

# Mutual-to-Stock Conversions: Problems with the Pricing of Initial Public Offerings

by Joseph A. Colantuoni\*

The U. S. thrift industry, including both savings and loans and savings banks, has long been characterized by both stock and mutual forms of ownership. Stock-form thrifts are owned by shareholders and may be either closely held or publicly traded institutions. Mutual thrifts are typically owned by their depositors.<sup>1</sup> Since the early 1980s, a large number of mutual institutions have converted to the stock form of ownership. They have done so to raise equity capital, to expand their operations, to compensate company officers, or for a variety of other reasons. The primary method of converting has been through an “initial public offering,” or IPO. Equity interests in the new thrift are first offered for sale to eligible depositors, managers, employees, and then to the general public. Initial purchasers who were fortunate enough to buy shares of the 143 mutual thrifts that converted to a stock form of ownership in 1995, 1996, 1997, and the first half of 1998 saw their share prices rise by an average of approximately 24 percent on the very first day of trading. Even more dramatic has been the price appreciation on the 13 conversions that took place in the first four months of 1998, producing an unprecedented average one-day return of 59 percent. Moreover, the pops appear to be more prominent the larger the institution is.

Given the remarkable single-day returns associated with recent conversions, it seems appropriate to review the effectiveness of current regulatory appraisal guidelines in pricing mutual-to-stock conversions. These guidelines were revised in 1994 to ensure that “conversion stock is accurately appraised and sold at its pro-

forma market value, eliminating any ‘windfall’ distribution in the value of the converting association.”<sup>2</sup> Yet conversion activity since 1994 suggests that these revised guidelines have had a limited effect at best. Unfortunately, the current appraisal guidelines hinge on the assumption that the converting thrift can be valued in such a way that windfall gains are eliminated when the thrift’s stock begins trading. As this article shows, however, this assumption is unreasonable.

The first section of the article describes the conversion process and the attempt of regulatory guidelines to eliminate windfall gains that have, in fact, accrued in recent conversions. The second section summarizes recent studies of the conversion process, gives a mathematical explanation why pricing formulas cannot reduce first-day price appreciation, and empirically tests for the most important factors that affect conversion returns. The article concludes that preconversion equity in mutual thrifts is what creates the windfall gains that accompany mutual-to-stock conversions. Thus, unless a converting mutual thrift has no book equity at conversion, we should always expect significant price appreciation on the first day of trading.

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<sup>1</sup> Much like mutual insurance companies that are mutually owned by their policyholders.

<sup>2</sup> Office of Thrift Supervision Guidelines (1994).

## Appraisal Guidelines and Windfall Gains

### Concern over the Initial Public Offering Price of Mutual Thrifts

Regulators have become increasingly concerned over the dramatic short-term increases in the market value of converted thrifts. Initial shareholders in these institutions—people who first subscribed to the IPO—have been blessed with single-day returns far above the average for other types of companies that first issue stock to the public. Before 1994, the concern was that insiders benefited from these excessive returns at the expense of depositors, who often opted not to purchase shares of their newly converting thrift.<sup>3</sup> These insiders—a group that includes management and professional investors—typically accrued gains during a conversion by exercising their right to purchase stock in the thrift before it was publicly traded. After trading began, share prices would often rise dramatically from the initial public offering price insiders had paid. In October 1994, the Office of Thrift Supervision issued revised appraisal guidelines designed to eliminate these gains.<sup>4</sup> Table 1, figures 1 and 2, and table 2 (pages 5-6) show the single-day returns and the size of converting institutions before and after 1994.

A puzzling question now arises. If the revised guidelines provide a better estimate of a converting thrift's value than previous guidelines, then why do we still observe such remarkable, and rising, returns? The answer, as shown below, is that mutual-to-stock conversions are a unique type of initial public offering, and because of their unique characteristics, they *cannot* be priced to eliminate any windfall distribution of value arising from the conversion process.

### Why Price Appreciation Occurs in Mutual-to-Stock Conversions

Many stock-form firms, including banks and thrifts, have their equity capital privately held: their equity shares are not publicly traded but are held by a small number of individuals or companies. If privately held firms seek additional equity funding, or their owners wish to liquidate a portion of their investment, they may raise capital through an initial public offering of stock. In these cases, owners are essentially selling all or some portion of their ownership interest in the firm to new shareholders (the purchasers of the IPO).

In contrast, mutual-form thrifts do not have explicit owners. They do, however, have net worth, or equity,

in the form of retained earnings. Management has created this equity by prudently investing depositor funds. When mutual-form thrifts are converted to stock form, eligible depositors and managers can purchase shares of the thrift at the subscription price before public trading begins and a market price is established. The proceeds collected during the subscription period are not transferred to the mutual's managers or depositors. Instead, these proceeds are retained by the thrift and added to its total net worth. Those who purchased the thrift's stock during the subscription period now own its preexisting net worth plus the total proceeds raised in the public offering. The equity pie has grown in size, and each of the new shareholders can enjoy a larger piece of pie for the cost of a smaller one because the original (preconversion) equity remains in the thrift. The sudden and dramatic rise in the market price of stock above the offering price initially set by the underwriter is a reflection of the original equity.

If an institution has a positive amount of preexisting net worth<sup>5</sup> and can invest its IPO proceeds in profitable projects, attempts to eliminate rapid price appreciation are impossible. Two simple examples can explain this situation. Suppose a mutual-form thrift with \$10 million in net worth converts to stock form. In one example, if the institution's initial stock offering is sold for \$1 million, initial shareholders should expect to receive a 1,000 percent increase in the value of their shares. As a group, they pay \$1 million for \$11 million in net worth—initial retained earnings plus proceeds collected during the stock subscription period. In a second example, if the institution could somehow be sold for an unrealistic \$1 billion, initial shareholders would still realize a 1 percent initial return. As absurd as these examples may seem, they illustrate a simple point: *Regardless of the final IPO price, price appreciation will occur as the market realizes the value of an institution's undistributed (preexisting) net worth.*

Even in the IPOs of privately held stock-form companies, other than savings and loans or savings banks, some amount of price appreciation can be expected. Barry, Gilson, and Ritter (1998) report that between 1990 and 1996, standard IPOs averaged a 14 percent one-day return. Among the many factors affecting

<sup>3</sup> In 1981 and 1983, the OTS issued guidelines for the conversion of mutual savings and loans to stock form.

<sup>4</sup> 12 CFR Part 303.15 and Part 333.4, 12 CFR Part 563b.7

<sup>5</sup> Including positive book equity, retained earnings, and franchise value.

these single-day returns, they argue, is the “new-issue discount”: a company going public for the first time may be offered at a discount to its perceived market value in order to attract sufficient investor interest to the company. For example, there may be a lack of information about the company, and potential investors need compensation for the additional risk they assume when purchasing shares of a “new” public company.

However, the 14 percent price appreciation observed for standard IPOs is dramatically less than the average single-day returns of 40 and 44 percent registered by mutual-to-stock conversions in the past two years. Most of the price appreciation observed in newly converted thrifts is not created by a new-issue discount since converting thrifts make public a wealth of financial information. The availability of this information allows analysts to determine readily the pro forma market value of a thrift. When initial investors pay for shares of that value, they receive an equity interest in that value plus the money all of them together used to purchase that equity. This sudden realization of value is what causes the market price of a converted thrift to rise on the first day of trading.

### *Old Rules Applied to a New Market*

In the 1980s, undercapitalized mutual-form thrifts were commonplace and they often sought to convert to stock form in an effort to shore up their capital positions. With these conversions, very little price appreciation occurred as the newly issued shares merely brought in capital to buffer thinly capitalized institutions. Weakly capitalized thrifts had little preconversion equity and therefore did not display remarkable first-day returns when they went public. Given that between 1980 and 1989, thrifts averaged only approximately 1.6 percent in tangible equity capital, it is no surprise that studies like Jordan, et al. (1986) found conversions at the time experienced a mere 5.6 percent “pop” on the first day of trading. But in the mid-1990s, as the industry recovered its financial stability, conversions continued; and stalwart mutual associations that had survived the industry’s worst crisis added IPO proceeds to their already strong capital positions.

Presented with large sums of preexisting net worth and opportunities for profitable growth, today’s mutual-form thrifts converting to stock form can expect nothing less than spectacular initial returns. The appraisal guidelines that regulators once applied to weak thrifts are no longer appropriate. In the 1980s, thrifts’

need for capital and access to equity markets caused hundreds of them to convert. Today, the impetus for conversions seems to derive more from competitive pressures and managerial desires for better compensation.<sup>6</sup> The industry has fundamentally changed since the early 1980s, but the way mutual-to-stock conversions are valued has not.

## ***Evidence That Windfall Gains Have Not Been Eliminated***

### ***Published Research on Initial Returns and Underpricing***

Many recent studies have argued that conversions are not merely mispriced but impossible to price accurately under the current appraisal guidelines. An early study, by Jordan et al. (1986), surprisingly notes positive returns from many conversions in the 1980s and suggests the existence of a one-time transfer of wealth from those depositors who did not exercise their right to purchase shares to those who did. Two other studies discuss the general phenomenon of mutual-to-stock conversions and describe the general incentives managers have to underprice their institution’s initial public offering.<sup>7</sup> The second of the two studies illustrates the difference between conversions and standard IPOs (as discussed above).

Another study, Barth et al. (1994), also discusses why conversions are unique relative to IPOs and confirms that initial returns have become more pronounced in recent years. The authors even suggest that a moratorium should be placed on conversions until a more equitable distribution of net worth can be found. Still another study, Unal (1997), argues that the regulatory appraisal methodology is invalid because assumptions in the pricing equations are unreasonable. This author, too, calls for a moratorium on conversions. Finally, the most recent study, by Wilcox and Williams (1998), shows that excess returns on conversions have been fairly consistent and predictable. Their research shows that mutual-to-stock conversions grant higher returns to investors for less-than-expected risk.

<sup>6</sup> See Eccles and O’Keefe (1995).

<sup>7</sup> Masulis (1987) and Maksimovic and Unal (1993).

### Why Pricing Formulas Don't Work

A more detailed analysis of how conversions are valued will illustrate why it is not possible to eliminate first-day price appreciation in mutual-to-stock conversions.<sup>8</sup> The post-conversion value of a thrift,  $V'$ , is equal to the net present value of the existing mutual institution and all future earnings generated by investment of the proceeds of the bank's initial public offering,  $V$ .

$$(1) V' = \text{NPV of Existing Bank} + \text{NPV of IPO Proceeds}$$

$$= W + \sum_{t=1}^{\infty} \frac{Vr}{(1+d)^t}$$

$$= W + \frac{Vr}{d}$$

where the variable  $r$  is the net rate of return for new IPO proceeds. If these proceeds are not leveraged, then  $r$  represents the simple return on investments funded by the new capital. If the new IPO proceeds are leveraged, then  $r$  represents the rate of return on new investments minus the cost of borrowed funds. The variable  $W$  is the preconversion net worth already present in the thrift. For the sake of simplicity, assume that  $r$  is constant over time. The variable  $d$  should represent some appropriate estimate of the market's discount rate on the thrift's earnings. Ideally, this would be an average return on assets for the industry. However, to illustrate the implicit assumptions made in the current conversion appraisal guidelines, assume that  $d = 1/(P/E)$ , where  $(P/E)$  is the price to earnings ratio for a group of comparable institutions.<sup>9</sup> Then equation (1) becomes

$$(2) V' = W + \left(\frac{P}{E}\right)Vr$$

From (2) we see that a positive return on the IPO,  $V' > V$ , will be realized for any conversion if the proceeds from the public offering are positive ( $V > 0$ ) and the bank is expected to invest these proceeds in positive NPV projects ( $r > 0$ , or equivalently,  $W > 0$  and  $r > 0$ ). These are reasonable assumptions for any prudent investor to make.

The 1994 appraisal guidelines attempt to eliminate windfall gains on IPOs by pricing the converting institution's stock such that the expected post-conversion price of the stock is exactly equal to the initial public offering price (that is,  $V' = V$ ). Substituting  $V'$  for  $V$  in equation (2) and solving for the post-conversion value of the bank yields

$$(3) V' = W + \left(\frac{P}{E}\right)V'r$$

$$V' \left(1 - \left(\frac{P}{E}\right)r\right) = W$$

$$V' = \frac{W}{\left(1 - \left(\frac{P}{E}\right)r\right)}$$

Equation (3) represents the basic regulatory pricing model for mutual-to-stock conversions.<sup>10</sup> For us to obtain a positive value for the initial price,  $V'$  in equation (3), two key assumptions discussed above must hold. First, setting  $V' = V$  implies that any preexisting net worth is assumed to be zero. Second, the denominator of equation (3) must be positive, which implies that

$$(4) \quad 1 - \left(\frac{P}{E}\right)r > 0$$

$$\left(\frac{E}{P}\right) > r$$

$$d > r$$

This equation requires the institution to reinvest the proceeds of the offering in projects with negative net present values. These assumptions may have been reasonable in the 1980s, when many mutual savings associations had low net worth and less-than-desirable investment opportunities. However, such assumptions do not apply to the industry today, and thrifts that go public should not be valued as if such assumptions remain valid.

<sup>8</sup> This section borrows from Cassidy (1975), Maksimovic and Unal (1993), and Unal (1997).

<sup>9</sup> Where  $(P/E)$  is the ratio of a publicly traded thrift's stock price to its reported earnings.

<sup>10</sup> Table 3 shows the three pricing equations actually used in appraisal reports submitted to the FDIC and the OTS.

**Recent Data on Conversion Returns**

The historical single-day returns for standard conversions support the hypothesis that the value of a converting thrift cannot be priced to eliminate all windfall gains. Single-day returns, or ‘pops’, for post-1994 conversions have been significantly higher than those for conversions during the 1987–1993 period (see figures 1 and 2). Since 1994, pops have averaged 24 percent (see table 1). Moreover, since year-end 1996, the lowest pop observed among 35 conversions has been 26 percent, and the largest pop was 105 percent. A likely explanation for the post-1994 returns is the increase of preconversion equity in mutual thrifts (see figure 3). In general, the larger this equity, the greater the first-day price pop will be. The appraisal process and specific pricing equations have not had the intended effect of minimizing IPO single-day returns.

**Table 1**  
**Single-Day Returns for Mutual-to-Stock Thrift Conversions, before and after 1994**

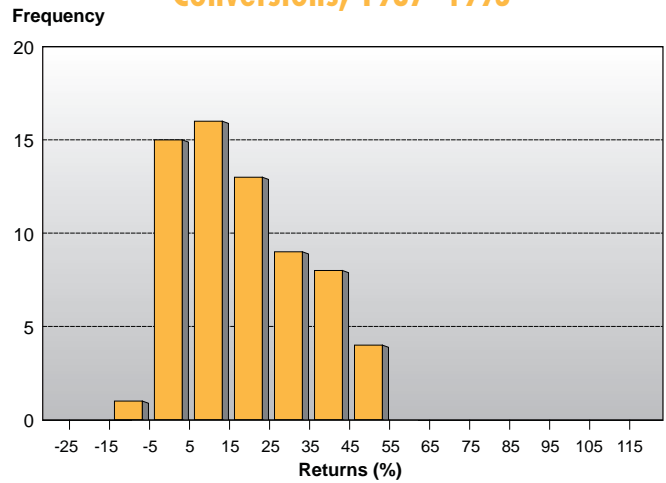
Statistic	Single-Day Returns	
	1987–1993	1995–1998
Number of Conversions	79	143
Maximum Return	55.00%	105.63%
Minimum Return	-13.07%	-5.00%
Average Return	16.65%	23.94%
Standard Deviation	.1490	.1936

Source: SNL Securities

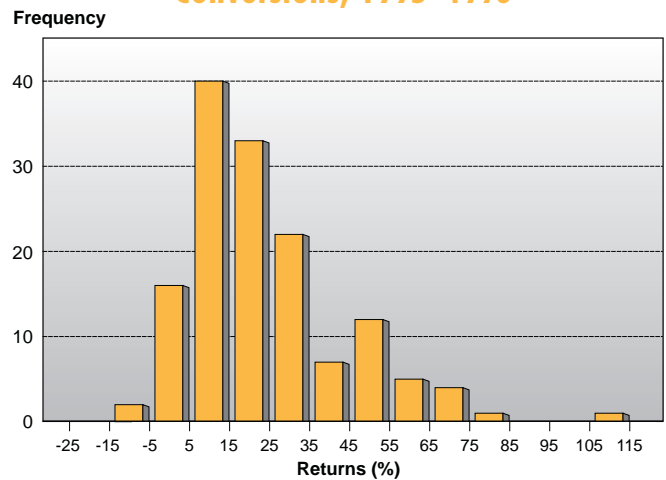
True, an extraordinary speculative market in financial-service stocks and regular IPOs may have contributed to these returns. However, when one factors out an average 0.06 percent daily return on a thrift index<sup>11</sup> in recent years and an average 14 percent initial return for other types of IPOs, mutual-to-stock conversions still appear to have generated remarkable single-day returns. Single-day returns greater than 20 percent seem even more conspicuous given that appraisers adjust valuations to account for current market conditions. These results are consistent across different-sized thrifts and are even more dramatic for larger conversions. In fact, for institutions with over \$1 billion in assets, returns have increased from an average of 17 percent before 1994 to over 30 percent since 1994 (see table 2)—even though at larger institutions capital ratios may be lower. In these cases, bandwagon effects and general market conditions may play a more important role in a conversion’s first-day price appreciation.

<sup>11</sup> SNL Securities Thrift Index.

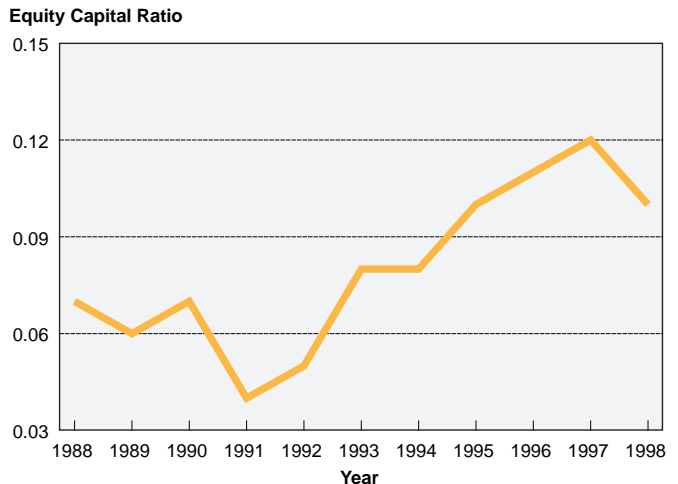
**Figure 1**  
**Distribution of Single-Day Returns for Conversions, 1987–1993**



**Figure 2**  
**Distribution of Single-Day Returns for Conversions, 1995–1998**



**Figure 3**  
**Mutual Thrift Preconversion Equity Levels**



**Table 2**  
**Single-Day Returns for Thrift Conversions**  
**by Asset Size, before and after 1994**

	1987–1993	1995–1998
<b>Small Thrifts</b>		
Number	41	119
Maximum	55.00%	105.63%
Minimum	-13.07%	-5.00%
Mean	19.06%	18.70%
Standard Deviation	.169	.250
<b>Medium Thrifts</b>		
Number	11	15
Maximum	32.50%	83.44%
Minimum	1.47%	0.00%
Mean	16.83%	26.63%
Standard Deviation	.105	.220
<b>Large Thrifts</b>		
Number	14	9
Maximum	40.00%	72.50%
Minimum	0.00%	6.25%
Mean	17.03%	30.42%
Standard Deviation	.134	.240

*Note:* Large thrifts: Over \$1 billion in total assets.  
 Medium thrifts: Between \$500 million and \$1 billion in total assets.  
 Small thrifts: Under \$500 million in total assets.

### *Estimating the Factors Most Affecting Conversion First-Day Returns*

To test how different market and valuation factors are related to conversion single-day returns, two simple models for analyzing these returns were estimated. The purpose of this exercise is not to develop a model for predicting returns but to identify the most important factors affecting them.

Among the most widely cited factors affecting conversion returns are preconversion equity, market conditions, institution size, size of the offering, and interest in the subscription. EQUITY is defined here as the ratio of preconversion equity to total assets. These data are obtained from the Call Report filed before a thrift's initial public offering date. The larger the EQUITY ratio, the more we would expect the converted thrift's market price to rise on the first day of trading, as previously undistributed equity is distributed to initial purchasers.

Favorable market conditions should have a positive effect on conversion values. A proxy for the returns to the thrift market, MRET, was constructed by averaging single-day returns to the SNL Thrift Index during the month in which a thrift converted. A dummy variable, MKT, was used to record whether the general thrift market was up or down on the day a particular thrift converted. Thus, MKT has a value of 1 if the

market rose on a thrift's conversion day, and 0 if the market fell on conversion day.

The size of an institution, as represented by its asset base, would also seem to be an important indicator of how much a converting thrift appreciates when first traded. A large conversion would generate more investor interest and possibly lead to a more dramatic pop. For this reason, the model uses total assets to help explain price appreciation. Since the relationship between the size of an institution and its pop is not likely to be strictly linear, the natural logarithm of assets, ASSET, is used.

**Table 3**  
**Calculation of Pro Forma Value after Conversion**

Price Multiple	Symbol
Price-Earnings Ratio	(P/E)
Price-Book Ratio	(P/B)
Price-Assets Ratio	(P/A)
<b>Valuation Parameter</b>	
Preconversion Earnings	(Y)
Preconversion Book Value	(B)
Preconversion Assets	(A)
Reinvestment Rate	(R)
Estimated Conversion Expenses	(X)
Proceeds not Reinvested	(Z)
Estimated Employee Stock Ownership Plan (ESOP) Borrowings	(E)
Cost of ESOP Borrowings	(S)
Amortization of ESOP Borrowings	(T)
<b>Calculation of Pro Forma Value after Conversion</b>	
1. $V = (P/E) (Y - R(X+Z)) - ES - (1 - TAX)E/T - (1 - TAX)/(1 - (P/E)R)$	
2. $V = (P/B) (B - X - E) / (1 - (P/B))$	
3. $V = (P/A) (A - X) / (1 - (P/A))$	

*Source:* Attachment III-A of the OTS "Guidelines for Appraisal Reports for the Valuation of Savings Institutions Converting from the Mutual to the Stock Form of Organization" (Revised October 21, 1994).

The size of the offering would seem to have an effect on first-day returns. Therefore, the total gross proceeds, VAL, received during a thrift's subscription period was taken as a ratio of the thrift's preconversion equity. A larger VAL would imply a larger pop for the same reason ASSET has a positive effect on first day pops—more subscription interest and overall investor enthusiasm about the offering. Substantial interest in the stock during subscription increases the likelihood it will appreciate in the aftermarket. In the past, fully subscribed and oversubscribed offerings resulted in heavy aftermarket trading and significant one-day price appreciation.

The proposed model regresses simple one-day returns for thrift  $i$ ,  $POP_i$ , on the factors mentioned above:

$$POP_i = \alpha + \beta_1 MRET + \beta_2 EQUITY_i + \beta_3 VAL_i + \beta_4 ASSET_i + \beta_5 MKT + \epsilon_i$$

Standard OLS techniques were used to estimate all regression coefficients with a sample of 124 conversions for which Call Report data could be linked to market prices of converted institutions. Table 4 provides summary statistics for each of the variables in the model. Thrifts included in the regression averaged \$531 million in assets and converted to stock form between 1994 and 1998. A number of small conversions with incomplete price data and complex multithrift holding company conversions were excluded from the sample. The regression results are presented in table 5. The estimated coefficients appear in columns (2) and (3). The time dummy variables (Y95–Y98) attempt to explain effects not captured by the other variables.

**Table 4**  
**Descriptive Statistics for Variables Used in OLS Regression**

Variable	Mean	Median	Standard Deviation
POP	0.209	0.202	0.139
ASSET	\$531,387	\$142,253	\$1,851,084
MRET	0.117	0.107	0.166
EQUITY	0.101	0.093	0.039
VAL	1.603	1.633	0.439

*Note:* Asset values expressed as thousands of dollars. Log(ASSET) used in regression. The variable POP is a percentage expressed as a decimal.

**Table 5**  
**Ordinary Least Squares Regression Results**

	POP	POP
Intercept	-0.721 (-4.833)*	-0.366 (-2.815)*
MRET	0.231 (3.841)*	0.154 (2.867)*
EQUITY	1.230 (4.342)*	0.694 (2.852)*
ASSET	0.052 (4.626)*	0.031 (3.315)*
VAL	0.117 (5.103)*	0.071 (3.584)*
MKT	-0.045 (-2.154)	-0.002 (-0.129)
Y95	—	-0.035 (-1.485)
Y96	—	-0.044 (-1.863)
Y97	—	0.146 (4.430)*
Y98	—	0.230 (4.741)*
Number of Observations	124	124
R <sup>2</sup>	0.370	0.602
Adjusted R	0.344	0.570
F Value	13.99	19.30

*Note:* t-statistics appear in parentheses. An \* indicates that the coefficient is significant at the 1 percent level.

The large and significant coefficient for EQUITY confirms the belief that preconversion equity is an important factor in determining one-day returns. As expected, the market into which a thrift converts is also an important factor in predicting POP, a result indicated by the significance of the MRET variable. The large negative intercept implies that under this model, negative single-day returns are still possible. These results are consistent with the recent findings of Wilcox and Williams (1998), mentioned above. When the time dummy variables were added to the pop model, the years 1997 and 1998 were statistically significant. This is not surprising, given the general market exuberance in both years and the fact that only conversions through mid-1998 were included in the data. Another possible explanation for this result is the large number of conversions and the resultant increase in investor awareness of the windfall gains accrued in conversions.

The model shows the relative importance of several financial and market factors in determining pops, and it supports the hypothesis that in many thrifts preconversion equity has a significant effect on first-day price appreciation. However, because of the low R<sup>2</sup> value, it

may not be appropriate to view the model as a forecasting model that one can use to predict actual increases in stock prices.

As discussed in the second section, one can form a measure of the expected pop by taking the ratio of pre-conversion equity to the proceeds raised during the thrift's initial public offering. The amount by which this expected pop deviates from the observed first-day return, on average, is presented in table 6 for the years 1994–1998. This deviation is defined as the observed pop minus the expected pop. Although some of the expected price appreciation can be explained by the factors discussed above, there appears to be a considerable discrepancy between expected and observed single-day price appreciation. On average, the actual one-day price appreciation is less than the expected pop. This may be caused by investors who value the converting thrift as if there were inherent equity in the

institution—leading to a higher appraised value (or a premium being built into the IPO price) and less price appreciation. The expected price appreciation presented in table 6 assumes that the appraised value does not account for this inherent equity but values the return on capital using market discount rates. The result is a lower initial public offering price and significantly greater first-day price appreciation. Nevertheless, it remains a mathematical certainty that no matter how the converting thrift is valued, some price appreciation is to be expected.

### Conclusion

A total of 815 mutual-form thrifts, holding 16 percent of industry assets, still existed as of June 1998. Competitive pressures, need for additional capital, and numerous other factors will force hundreds of thrifts to convert to stock form in the future. The consistent market reaction to mutual-to-stock conversions sends a very important message: the current conversion process is flawed in theory and in practice. Mutual-to-stock conversions are inherently different from initial public offerings by stock-form firms, and policymakers need to recognize that under the current conversion process windfall gains cannot be entirely eliminated. If the goal of public policy is to minimize potential windfall gains to individual investors, alternative means of distributing the net worth of a thrift should be considered. Otherwise, regulators should let the market reduce the size of pops by incorporating into the initial public offering price the knowledge that they will occur.

**Table 6**  
**Average Deviations between Expected and Actual Pops, 1994–1998**

Year	Actual Pop	Expected Pop	Deviation
1994	19.2%	46.7%	-27.5%
1995	17.0	60.9	-43.9
1996	16.1	46.0	-29.9
1997	38.8	81.8	-43.0
1998	55.2	86.6	-31.4



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