated demand coefficients were unreasonable.

The estimates of equation (16) implied that the sensitivity of insider purchases (as a share of issue size) to predicted return,  $dI/dRHAT$ , was:

$$dI/dRHAT = 0.0287 - 0.707/A$$

Figure 5 plots the estimated sensitivity as a function of appraised value,  $A$ . The estimated sensitivity was positive, i.e. insiders purchased more IPO shares as the predicted return rose, for appraised values above about \$25 million. At the mean appraised value in our sample, \$33.9 million, the estimated sensitivity was 0.008. Thus, for a converting thrift

with the average appraised value, insiders purchased \$271,200 ( $=0.008*\$33.9$  million) *more* of the IPO for every one percentage point increase in the predicted first-day return.<sup>11</sup> At the sample means of the returns and insider purchases, the implied elasticity of insider purchases with respect to predicted return was about 2. Figure 5 shows that the strength of the response to a higher predicted return rose as the appraised value rose, asymptotically approaching a value of 0.029.

## **VII. Public Use of Insider Information to Predict Excess Returns**

Before secondary market trading began, potential investors had data from the offering circular on how many conversion IPO shares depositors and insiders had purchased. Presumably insiders purchased shares based not only on the return predicted with the publicly available data, but also based on any other information they had about the current and likely future condition of the thrift.

Row 1 of Table IV shows the results of regressing excess returns on the residuals from equation (16), which showed how insiders' purchases of IPO shares responded to predicted return, and on the predicted excess returns implied by the coefficient estimates in Table II.<sup>12</sup> The residuals from equation (16) served as a signal of the information that insiders had that was not otherwise publicly available. Not surprisingly, the estimated coefficient on the predicted return was very close to one. In addition, the estimated coefficient on the residuals from the insiders' purchases equation was statistically significantly positive, as we expected. This result implied that returns were significantly

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<sup>11</sup> The mean share of the conversion IPO purchased by insiders was 8.45 percent. If insiders purchased 8.45 percent of the mean appraised value of \$33.9 million, their purchases would total \$2.86 million. If the first-day return were 20 percent, for example, they would achieve a capital gain on these holdings of \$572,000.

higher when insider purchases were higher than would have been expected. In our view, insiders had private information, used it to guide their own purchases, and the public used the manifestation of the insiders' information to guide its demand for shares in the secondary market.

In row 2 of Table IV we replaced the predicted return variable with the variables we used to construct that predicted return, i.e. the right-hand-side variables from Table II.<sup>13</sup> The results in row 2 shed some light on a finding reported by Maksimovic and Unal (1993). They found that the excess return was higher when insiders purchased a larger portion of the IPO. We note that this finding did not allow for the effects of publicly available information on the financial conditions of the converting thrifts on predicted return. Thus, their results do not distinguish the hypothesis that insiders used only publicly available information to predict returns and purchased shares accordingly from the hypothesis that insider purchases were based on private information and thus their purchases conveyed information beyond information that was otherwise available to the public. The results in Table IV suggest that, even after allowing for publicly available data for the financial conditions of a converting thrift, information on insiders' purchases of IPO shares further sharpened the public's prediction of excess return.

## **VIII. Conclusions**

It is not easy in today's financial markets to identify a strategy that produces persistently positive excess returns. Purchasing shares in thrift conversion IPOs in the

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<sup>12</sup> The predicted excess return variable consisted of the fitted values of the regression shown in Table II.

<sup>13</sup> Since row 2 of Table IV contained the same regressors that Table II contained, except for the insider purchases variables, including the residual of insider purchases produced the same results that including total insider purchases would have produced.

1990s seems to have offered just that: Over a span of several years and many conversions, average first-day returns (net of transactions costs) appear to have been vastly higher than the risks warranted. Nor do these returns seem to be dwindled over time. During 1997, for example, the average return was 39 percent. It was about 50 percent during the first quarter of 1998. Nor has this investment opportunity been a secret. In a best-selling book, famous investor Peter Lynch (1993) touted the financial advantages of this strategy.

Our empirical results support our underlying hypothesis that thrift conversions were more likely when insiders predicted higher returns to conversion. Statistically significant relations for predicting excess returns were fairly easy to find. Return was predicted by the pre-conversion book values of a thrift's size, equity capital, earnings, and loan quality. We also found that insiders' purchases of conversion IPO shares generally rose with predicted returns. The public then could use data for insider purchases to infer what only insiders knew. Adding data for insider purchases sharpened the public's ability to predict excess returns. Thus, excess returns on thrift conversions during the 1990s were not only high on average, but the large amount of data that was publicly available at the time of the IPO enabled investors to capitalize on which conversions were likely to have the highest excess returns.

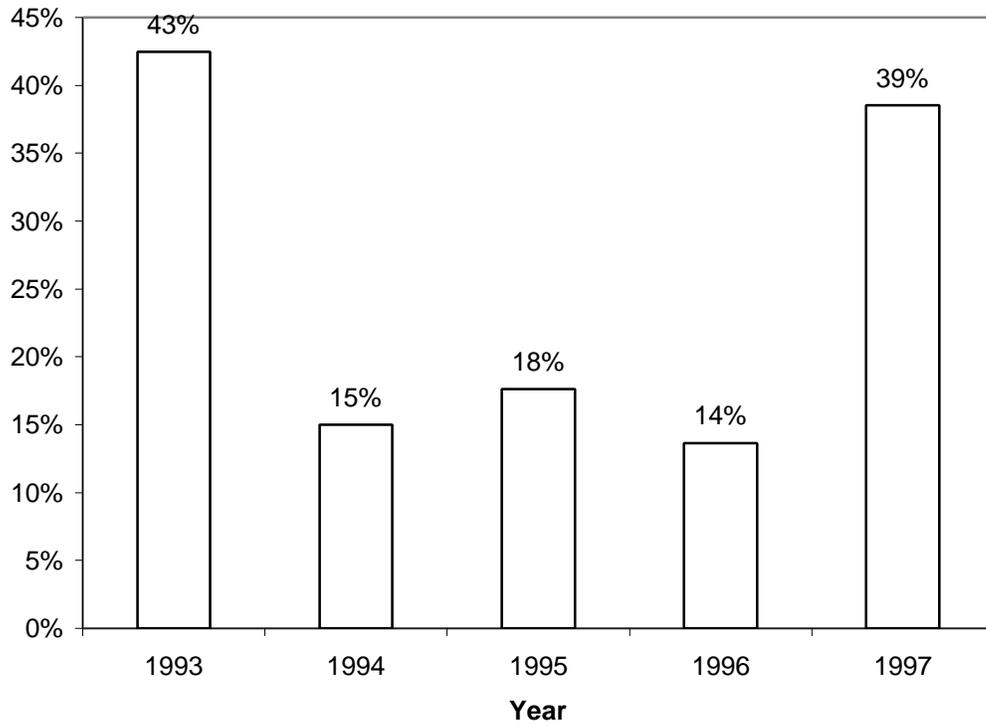
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**FIGURE 1**

**Mean First-Day Returns on Shares of Converting Thrifts**

**1993-1997**



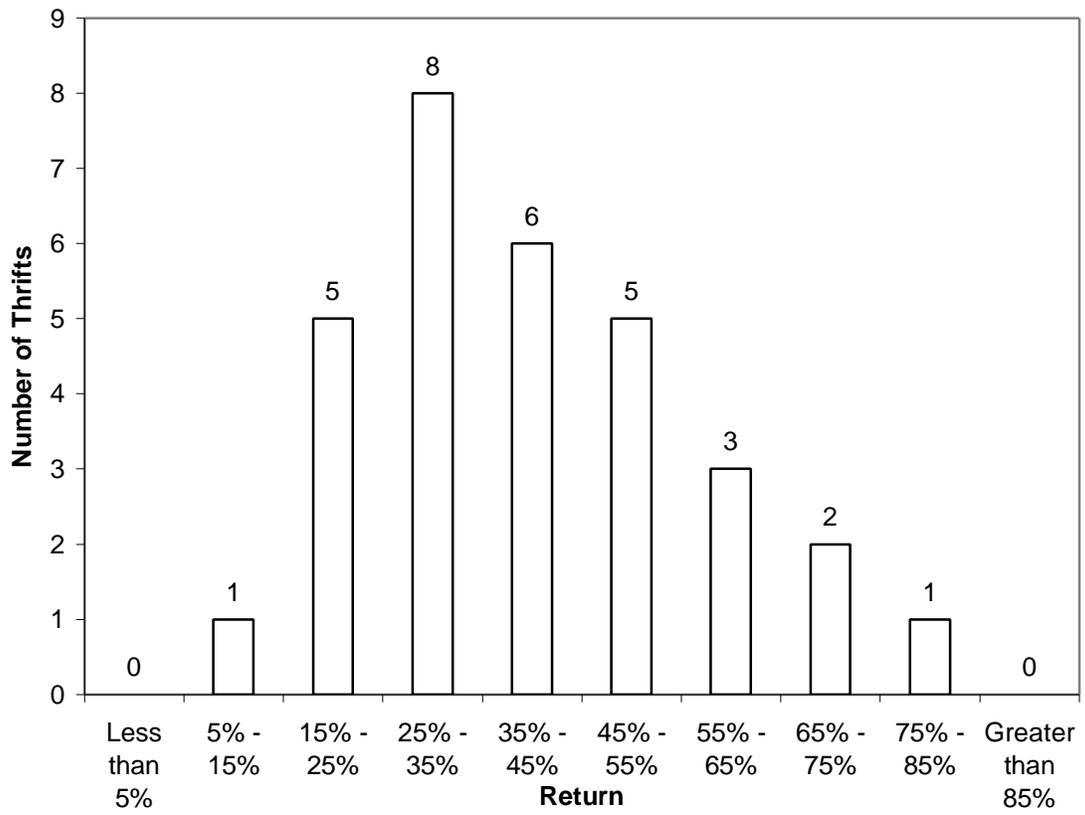
Notes:

1. Data source: SNL Securities.

**FIGURE 2**

**Distribution of First-Day Returns on Shares of Converting Thrifts**

**1997**



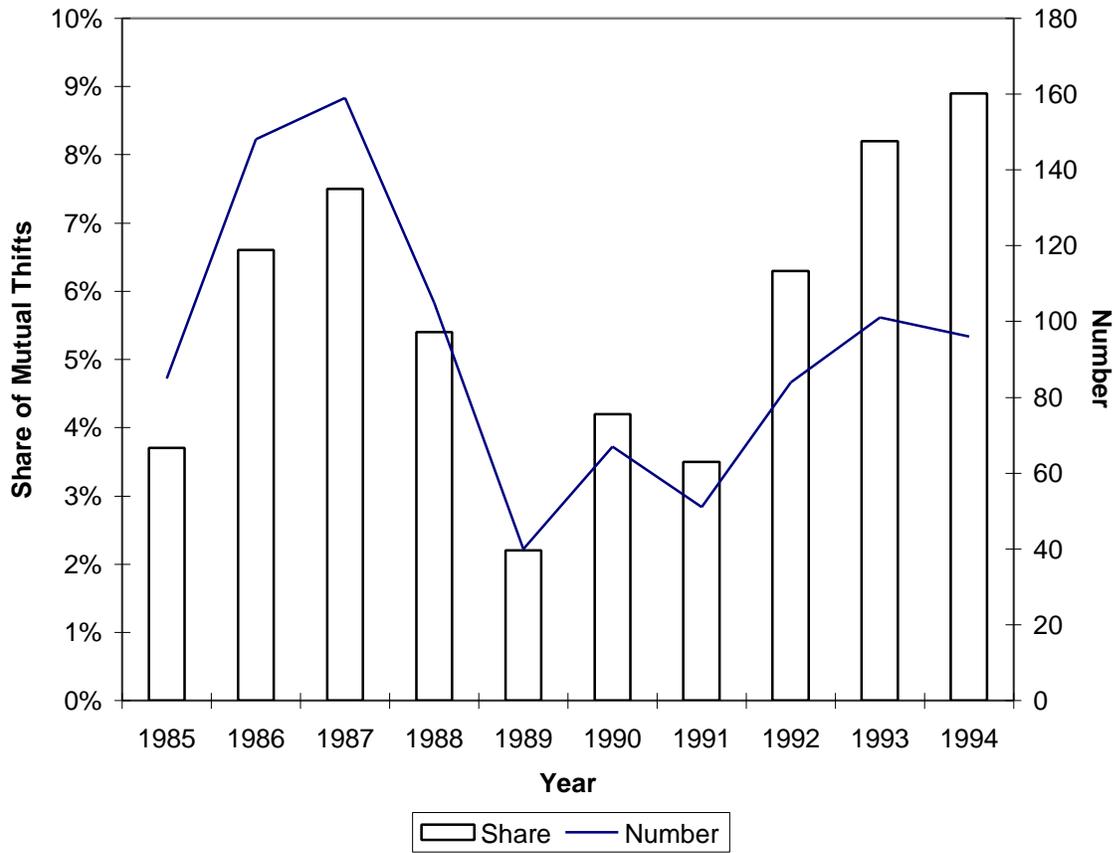
**Notes:**

1. Number of observations = 31.
2. Data source: SNL Securities.

**FIGURE 3**

**Share and Number of Mutual Thrifts that Converted to Stock Ownership**

**1985-1994**



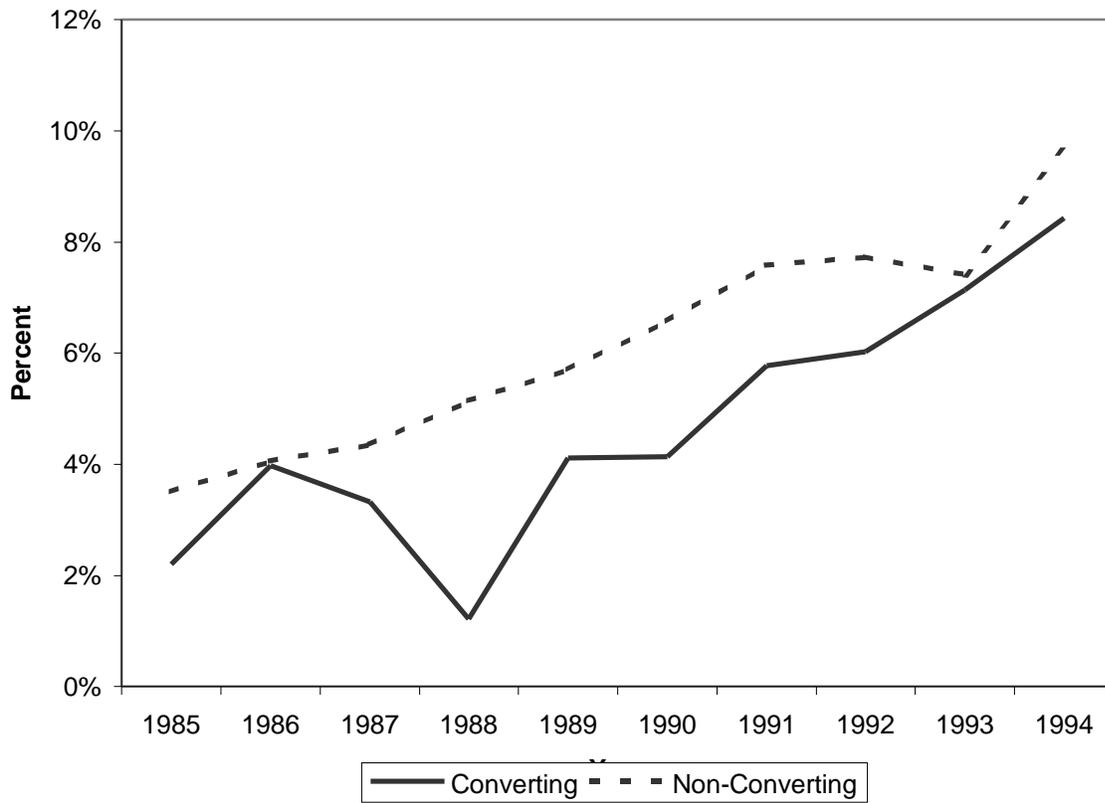
Notes:

1. Data source: Call Reports.

**FIGURE 4**

**Mean Capital-to-Asset Ratios for Converting and for Non-Converting Mutual Thrifts**

**1985-1994**

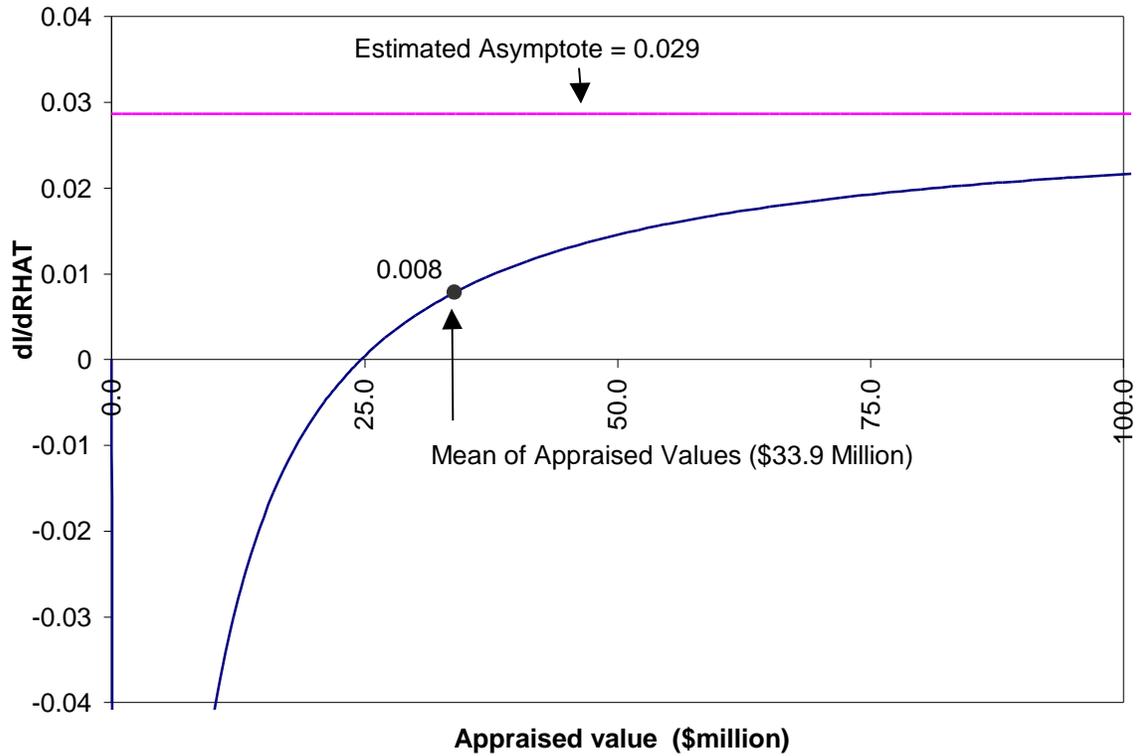


Notes:

1. Data source: Call Reports.

**FIGURE 5**

**Estimated Sensitivity of Insider Purchases to Predicted Excess Returns**



Notes:

1. The estimated response of insider purchases to predicted excess returns is plotted on the vertical axis. Appraised values in millions of dollars plotted on the horizontal axis.
2. Insider purchases were measured as the percentage of IPO purchased by insiders.
3. Data source: SNL Securities.

**Table I**  
**Summary Statistics for Converting Thrifts**

1993-1997

	<u>Mean</u>	<u>Standard Deviation</u>
Assets	\$290.5 million	\$413.6 million
Equity	23.3	35.4
Appraisal	33.9	49.8
Insider Purchases	1.9	2.7
<hr/>		
Equity/Assets	8.7 %	3.0 %
Earnings/Assets	1.0	0.5
Nonperforming Assets/Assets	1.1	1.3
Insider Purchases/Offering Size	8.9	6.9

Notes:

1. Financial statement data were measured at year-end prior to conversion.
2. Number of observations = 199.
3. Data source: SNL Securities.

**Table II**

**Predicting Excess Returns with Financial Statements and Appraisals**

Dependent Variable: First-Day Return

Dependent Variable Mean = 20.9%

1993-1997

	<u>Coefficient Estimates</u>						<u>Summary Statistics</u>	
	<u>Constant</u>	<u>1/ App. Value</u>	<u>Equity Capital/ App. Value</u>	<u>P-E* Earnings/ App. Value</u>	<u>P-E* Non-perf. Assets/ App. Value</u>	<u>P-E/ App. Value</u>	<u>Adjusted R<sup>2</sup></u>	<u>Prob. of F</u>
1.	-0.0534 (1.40)	-1.992 (4.36)	0.31 (6.69)	0.09 (3.54)	-0.01 (2.03)	0.1118 (3.63)	0.3012	0.0001

Notes:

1. t-statistics are in parentheses below coefficient estimates.
2. Number of observations = 199.
3. Data source: SNL Securities.

**Table III**

**The Relationship of Thrift Conversion Probabilities to Financial Statements**

1991-1994

	Coefficient Estimates						Summary Statistics	
	Constant	Equity Capital/ Assets	Non-perf. Assets/ Assets	Earnings/ Assets	1/ Equity Capital	Loan growth	Chi-Square	Prob. of Chi-Square
1.	-0.71 (3.25) [---]	-0.22 (8.41) [0.804]	-0.12 (3.03) [0.891]	0.10 (0.93) [1.103]	-0.79 (3.57) [0.452]	--- --- ---	97.25	0.0001
2.	-0.83 (3.76) [---]	-0.20 (7.90) [0.816]	-0.13 (3.41) [0.877]	0.11 (1.10) [1.120]	-0.78 (3.49) [0.460]	-0.02 (3.24) [0.979]	108.21	0.0001
Sample with Equity Capital/ Assets > 5 percent								
3.	-1.32 (4.63) [---]	-0.13 (4.32) [0.876]	-0.21 (3.62) [0.809]	0.25 (1.68) [1.280]	-1.94 (4.58) [0.144]	--- --- ---	68.715	0.0001
4.	-1.32 (4.66) [---]	-0.13 (4.33) [0.877]	-0.22 (3.76) [0.802]	0.26 (1.78) [1.296]	-1.92 (4.52) [0.147]	-0.01 (1.82) [0.986]	72.169	0.0001

**Notes:**

1. t-statistics are in parentheses and odds ratios are in brackets below the coefficient estimates.
2. Total number of observations = 5,314. Number of observations with Equity Capital/Assets > 5 percent = 4,712
3. Data source: Call Reports.

**Table IV**

**Predicting Excess Returns with Financial Statement, Appraisals, and Insider Purchases**

Dependent Variable: First-Day Return

Dependent Variable Mean = 20.9%

1993-1997

	<u>Coefficient Estimates</u>									<u>Summary Statistics</u>	
	<u>Constant</u>	<u>Insider Purchases Residual</u>	<u>Predicted Return</u>	<u>Insider Purchases</u>	<u>1/ App. Value</u>	<u>Equity Capital/ App. Value</u>	<u>P-E* Earnings/ App. Value</u>	<u>P-E* Non-perf. Assets/ App. Value</u>	<u>P-E/ App. Value</u>	<u>Adjusted R<sup>2</sup></u>	<u>Prob. of F</u>
1.	0.00 (0.00)	0.55 (3.51)	1.00 (9.88)	---	---		---	---	---	.3526	0.0001
2.	-7.69 (2.05)	---	---	0.63 (3.88)	-2.44 (5.35)	0.32 (7.14)	0.08 (2.86)	-0.01 (2.43)	0.13 (4.32)	.3486	0.0001

Notes:

1. t-statistics are in parentheses below coefficient estimates.
2. Number of observations = 199.
3. Data source: SNL Securities.