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Two Empirical Essays on Mutual Thrift Conversions

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By

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TWO EMPIRICAL ESSAYS ON MUTUAL THRIFT CONVERSIONS

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In our first essay, we study initial returns and long-run performance of a unique sample of recently converted mutual-to-stock thrifts. Since the average converted thrift in underpriced, we are able to characterize investor behavior in a way that is not possible with the typical IPO. In particular, we find that after removing large returns cumulative excess returns are positive for the first 12 months after the IPO. Beginning in the second year, the average firm undergoes a significant price correction that lasts for approximately 18 months which produces negative cumulative abnormal returns for up to five years post-issue. Differences in risk-adjusted returns also indicate negative long-run returns, with poor performance concentrated in the second and third years following the IPO. The return differences are most pronounced among the small thrifts in our sample, and are broadly consistent with investor overreaction at the time of the IPO that continues for six to twelve months before prices begin reverting back to fundamental value.

In our second essay, we examine full conversions, MHCs and second-stage conversions for significant differences in agency costs across ownership structures and possible implications for second-stage conversions. Full conversions undertake more lending risk and are more efficient with respect to asset utilization. All ownership structures experience over-capitalization following the IPO. MHCs and second-stage conversions return temporary greater valuation to shareholders. Large mutual thrifts that are inefficient with respect to asset utilization are more likely to choose a MHC. In

addition, MHCs that report lower price-to-book and are more costly to operate choose second-stage conversions. Publicly traded thrifts that report higher price-to-book and greater ROAA are acquired. Small MHCs with high asset utilization and higher operating costs are more likely to choose second-stage conversions. Large MHCs that report lower price –to-book are more likely to choose second-stage conversions. Small publicly traded thrifts that are acquired report lower interest income to average assets but higher price-to-book while large publicly traded thrifts report both greater interest income to average assets and price-to-book.

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Table of Contents

DISSERTATION TITLE

Two Empirical Essays on Mutual Thrift Conversions
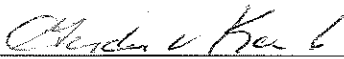
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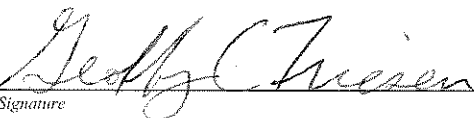
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First Essay

Overreaction in the Thrift IPO Aftermarket

Introduction

The IPO market is a natural place to examine aggregate investor behavior following a large, discrete stock price change, since the average IPO has a first day return of between 10% and 20% (depending on the time period examined). The cause of the large initial returns is not well understood. Some suggest that the large initial returns result from initial undervaluation, in which case the first-day return simply reflects an adjustment from the offer price to the fundamental value. Others suggest that initial returns reflect investor overreaction to new information on the first day of trading.[1]

Ritter and Welch (2002) also document that positive first-day returns are followed by long-run underperformance. One explanation is that negative long-run returns are the result of overreaction to new information on the initial day of trading: Overreaction drives prices above fundamental value, but in the long-run prices converge to fundamental value, and the long-run abnormal returns (excluding the first-day return) are negative.[2] However, negative long-run returns can be attributed to investor overreaction only if one knows that the IPO was not initially overvalued. Recent work by Purnanandam and Swaminathan (2004) suggests that IPOs are actually overvalued at issue by as much as 50%. In light of this statistic, one cannot attribute the negative long-run returns to post-IPO investor overreaction, since they may simply result from initial over-pricing.

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[1] We do not equate "underpricing" with the initial return, as is commonly done in the literature. We refer to first day returns as such, and use the term "underpricing" only to refer to situations where the IPO price is known to below the firm's fundamental value (described in more detail below).

[2] Ritter and Welch (2002) suggest it may also reflect a failure to adequately control for firm characteristics.

We contribute to the study of post-IPO investor overreaction by studying the long-run return properties of a unique set of 221 thrifts that converted from mutual to stock form between 1993 and 2000. When thrifts convert from mutual to stock ownership, the original owners (depositors) lose their ownership rights and their entire claim on pre-conversion equity is transferred to the IPO investors at no cost.[3] Thus, the new shareholders have ownership rights that include all IPO proceeds plus all of the pre-conversion market value of the thrift. In contrast, the new shareholders in a typical IPO have a claim on only a proportion of the pre-conversion market value. If we assume positive pre-conversion market value, then by construction the converting thrift IPO is underpriced. In other words, it is not possible for the valuation to be 'correct' since IPO investors always receive assets (IPO proceeds plus pre-conversion market value) worth more than the IPO proceeds. Peter Lynch once remarked that from the perspective of the IPO investor, this was equivalent to buying a house, moving in, and finding the seller had left the sale proceeds in the house for the buyer to keep (Wilcox and Williams, 1998). Many investors understand *ex ante* that this underpricing exists and is unique to thrift demutualizations, although the exact magnitude is not observable. It is not a feature of standard IPOs, bank IPOs or insurance company demutualizations.

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[3] Prior to conversion, mutual thrift depositors are fixed claimants with apparent ownership rights to residual equity. However, Smith and Underwood (1997) discuss that although the residual profits of a mutual thrift belong collectively to depositors, they are individually unable to exercise their rights as equityholders. In other words, mutual depositors are unable to withdraw the mutual thrift's residual profits. If the thrift converts to a stock organization using the sale-of-stock method, depositors have priority in purchasing shares in proportion to their deposited assets. Depositors who choose not to purchase shares are no longer owners but simply fixed claimants with no ownership rights.

The following example illustrates how the built-in underpricing is unique to mutual-to-stock thrift IPOs. Assume two thrifts that are identical except one is privately held and one is organized as a mutual. Without loss of generality, assume the private firm has 100,000 shares; mutual thrifts do not have ownership shares. Further assume that both firms have $500,000 of book value equity prior to their IPO and that both firms will raise capital by selling 400,000 shares to outside investors. The key difference is that the new shareholders of the mutual thrift have a claim on all pre-conversion equity while the new shareholders of the private thrift have a claim on only a proportion of pre-conversion equity.

The current owner of the private thrift owns all 100,000 shares and will sell 400,000 new shares (80% of the company) for expansion resulting in 500,000 shares after the offering. Investment bankers assist the owner in determining the market valuation of the company and estimate the post-conversion market value to be approximately $5,000,000; the IPO is fairly priced by setting the issue price at $10 per share. This means the company will collect approximately $4,000,000 when the shares are sold (less investment banking fees), and the tangible per share book value of the firm will rise from $5.00 prior to the IPO to $9.00 after.[4] Moreover, assuming that the estimated market value of $5,000,000 is correct, the post-conversion per share market value equals the initial price of $10.

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[4] This represents an immediate increase in pro forma tangible book value of $4.00 per share to the existing shareholder and an immediate dilution of $1.00 per share to new shareholders. Thus, new shareholders are investing approximately $1.00 in the present value of growth opportunities of the thrift. While smaller in magnitude, this is consistent with the results of Chung, Li, and Yu (2005) who document that a large percentage of the IPO offer price reflects the present value of growth opportunities.

The mutual-to-stock IPO involves selling 400,000 shares at the IPO price of $10, with stock proceeds (less fees) of approximately $4,000,000. In contrast to the private-to-stock conversion, the original owners (depositors) have no shares in the converted firm and are effectively stripped of their claim on pre-conversion equity. The pro forma tangible book value per share following the IPO is $11.25 which represents an immediate increase of $1.25 or 12.5% to new shareholders. A post-conversion market value of $5,000,000 results in a share price of $12.50, and the IPO is therefore underpriced at issue by approximately 25%. In other words, a mutual-to-stock thrift conversion results in a direct transfer of wealth to new shareholders at the expense of the original owners (depositors). In fact, as long as the pre-conversion market value of the firm is positive at the time of conversion, Colantuoni (1998) demonstrates that the IPO will be underpriced and a transfer of wealth will occur regardless of the IPO offer price.

The above example illustrates why we know the average issue is not overpriced and why our sample of firms is uniquely suited to test for investor overreaction. For example, since negative abnormal returns can occur only after price rises above fundamental value, any negative long-run risk-adjusted returns observed in our sample must result from investor overreaction to information at some point after the IPO, assuming the thrift was solvent prior to conversion. In particular, negative long-run returns relative to the first-day closing price indicate investor overreaction on the initial trading day. In contrast, if investors initially underreact to information, all long-returns will be positive when measured relative to the first-day closing price. Over-reaction after

the initial trading day will produce negative returns only during the later, post-issue sub-periods when prices correct.

We find that our sample of converting thrifts demonstrates large first day excess returns of 17.9 percent; however, even the large magnitude of this initial return need not imply investor overreaction or initial underpricing. Thus, we examine post-IPO cumulative abnormal returns (which exclude the large initial return) to gauge whether investors overreact on the day of the IPO. We find positive cumulative abnormal returns over the first twelve months following the IPO, but negative cumulative abnormal returns at all horizons longer than that. The results suggest that investors overreact on the initial day and possibly during the subsequent 12 months of trading, which is consistent with the results of Purnanandam and Swaminathan (2004).

If prices eventually converge to fundamental value, any overreaction must be followed by negative sub-period returns during a corrective phase. Therefore, analyzing sub-period returns provides insight into the specific timing of overreaction and subsequent correction. We examine returns over six month sub-periods for five years post IPO, looking at both market adjusted excess returns and alphas from the various factor models mentioned above. Excess returns are significantly positive for the first six months after the IPO, and approximately zero in the subsequent six-month period. This suggests that overreaction continues for approximately six months beyond the initial day of trading. It is worth emphasizing that although investors overreact during the first six months of trading, nearly all of the overreaction occurs on the initial day of trading.

However, within twelve months following the IPO, the average thrift begins to experience a price correction or mean reversion towards fundamental value, as measured by negative excess sub-period returns. This correction lasts for approximately eighteen months, after which time the sub-period excess returns are approximately zero. Thus, the thrifts in our sample appear to go through a cycle of overreaction and subsequent correction after the IPO. The initial day of trading, as well as the first six months after the IPO, are characterized by investor overreaction. Prices stabilize during the following six-month period then begin a correction process which lasts about eighteen months. We also examine differences in risk-adjusted returns. While the statistical significance of these results is somewhat weaker, they also demonstrate that the long-run abnormal returns are negative, and that the poor performance is concentrated in the second and third years following the IPO. In addition, the return differences are most pronounced among the smaller thrifts in the sample.

Our study is among the first to examine the long-run performance of these converted thrifts in detail.[5] Our study is similar to recent work by Purnanandam and Swaminathan (2004), who interpret empirical data from standard IPOs in light of various

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[5] Two exceptions are Ritter (1991) and Houge and Loughran (1999), though neither of those studies analyzes the returns for thrifts separately from other financial institutions. Ritter (1991) documents long-run overperformance over a three holding period for financial institutions (banks and thrifts) that went public during the period 1975-1984. In contrast, Houge and Loughran (1999) found that a sample of banks and thrifts that went public from 1983-1991 significantly underperformed over a five year holding period. In addition, initial thrift returns have been examined by Pettigrew, Page, Jahera, Barth (1999) and Wilcox and Williams (1998). Maksimovic and Unal (1993) study the relation between IPO pricing, first-day returns, and depositor and insider purchases, and find that greater insider ownership predicted higher initial returns. Esty (1997) and Kroszner and Strahan (1996) examine regulatory incentives to convert to stock form. Unal (1997) looks at the appraisal process and how it relates to initial IPO windfall gains. Masulis (1987) looks at probability a firm will convert as a function of thrift size, recent growth and non-interest income. Cole and Mehran (1998) study the performance of converted thrifts before and after expiration of anti-takeover amendments.

behavioral models. Purnanandam and Swaminathan (2004) examine the pre-market, first day and long-run performance of a large set of IPOs. They find that relative to industry peers, the median IPO is overvalued at the offer by about 50% relative to its industry peers. Moreover, the most overvalued IPOs earn the highest first day returns, and experience the most severe subsequent long-run performance. Relative to IPOs that are initially underpriced, the IPOs most initially overvalued earn first day returns that are 5% to 7% higher, but earn 20% to 40% lower returns over the next 5 years. Their results suggest that the widely documented long-term IPO underperformance may be attributable to both the initial *overvaluation* of the offerings, followed by further post-issue price increases that eventually reverse over the long-run. The authors interpret their evidence as being consistent with initial investor overreaction to information (measured by the initial overvaluation of the IPO), followed by additional subsequent overreaction (large positive first-day returns), and long term mean-reversion (long-term underperformance). This interpretation is consistent with the empirical predictions of Daniel et al. (1998).

While their study addresses several important questions, it raises others. First, it is unclear that overpricing in the pre-market can be interpreted as the type of investor overreaction modeled in Daniel et al. (1998). This is because the pre-issue pricing mechanism differs from the open market pricing mechanism: The initial offer price is set by the issuer and underwriter, and only indirectly represents investor demand. If the issuer miscalculates investor demand, or faces incentives that affect the offer price, the pre-offer pricing mechanism may not accurately represent aggregate investor demand. One advantage of our sample is that the pre-issue pricing mechanism for thrifts is highly

transparent. The initial valuation pricing formula is regulated, is common knowledge to investors, and is distinctly *independent* of investor sentiment. Thus, investor demand manifests only in the after-market.

Second, if the average IPO is initially overpriced, then one cannot know whether long-run negative returns are due to investor overreaction or simply result from the initial overpricing. The second advantage of our sample of thrifts is that underpricing is known *ex ante* to many market participants. Thus, any negative excess returns can be attributed to investor overreaction sometime after the IPO. The empirical tests in the paper are based upon this simple insight.

I.   Thrift conversion process

A.   Regulatory Process for Thrift Conversions

The thrift industry is comprised of both stock and mutual forms of ownership. Mutual organizations are owned by depositors whereas stock thrifts are owned by shareholders. Until the early 1980s, the thrift industry was dominated by mutual ownership. For example, Esty (1997) reports that in 1979 stock thrifts held only 25% of thrift industry assets. Chaddad and Cook (2004) note that deregulation and macroeconomic forces, such as increased interest rate volatility during the 1980's, changed the competitive environment in which thrifts operate. Mutual thrifts were most vulnerable to these industry shocks since mutual thrifts rely on retained earnings as their only source of capital.

Prior to 1982, stock ownership for a federally chartered thrift was not an ownership structure option. In response to a large number of failed thrifts, laws were changed authorizing stock ownership and mutual-to-stock conversions. To promote stock ownership, Congress passed the Garn-St Germain Depository Act of 1982, which legalized stock ownership and mutual-to-stock conversions for federally chartered thrifts. These changes were successful in attracting mutual thrifts to convert to stock ownership; Chaddad and Cook (2004) report that stock thrifts currently hold approximately 90% of industry assets.

The primary regulator of thrift institutions is the Office of Thrift Supervision. The current 'sale-of-stock' conversion process was adopted by the predecessor to the Office of Thrift Supervision, the Federal Home Loan Bank Board (FHLBB), in 1974.[6] This process provides for the sale of stock of the converting thrift at a price equal to its pro forma market value as determined by an independent appraisal. The sale-of-stock approach was selected since the FHLBB viewed it as the most viable way of minimizing windfall distributions to accountholders (Smith and Underwood (1997)).

A mutual-to-stock conversion begins with the thrift's board of directors drafting and adopting a plan of conversion. The plan of conversion must include subscription priorities, limits on maximum purchases (generally five percent), provision for the

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[6] The current sale-of-stock approach was preceded by the free-distribution-of-stock approach that was in force from 1961-63 (Unal (1997)). The free-distribution-of-stock approach required that the converting thrift's preconversion equity by distributed on a pro rata basis to existing depositors. As noted by Unal (1997), this approach caused numerous problems and was criticized on the grounds that it would result in a windfall to depositors. The Federal Home Loan Bank Board responded by placing a moratorium on free-distribution-of-stock conversions in 1963 followed by a Congressional statutory moratorium on conversions in April 1973 (Unal (1997)).

liquidation account and pro forma market valuation of the institution, and additional limits on stock purchases by officers and directors. Once the board approves the conversion plan, the thrift prepares to file its application for approval (Form AC). Form AC consists of the conversion plan, an independent appraisal establishing market value of the thrift, and the proxy statement. The proxy statement includes the thrift's current financial statements.

The independent appraisal is prepared with respect to regulatory guidelines. An independent appraiser, hired by management, establishes the market value for the converting thrift immediately following conversion by comparing the converting thrift with a sample of similar publicly traded thrifts while considering the thrift's intended use of the proceeds.[7] A minimum and maximum range for the firm's value is computed and reported as 15% above and below the estimated value after conversion. Management selects the offer size from within this range (Unal (1997)) and thus has some control over the degree of underpricing. This is consistent with the results of Maksimovic and Unal (1993), who find evidence that issue size and underpricing are directly related, and Cagle and Porter (1997) state that management may be likely to underprice thrift conversion IPOs. However, the choice of issue size will not introduce overpricing even if management chooses an issue size 15% above the appraised value, since pre-conversion equity is always transferred to IPO investors at no cost.

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[7] As noted in Pettigrew et al. (1999), some regulatory authorities have expressed concerns that the appraisal value has frequently been set to low. If true, this will serve to increase the degree of underpricing, and therefore not affect the validity of using abnormal returns to make inferences about post-IPO investor behavior.

Following the submission of a complete application, regulatory authorities review the Form AC and give comments on the adequacy of the appraisal, the legal sufficiency of the plan and disclosures, and the accuracy of the accounting. Once the application for conversion is approved, the thrift immediately distributes its proxy statement to members. After a period of 20 to 45 days, the thrift can hold its special meeting of account holders. The plan must be approved by a majority of the outstanding votes of members unless state law requires a higher percentage for state chartered institutions. As previously stated, the stock offering follows the sale-of-stock approach. The sale-of-stock approach gives depositors and managers the first opportunity to purchase shares (Unal (1997)). If the conversion offering is not oversubscribed, then subscription rights go to members of the thrift who were not eligible depositors or shares are sold to the public.

The FHLBB adopted amendments in 1979 to limit management purchases, which had averaged 34% of the total stock sold (Smith and Underwood (1997)). Management purchases were limited to 25%-35% (depending on size of the thrift) in the aggregate and managers were restricted from selling any shares purchased in the initial subscription for a period of one year (Wilcox (2006)).[8] These amendments also limited maximum purchases from any person to 5% (Smith and Underwood (1997)). The subscription rights are nontransferable and can only be exercised by the recipient. Regulations prohibit anyone directly or indirectly from acquiring ownership of more than ten percent of the conversion stock without board approval.

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[8] Cole and Mehran (1998) find that after the expiration of this lock-up period, managers of the average firm subsequently increased their ownership percentages.

B.   *The Nature of Built-in Underpricing*

A key feature that differentiates a thrift conversion from the typical IPO is that at the time of conversion, the depositors are stripped of their claim on pre-conversion equity and the claim is automatically transferred to the new shareholders. Since, the net proceeds of the IPO simply become an asset of the converted thrift, IPO investors have a claim to both pre-conversion market value and all proceeds from the stock sale. In other words, the IPO investors have a claim on total pre-conversion market value at no cost to them. To formalize, suppose an economically solvent mutual thrift applies for conversion to stock ownership. Utilizing the model developed by Maksimovic and Unal (1993, p. 1664), let V_o represent the value of pre-conversion equity and let GV_o measure the present value of pre-conversion growth opportunities. The pre-conversion market value of the thrift is given by:

$$V_P = V_0 + GV_o$$

Wilcox and Williams (1998) show that solvency implies that V_P is positive. [9]

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[9] A distinction must be made between the book value and market value of pre-conversion equity, both of which are relevant in the context of the converting firm. Regulatory decisions, including decisions to close or rehabilitate a thrift are based upon book values, whereas for shareholders the relevant measure of value is the firm's market value. This distinction ultimately blurs prior to the conversion, since the market value of firm equity is unobservable. Kane and Unal (1990) present a model for market-value/book-value relationships for financial institutions. The pre-conversion market value can be viewed as the sum of the market value of both unbooked equity and booked equity. If book value is assumed to be an unbiased estimate of market value, booked equity is the pre-conversion net worth of the converting thrift, and thus an appropriate estimate of pre-conversion market value.

In addition to the IPO proceeds, denoted V_{IPO}, the class of investors purchasing the newly issued shares also receives 100% ownership of the pre-conversion market value at no cost. The fundamental value of the thrift after conversion equals

$$V_T = V_P + V_{IPO} - K$$

(1)

where K denotes issuance costs. In an efficient market, the post-conversion market value will equal the fundamental value, defined in equation (1), and the first-day price change will equal the fundamental value minus the issue price V_{IPO}.

Let P_{day1} denote the market value at the end of the first day of trading. If investors are rational, first day trading will drive the market price from the issue price, V_{IPO}, to fundamental value V_T, so that $P_{day1} = V_T$. Under-reaction may produce a positive return that results in a first day closing price $P_{day1} < V_T$, while over-reaction will result in $P_{day1} > V_T$. Thus, the presence of a positive first day return by no means indicates investor overreaction, though it may provide an incentive for momentum trading in the new issue.

Equation (1) illustrates the underpricing built into thrift conversions. Thrift IPO investors pay V_{IPO} and receive assets worth $V_T = V_P + V_{IPO} - K$. Thus, in addition to a claim on the IPO proceeds themselves, IPO investors also receive a claim on the full pre-conversion market value. As a result, the initial underpricing is equal to the pre-conversion value of the firm V_P-K. This term is almost certain to be positive for an

economically solvent thrift that converts to stock using the sale of stock method (Masulis (1987), Barth, Brumbaugh, and Kleidon (1994) and Unal (1997)). In other words, if the pre-conversion thrift is solvent, *underpricing is unavoidable*. For this reason, Maksimovic and Unal (1993) note that, unlike the typical IPO, a thrift conversion may experience subsequent price appreciation even without informational asymmetries. Wilcox and Williams (1998) find that size of excess first-day returns is highly predictable using pre-conversion firm value.[10]

The near certainty of excess returns to participants of thrift conversions has not escaped regulatory attention. As discussed in Colantuoni (1998), the Office of Thrift Supervison's (1994) guidelines seek to eliminate windfall gains on IPOs by setting the expected post-conversion stock price equal to the IPO price, that is, $V_T = V_{IPO}$. Of course, this is impossible except under the following restrictive conditions: (a) the pre-conversion market value of the firm is zero; or (b) IPO proceeds are invested in negative NPV projects; or (c) the conversion and issuance fees exceed the pre-conversion market value.[11] Otherwise, $V_T > V_{IPO}$, the post-issue market value exceeds the IPO price, V_{IPO}, and the issue is underpriced.

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[10] Both Wilcox and Williams (1998) and Colantuoni (1998), utilizing public information available at the time of conversion, present evidence illustrating the predictive nature of excess first-day returns. The explanatory variable used by Wilcox and Williams (1998) is the ratio pre-conversion equity (book value) to appraised value while Colantuoni (1998) uses the ratio pre-conversion equity (book value) to total assets. The results reported by both show that pre-conversion equity (book value) is highly significant in explaining initial returns.

[11] See Maksimovic and Unal (1993), Unal (1997), Colantuoni (1998), and Wilcox and Williams (1998) for detailed treatments of this issue.

Some behavioral theories predict that in environments with large single-day returns, investors may be prone to overreaction which drives prices above fundamental value. Daniel et al. (1998) predict initial investor overreaction, followed by additional subsequent overreaction and then mean reversion. In our setting, their model predicts large, positive first-day returns, positive abnormal returns for a period after the issue, and negative abnormal returns during the mean-reversion period. In addition, initial overreaction will lead to negative long-run returns relative to the first-day closing price.

In contrast, the models of Barberis et al. (1998) and Hong and Stein (1999) predict initial investor underreaction, followed by subsequent overreaction and later reversion to fundamental value. Like the Daniel et al. (1998) model, these theories predict positive first-day returns, positive abnormal returns for a period after the issue, and negative abnormal returns during the mean-reversion period. However, because investors initially underreact to information, all long-returns will be positive when measured relative to the first-day closing price. Excess negative returns will exist only during the later, post-issue sub-periods. Lastly, if investors never over-react to information, one will observe positive or zero abnormal returns over all post-issue sub-periods. The next section examines post-IPO returns in detail.

II.   Data and methodology

Figure 1 presents four different scenarios of investor reaction at the IPO and in the aftermarket. The four scenarios depict initial investor under- or overreaction to an IPO

and eventual reversion of price to fundamental value. Scenario 1 displays initial underreaction followed by slow convergence to fundamental value with no overreaction. Scenario 2 also depicts initial underreaction, followed by subsequent overreaction and eventual convergence to fundamental value. Scenario 2 is consistent with the Barberis, Shleifer and Vishny (1998) and Hong and Stein (1999) models. Scenario 3 displays initial investor overreaction, followed by subsequent mean reversion to fundamental value. Scenario 4 displays initial overreaction, followed by additional subsequent overreaction, and eventual convergence to fundamental value. Scenario 4 is consistent with Daniel, Hirshleifer and Subrahmanyam (1998).

Figure 1 Here

Our first task is to establish that the average thrift in our sample is not overpriced at the issue, which implies that any negative excess returns during the post-IPO period must reflect investor overreaction at some point after the IPO.

A.   Sample Construction and Summary Statistics

We utilize a sample of thrift institutions that converted from mutual to stock ownership during the period between 1993 and 2000. We begin with 1993 since Barth, Brumbaugh and Kleidon (1994) state that between 1980 and 1990, many thrifts were poorly capitalized following conversion and were eventually seized by regulators. In addition to poor capitalization, the converted thrifts pursued excessive growth strategies or paid excessive dividends or salaries. Thrifts that converted in the 1990s were better

capitalized. Our sample ends in 2000, because some of our empirical tests require five years of post-IPO return data.

To construct a survivor-bias free sample set of converting thrifts to measure risk-adjusted performance, our sample begins with a listing of 351 firms that filed applications for conversion with the Federal Home Loan Bank Board during 1993 - 2000.[12] From this list, we eliminate all non-publicly traded firms, leaving a sample of 221 firms. The split-adjusted offer price was provided by SNL Securities. Daily returns for the five years following conversion are determined using the CRSP NYSE/AMEX and NASDAQ files. In addition, the Fama and French factors were obtained from Ken French's website.

Table 1 reports summary statistics for the sample of converting firms. Similar to the results in Pettigrew, Page, Jahera and Barth (1999) and Wilcox and Williams (1998), we document an average first-day return of approximately18 percent for the thrifts in our sample. The cumulative return for days two through five is not significantly different from zero. Thus, the momentum from the initial day of trading does not appear to carry over into return for the next four days.

Initial underpricing requires a positive pre-conversion market value. We assume that the average thrift has positive pre-conversion market value, but because our sample firms do not trade prior to the IPO, we cannot observe the initial market value V_P. However, there are several reasons to believe that this assumption is reasonable. First, both Wilcox and Williams (1998) and Colantuoni (1998) present evidence of a strong correlation between initial excess returns and pre-conversion book value. Moreover, as

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[12] We thank SNL Securities for the list of firms.

Unal (1997) notes, it would be difficult to rationalize an investment in an *ex ante* overpriced firm, since the rational consequence of such overpricing is an immediate loss of investor capital from the negative initial return.[13] Consistent with average initial underpricing, 214 of our 221 firms have positive initial returns.

We also examine pre-conversion tangible book value. Table I reports statistics on IPO proceeds, and pre-conversion tangible book value of equity (pro forma book tangible value minus IPO proceeds). The average IPO raises approximately $55 million, with a pre-conversion tangible book value of $21 million; the median IPO raises just under $24 million, and has a pre-conversion tangible book value of approximately $9 million. On average, the ratio of pre-conversion book value to IPO proceeds is 45% (median value 40%). All but one of the 221 firms in our sample had positive tangible book value, again supporting the assumption that the average firm is underpriced at conversion. Thus, while we cannot explicitly measure the firms' pre-IPO market values, these results support the assumption that average firm in our sample is underpriced.[14]

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[13] Such overpayment might be rational if investors viewed the firm as a gamble, where overpayment is simply the price of admission to the casino.

[14] Of the 7 firms with negative returns, 5 have returns that are less than 5% in absolute value, and the firm with the lowest first day return faced subsequent lawsuits alleging that the firm misrepresented its financial condition prior to the IPO. We keep all 221 firms in our sample, but verify that all of our results are qualitatively robust to excluding the seven firms with negative first-day returns. The largest negative return is associated with Carver Bancorp, which converted on October 25, 1994. The stock was offered at $10 per share, and closed the first day of trading at $7.66 (split adjusted), for a negative 23.44% return. Carver experienced financial difficulties prior to and after the conversion and the negative first-day return most likely reflects a negative value of equity in place prior to the conversion. However, investors may not have been able to accurately assess the value of pre-conversion equity: subsequent to its conversion Carver faced litigation alleging that the offering circular contained material omissions and misstatements, and settled a lawsuit in August 1998 related to these misstatements. While this is an isolated and extreme event, we retain it as part of our sample to fully capture the cross-section of post-conversion thrift performance.

Even if pre-conversion equity is positive, it is possible that fees associated with the IPO will exceed the value of pre-conversion equity, thus eliminating initial underpricing. This is unlikely to be the case with our sample. Ritter and Chen (2000) document that during the period 1995 to 1998 over 95 percent of IPOs raising between $20 to $80 million incurred investment banking commissions (fees) of 7 percent or less. Since the average pre-conversion equity in our sample is 45% of the IPO proceeds, the magnitude of IPO fees is too small to drive pre-conversion equity below zero and eliminate initial underpricing.[15]

The remaining results in Table I indicate that the average firm has a closing bid-ask spread of $0.43, declining from a high of $0.67 in 1993 to $0.27 in 2000. Firm assets average $648 million, the average price-to-earnings (P/E) ratio is 18.4, and the average price-to-book (P/B) ratio is 0.973. The average thrift has a post-conversion market capitalization of $72.899 million, and an average daily trading volume of 112,600 shares.

B.   Benchmark Definition and Construction of Control Groups

We analyze long-run excess performance on both an absolute and risk-adjusted basis. Absolute excess performance is measured by calculating buy-and-hold abnormal returns (BHARS). Ritter and Welch (2002) argue that when IPOs are measured against like size firms the long-run performance of IPOs is close to zero. We therefore measure BHARS relative to four benchmarks: the CRSP value-weighted index, SNL Thrift Index,

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[15]We also hand collect data on IPO expenses for the first 15 thrifts (sorted alphabetically) in our sample to measure the magnitude of IPO fees. The average IPO fee as a percentage of total IPO proceeds was 3.53% with a maximum of 6.61% and a minimum of 2.35%. IPO expenses for our sample of thrifts appear to be consistent with the results of Chen and Ritter (2000).

and two control groups of size-matched thrifts. The SNL Thrift Index is a non-traded equal weighted index that tracks the total return of the seasoned thrift industry.[16]

The control groups are calculated as follows: For each converting thrift in our sample, we find the firm in the same industry with the closest market value in the year of conversion. To select the sample of matched firms, we first download all thrifts in Compustat for the period 1993-2000. We use four-digit standard industry classification codes (SIC) of the converting thrifts to identify all firms in the thrift industry. From this sample, we eliminate all firms that are part of our sample of converting thrifts. The market values for all remaining firms are computed on December 31 for each sample year, then sorted by year to facilitate matching year of conversion and market value. These firms represent our control group candidates. Due to the regulated environment and the unique financial position of thrifts, we match only on industry and market capitalization. This parallels the practice used in the thrift appraisal process, where size and industry are two key criteria used to identify comparable firms. The control group candidate with the market value closest to the sample firm is selected. Every candidate firm chosen is eliminated to avoid any reuse of control group candidates. In order to exclude initial day returns, the matching firm's IPO date must precede the converting thrift's IPO date.[17]

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[16] We thank SNL Securities for providing daily values for their Thrift Index.

[17] Not all thrift IPOs result from mutual-to-stock conversion. Closely held thrifts and mutual holding companies can also convert to publicly traded thrifts. Neither of these types of IPO are included in our primary sample of converting thrifts, but are included in the list of candidate firms for the control sample.

We construct two control group samples, with the main difference being the length of time the control firms must exist prior to the converting thrift's IPO. The two groups are constructed to balance two offsetting features of the data. On the one hand, since we are trying to isolate the market dynamics of the converting thrifts shortly after their IPOs, we wish to eliminate all newly-public firms from the control group, so that they are not also experiencing post-IPO dynamics. On the other hand, the thrift industry witnessed considerable consolidation during the sample period. Of our primary sample of 221 firms, only 108 remain at the end of five years, with the majority of the disappearing firms acquired by larger banks or thrifts at a sizable acquisition premium. Imposing the requirement that all control thrifts be "well-seasoned" implicitly eliminates many firms from the control group that were themselves acquired at a premium, which reduces the average return for the control group.

In constructing the first control group, we do not impose a waiting period from IPO date to be considered a match firm (we do require that the control firm is publicly traded at the time of the converting thrift's IPO). This construction methodology is similar to the methodology used by SNL Securities to construct the SNL Thrift Index. The second control group imposes the requirement that the matched control firm has been traded publicly for at least three years prior to the converting thrift's IPO date, which closely follows Ritter (1991).

Our sample of converting thrifts experienced numerous delistments over the five year holding period. Accordingly, it is important that we avoid survivorship bias with respect to our control group. To avoid survivorship bias, we follow Ritter (1991) and

select matching firms regardless of when they delist. As a result, our control group experiences delistments during the five year holding period similar to our sample of converting thrifts (reported in Table 3 below).

Table 2 reports sample statistics on firm characteristics for the SNL Thrift Index and the two control firms. The average market capitalization for firms in the SNL Index is $218 million. This is substantially larger than the average size of the converting thrifts, and is driven by the presence of several very large thrifts in the Index, including Washington Mutual, which had a market capitalization of $29 billion in 2000. The median market cap for firms in the SNL Index is $47 million. The average (median) market capitalization for control groups one and two are much closer to the sample of converting thrifts at $75 million ($33 million) and $135 million ($41 million), respectively.

Average trading volume in the year of conversion is higher for the converting thrifts than either of the control groups or the SNL Index. Bid-ask spread data is not available for the SNL Index, but the two control groups exhibit the same relative decline in spreads over the sample period, though the absolute level of the spread for the control groups is about twice the spread for the sample of converting thrifts. Converting thrifts have an average (median) price-to-earnings ratio of 18.4 (15.1) compared to 14.1 (12.9) for the SNL Index, 14.1 (12.4) for control group 1 and 13.0 (11.5) for control group 2. Both the mean and median price-to-book ratio for converting thrifts is 0.97, compared to an average of 1.55 for the SNL Index and 1.02 for both control groups.

C.   Long-run Thrift Returns

The most appropriate benchmark is rarely obvious in an event study. However, our entire sample comes from the homogeneous thrift industry, and returns for this industry diverged quite substantially from the value-weighted CRSP index over the sample period (Figure 2).[18] This suggests that BHARS relative to a broad market index may present a distorted view of true long-run thrift performance. While we calculate and report statistics relative to the market, the analysis and discussion below focuses on measures of excess performance relative to the SNL Thrift index and thrift control groups.

Buy-and-hold abnormal returns (BHARS) are calculated according to

$$\text{BHARS} = \left[\left(\prod_{t=offerdate+6}^{\min[T,delist]}(1+\gamma_{it})\right) - \left(\prod_{t=offerdate+6}^{\min[T,delist]}1+\gamma_{mt}\right)\right]*100, \qquad (2)$$

where γ_{it} = return on the stock i on day t; T = offer date + number trading days in sample sub-period, or delisting date, if sooner; and γ_{mt} = benchmark return day t. To exclude positive initial returns, we follow Carter, Dark, Singh (1998) and exclude the first five trading days from all long-run calculations. Excess long-run performance is measured for up to five years following the date of conversion. A converted thrift is included for the lesser of the five years following conversion or the delisting date of the thrift.

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[18] Regressing returns for the SNL Thrift Index on the value-weighted CRSP index results in a factor loading for beta that is not significantly different from zero. The returns for the SNL closely mirror the returns of other thrift indexes. For example, data on the American Banker Thrift Index is available from 1997 through 2005, and over this period the American Banker Thrift Index earned cumulative returns of 303% versus 311% for the SNL Index.

Table 3 reports cumulative buy-and-hold abnormal returns. To guard against survivorship bias, we first report buy-and-hold excess returns for all sample firms in Panel (a), calculated according to equation (2). Thus, BHARS for all holding periods are calculated for all 221 firms. If a firm delists prior to the end of the holding period, that firm's BHAR is calculated through the delisting date and is included in all subsequent time periods. Several interesting observations emerge from Panel (a). First, mean and median cumulative abnormal returns are either zero or positive over the first twelve months. Thus, in addition to the large first-day return (excluded from all calculations in Table 3), converting thrifts perform somewhat better than other thrifts in the first year after the IPO.

Second, long-run performance becomes negative in year two and remains negative for up to five years, regardless of the thrift benchmark utilized. For example, relative to the SNL Index the average cumulative return through the end of year two is -13.41% (median -17.14%). The corresponding average abnormal returns are -12.28% and -9.90% for control groups 1 and 2, respectively. All of these differences are statistically and economically significant. Cumulative abnormal returns continue to decline through month 30 before stabilizing through the end of the five-year sample period. We also report median returns in Table 3. The results indicate the median firm underperformed the average thrift with respect to cumulative long-run performance over the five-year holding period. This result is not unexpected given the thrift industry is characterized by many small firms that are overcapitalized with relatively low margins (American Banker, 2004).

Our sample of converting thrifts decreases by 113 firms over the 60 month holding period. The majority of these firms disappear because they are acquired. Panel (a) returns include the delist return associated with the acquisition. In Panel (b), we report buy-and-hold abnormal returns only for those firms that survive to the end of each holding period, which eliminates all firms acquired during the sample period. Once again, the converted thrifts underperform all benchmarks over the five year holding period. The magnitude of underperformance relative to the SNL index is larger than reported in Panel (a). This is simply because the average returns on acquired thrifts (including the takeover premium) are larger than the average returns on non-acquired thrifts during our sample period. Panel (c) reports survivorship data for the converting thrifts and both control groups. Consistent with the objectives of using a control group methodology, both control groups experience levels of firm attrition similar to the converting thrifts. As a result, the abnormal returns relative to the control groups are qualitatively similar between panels (a) and (b), particularly for control group one.

The negative long-run returns from Table 3 suggests that investor behavior on the initial day and subsequent 12 months of trading causes prices to rise above fundamental value. To identify specific sub-periods of under and overperformance during the five-year holding period, we calculate buy-and-hold excess returns for 6-month interim periods over the post-IPO sample. The results, presented in Table 4, indicate that the sample of converted thrifts continues to earn excess positive returns for the six months after the IPO. These returns are statistically significant relative to the two control groups,

but insignificant when measured relative the SNL Index. The excess returns over the [7, 12] month sub-period are not significantly different from zero.

The most striking results from Table 4 are the excess returns over the [13, 18], [19, 24] and [25, 30] month sub-periods. The average (median) thrift underperforms the SNL Index by 4.71% (6.53%), 5.39% (6.31%) and 2.90% (3.90%) in these three periods, respectively. The magnitude of the underperformance is slightly larger relative to either of the control groups. These returns are consistent with price correction of investor overreaction during the initial trading day and immediate [5 days, 6 months] sub-period. Interestingly, the time-horizons over which this mean-reversion occurs is roughly the same as the mean-reversion horizon associated with the momentum effect first documented by Jegadeesh and Titman (1993).

Taken together, the results in Tables 3 and 4 indicate overreaction in the first day of trading (evidenced by negative cumulative post-IPO returns in Table 3), with some evidence of overreaction during the immediate post-conversion period (evidenced by the positive sub-period return in the sub-period 5 days, 6 months). This overreaction largely corrects itself over the subsequent 24-month period, after which time the abnormal returns on converted thrifts not significantly different from zero.

III.   Controlling for Risk of Converted Thrifts

A.   Risk-adjusted Excess Returns

Buy-and-hold cumulative returns are valid performance metrics only when the sample of firms has the same risk as the benchmark. To control for possible differences

in risk between our sample of thrifts and the SNL Index and control groups, we examine alphas from CAPM, three-factor and four-factor models. We also consider several additional factors designed to capture the interest rate exposure of the thrift industry. To capture the direct effect of interest rate exposure, we follow Flannery and James (1984) and use the percentage change in yield-relative calculated from yields on 7-year U.S. Treasury securities.[19] We also use the percentage change in the SNL Thrift Index to capture the indirect effect of interest rate exposure, as well as any other exposures to latent industry-specific factors. In all models, the CRSP value-weighted index is used as a proxy for the market return.

We analyze alphas both for individual thrifts and a portfolio of thrifts. First, we form a portfolio of newly converted thrifts, and calculate the alphas on this portfolio. A thrift remains in the portfolio for three years after conversion, or until it no longer exists, whichever is sooner. Each month, the portfolio return is calculated as the value-weighted average of returns on all thrifts in the portfolio. This produces a monthly time-series of returns, which we regress on the specified set of factors.

Table 5 presents the results for factor model regressions on a portfolio of newly converted thrifts. We report the five-factor model results only for the SNL Index, since the factor loadings on the SNL Index are statistically significant while yield relative are statistically insignificant in all models. This is consistent with the results of Schuermann and Stiroh (2006, p. 3), who examine numerous factor models and find that "including

[19] Flannery and James (1984) fit an AR(3) process to the yield relative time-series and use the resulting residuals as a measure of unanticipated changes in interest rates. They also analyze the actual changes in the yield relative, and report similar results for both measures.

additional risk factors (relative to the CAPM) typically generates only a modest gain, and when there are substantial gains (in R-squared) it is not from adding interest rate factors thought to be relevant to bank returns, but instead from adding the familiar Fama-French factors, HML and SMB." This lack of explanatory power for interest-rate factors contrasts with the earlier results of Flannery and James (1984). One possible explanation for the reduced sensitivity of thrift returns to interest rate changes is that banks and thrifts today are better able to manage interest rate risk exposure through derivative markets that barely existed when Flannery and James (1984) conducted their study.

The first notable result in Panel (a) is that the estimated market factor loadings are less than one in all models. This suggests that the sample of thrifts, as a group, have less systematic risk than the average stock. The loadings on SMB and HML are large, but consistent with the small average size of converted thrifts (the average IPO in our sample raised approximately $54.8 million), as well as the high book-to-market values that result from the appraisal process described above. The addition of the Carhart (1997) momentum factor bolsters the three-factor model to explain cross-sectional variation in momentum-sorted portfolio returns, and is included to ensure that we control for possible exposure to a momentum factor; however, the thrifts do not appear to have any momentum factor exposure.[20] The SNL index factor is positive (0.323) and highly significant. The fifth-factor loading indicates that the newly converted thrifts have *less systematic risk* than their seasoned counterparts. This result is consistent with Esty

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[20] This does not necessarily imply that the converted thrifts do not experience price momentum. Rather, it simply means that the returns on the thrift portfolio are uncorrelated with the returns on a more broadly-based portfolio of stocks whose selection is based upon extreme recent returns.

(1997), who finds that firm risk increases *after* conversion as managers rationally respond to the incentives embedded in the stock form of ownership.

Also notable are the alphas, which are positive and highly significant for all four models (1.3% *monthly* in CAPM, 0.9% *monthly* in 3-factor and 4-factor models, and 0.8% in 5-factor model). These alphas are consistent with the positive long-run BHARS relative to the market reported in panel (a) of Table 3.[21] The alphas are also consistent with the superior thrift industry performance over the sample period. At the same time, their large magnitude suggests a possible omitted variable and thus they should be interpreted cautiously.

Therefore, for comparison purposes we also estimate alphas for both control groups, and report the results in Panels (b) and (c). The estimated factor loadings are nearly identical to the estimated factor loadings for the sample firms, suggesting that the risk characteristics of the control groups closely mirror those of the converting thrifts. Second, alpha is positive and highly significant for all models (1.5% *monthly* in CAPM, 1.1% *monthly* in 3-factor and 4-factor models and 1.0% *monthly* in *5*-factor model). We calculate and report the difference in alpha between the sample firms control groups. In all cases, the converting thrift alphas are 10 to 20 basis points lower than the control group alphas. This suggests that our sample firms underperformed with respect to the control groups, though none of the differences is statistically significant. This may be

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[21] In panel (b) of Table 3, we reported that long-run BHARS are negative for the subsample of firms that survive to the end of the sample period. Since the regression results in Table 5 include all thrifts, they are directly comparable only to the results in panel (a) of Table 3.

due to low power, or may indicate that controlling for risk-characteristics explains the buy-and-hold return differences.

To further analyze the risk-adjusted returns, we estimate our factor models separately for each firm over the three-year post-IPO to obtain firm-level parameter estimates. Table 6, panel (a) reports the cross-sectional averages for the estimated monthly parameters. Once again, alphas are statistically and economically significant, across all models. Panel (b) reports the control group alphas and differences for all models. Again, converting thrift alphas are lower than control group alphas for all models. Six of the eight differences are significant at the 10% level, and three of the eight are significant at the 5% level. The qualitative results of Tables 5 and 6 indicate that even after controlling for risk exposure, the converted thrifts have negative risk-adjusted long-run returns. This finding is consistent with investor overreaction in the initial days of trading following the IPO.

To analyze the risk-adjusted sub-period performance, we re-run daily cross-sectional regressions for converting thrifts and control groups over each post-IPO sub-period, and report the average daily alphas in Table 7.[22] We only report the alphas from a five-factor model (the results from models with fewer factors are qualitatively similar, and slightly stronger). Converting thrifts' average daily alphas range from a low of 2.0 basis points in the [43, 48] month interval to a high of 8.3 basis points in the [7, 12] month interval. Alpha is positive in all sub-periods and highly significant in all but two

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[22] Because these sub-periods involve only 6 months, we do not run firm-level regressions with monthly returns.

sub-periods. In addition, we report the difference between converting thrift and control groups' alpha for all sub-periods. As with the BHARS analysis, the evidence in Table 7 suggests that the negative abnormal returns are concentrated in the [13, 30] month period, though the noise in the data prevents us from making any strong statements about statistical significance.

B.   Firm Size and Interpretation of Results

The existing literature presents evidence that market size may influence returns (Banz (1981), Reinganum (1981), Fama and French (1992)). Thus, we sort our sample of converting thrifts into small firms and large firms based on inflation adjusted market-capitalizations calculated on December 31 of each firm's IPO year. Table 8 reports cumulative BHARS for the size-based portfolios, while Table 9 reports sub-period BHARS. Since the underperformance in Table 4 was less pronounced relative to the SNL Index than the control groups, we report the size-based results relative to the SNL Index. Results relative to the control groups, omitted for brevity, are qualitatively similar and slightly larger in magnitude.

As shown in Table 8, the underperformance is largely concentrated in the smallest half of firms in our sample. The cumulative long-run abnormal returns for the largest thrifts are not significantly different from zero. This finding contrasts with Houge and Loughran (1999) who found large banks performed significantly worse than small banks. One possible explanation is that our sample includes only converted thrifts (which are initially underpriced), while in their sample thrifts are included along with banks and

bank holding companies, neither of which have underpricing automatically built-in to the IPO price.

In Table 9, we report buy-and-hold excess returns for 6 month interim periods over the post-IPO sample. The small firms' sub-periods returns are negative for all but one period, but statistically significant only over the [13, 18], [19, 24] and [25, 30] (median only) month periods. Interestingly, the sub-period returns for the largest firms are also significantly negative over the same three sub-periods, though these negative returns are largely offset by subsequent positive returns.

Because our sample of converting thrifts consists primarily of smaller firms, the results which utilize daily return data may be biased due to nonsynchronous trading. However, we also examine performance utilizing monthly data. Comparison between the daily and monthly results indicates that the results are largely the same whether daily or monthly returns are used. Since the impact of nonsynchronous trading on monthly returns is minimal (Scholes and Williams (1977)), this suggests that nonsynchronous trading is not a significant factor in our results.

Taken together, our results suggest that investor overreaction drives prices above fundamental value on the initial day of trading, that this overreaction continues for at least six months, then corrects between eighteen and thirty months after the IPO. These price dynamics are most consistent with the empirical predictions of Daniel et al. (1998), and are also most pronounced for the smallest firms in our sample. Our results are also broadly consistent with the model of Miller (1977) in which heterogeneous beliefs about

stock returns leads to overvaluation in the presence of short-sales constraints.[23] This overvaluation theory predicts that the greater the divergence of opinion, the greater the overvaluation and the lower the realized future returns. It is quite plausible to assume short-sales are difficult or expensive, given the small size and high insider ownership of the thrifts in our sample. While the thrift industry is highly regulated and transparent, if belief differences are strongest among the small thrifts, then our empirical results are also consistent with Miller (1977).

IV.   Conclusion

We study long-run return properties of a unique set of 221 thrifts that converted from mutual to stock form between 1993 and 2000. Our sample of firms is uniquely suited for examining investor behavior because we know that the average firm is initially underpriced. Thus, any long-run negative returns unambiguously result from investor behavior that drives prices above fundamental value at some point *after* the IPO.

We find that after removing the large first-day returns, converting thrifts have negative long-run cumulative abnormal returns when measured at horizons of two to five years. This is consistent with investor behavior on the initial day of trading that drives prices above fundamental value. We also examine abnormal returns over various sub-periods for evidence of investor overreaction at any time after the IPO. We find that the thrift returns are positive for up to six months post-IPO and insignificant in the [7,12]

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[23] We thank an anonymous referee for this insight.

month period, which suggests that prices remain above fundamental value for up to a year following the IPO.

Beginning in year two, abnormal returns are significantly negative, indicating a reversion of price to fundamental value. This reversion is concentrated in the [13, 30] month period, after which point abnormal returns are not significantly different from zero. This finding is strongest for the smallest firms in the sample, but is significant for the large thrifts as well. We also measure risk-adjusted abnormal performance by using a number of factor models. While the statistical significance of these results is somewhat weaker, they also demonstrate that the long-run abnormal returns are negative, and that the poor performance is concentrated in the second and third years following the IPO. The documented price patterns are consistent with the empirical predictions of Daniel et al. (1998), and are most pronounced for the smallest firms in our sample.

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Figure 1: Hypothetical Initial Investor Reaction and Subsequent Price Response to an IPO

The graph presents four different scenarios of initial investor reaction and subsequent price response to an IPO. Without loss of generality, the issue is assumed to be underpriced by 15%, so the horizontal line at 15% represents the cumulative excess return associated with convergence of the firm value to fundamental value. Scenario 1 displays initial underreaction and subsequent convergence to fundamental value (no overreaction). Scenario 2 presents initial underreaction, followed by subsequent overreaction and eventual convergence to fundamental value. Scenario 2 is consistent with Barberis, Shleifer and Vishny (1998) and Hong and Stein (1999). Scenario 3 depicts initial overreaction and subsequent mean-reversion to fundamental value. Scenario 4 also displays initial overreaction, followed by subsequent overreaction, and eventual convergence to fundamental value. Scenario 4 is consistent with Daniel, Hirshleifer and Subrahmanyam (1998).
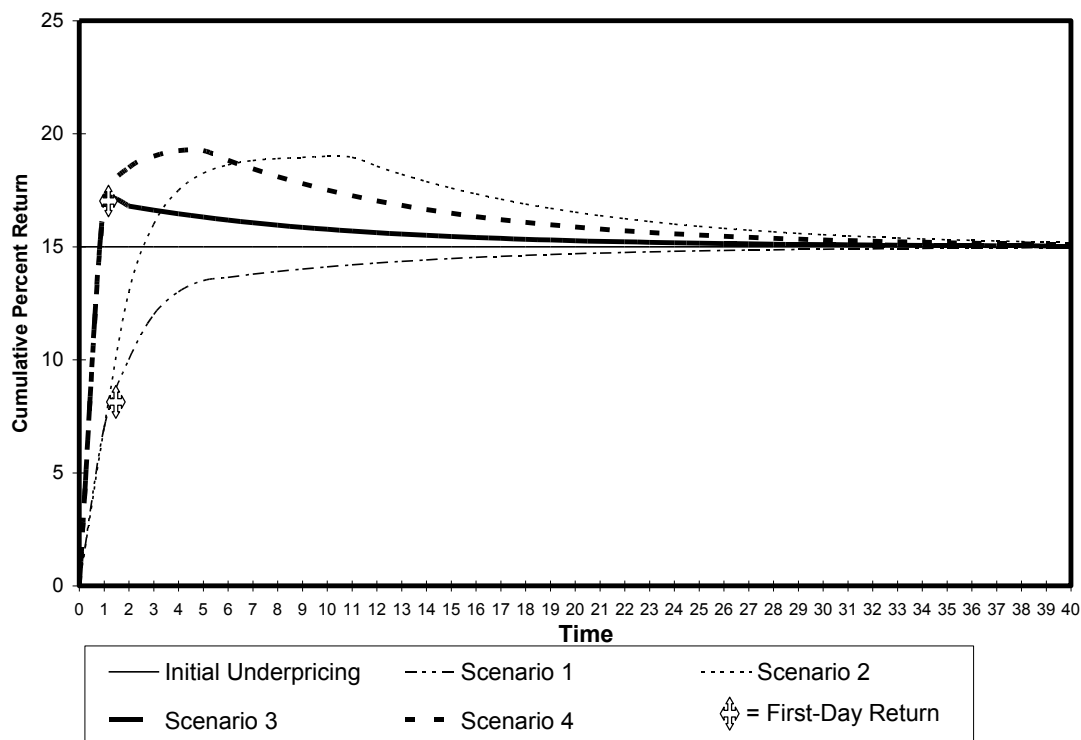
Figure 2: SNL Thrift Index and Value-Weighted Market Index

Figure plots daily closing values for SNL Thrift Index and CRSP value-weighted market index from January 1, 1993 through July 31, 2005, each normalized to a starting value of 100.
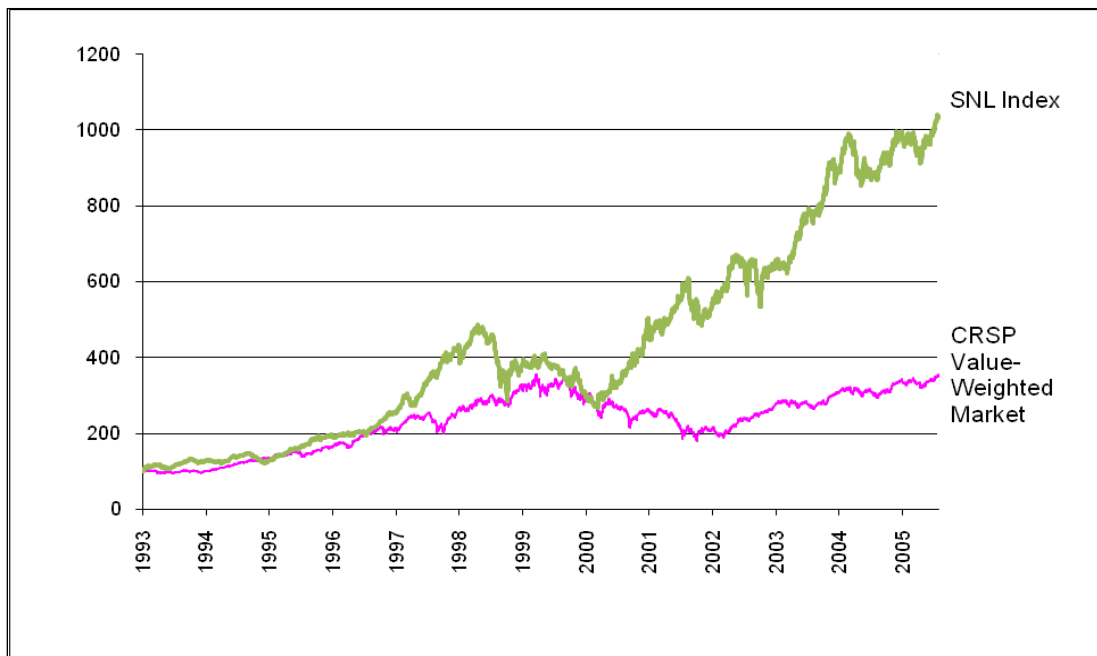
Table 1: Yearly Sample Statistics on Converting Thrifts
Average firm characteristics are reported for each year in the sample. The initial return is defined as the closing price on the first day of trade, minus the offer price, divided by the offer price. Offer prices are provided by SNL Securities and hand verified in the *Wall Street Journal.* Cumulative return for days two through five is defined as the closing price on the fifth day of trading, minus the closing price on the first day of trading, divided by the closing price on the first day of trading. Number of conversions, IPO Proceeds and pre-conversion equity data are provided by SNL Securities, and the ratio of pre-conversion equity to IPO Proceeds is reported as pre-conversion equity to proceeds ratio. COMPUSTAT data are used to calculate post-conversion assets (data6), post-conversion Price-to-Earnings (P/E) ratio and Price-to-Book (P/B) ratio. P/E price of equity to earnings, and P/B is market value of total assets to book value of total assets. P/E is calculated as mkt_equity/(data53*data54) and P/B is calculated as [(data181-data35+prefstk+mkt_equity)/(data6)], where mkt_equity equals (data199*data25), and prefstk equals data10, or data56 if data10 is missing, or data130 if data56 and data10 are missing. Post-conversion market capitalization, average daily trading volume and average bid-ask spread are calculated for each firm using daily CRSP data for all trading days in the calendar year of conversion.

Panel (a): Sample of Converting Thrifts

Year	#	First-Day Return	Cum. Return Days 2-5	IPO Proceed (000s)	Pre-Conversion Equity (000s)	Pre-Con Equity to Proceeds	Bid-Ask Spread	Assets
1993	22	26.76%	1.42%	73,396	22,312.3	60.16%	0.666	735,222
1994	46	12.84%	-0.02%	66,342	31,759.0	50.98%	0.472	653,518
1995	51	15.45%	0.51%	28,338	11,364.8	47.51%	0.470	292,201
1996	48	12.54%	0.44%	34,848	12,702.8	39.12%	0.445	629,204
1997	19	34.81%	0.75%	81,121	23,636.6	35.77%	0.300	1,414,610
1998	20	31.33%	-0.56%	100,321	18,860.1	27.81%	0.281	877,647
1999	9	6.85%	-2.38%	83,445	48,268.4	54.80%	0.134	702,202
2000	6	6.41%	-1.04%	47,445	38,510.0	74.94%	0.270	692,269
Mean	221	17.91%	0.24%	54,830	20,963.3	45.06%	0.434	648,405
Median	221	17.18%	0.00%	23,804	9,242	40.35%	0.362	308,219

Table 1: Yearly Sample Statistics on Converting Thrifts continued
P/E is calculated as mkt_equity/(data53*data54) and P/B is calculated as [(data181-data35+prefstk+mkt_equity)/(data6)], where mkt_equity equals (data199*data25), and prefstk equals data10, or data56 if data10 is missing, or data130 if data56 and data10 are missing. Post-conversion market capitalization, average daily trading volume and average bid-ask spread are calculated for each firm using daily CRSP data for all trading days in the calendar year of conversion.

Panel (a): Sample of Converting Thrifts continued

Year	#	P/E Ratio	P/B Ratio	Post-Conversion Market Cap	Avg. Daily Volume
1993	22	11.8	0.970	66,174.8	83,565.5
1994	46	16.6	0.957	78,554.5	77,439.3
1995	51	15.6	0.981	36,345.2	164,885.5
1996	48	22.8	1.007	43,295.9	46,420.5
1997	19	22.1	1.061	140,564.4	219,531.0
1998	20	18.5	0.971	154,847.9	118,477.2
1999	9	20.6	0.936	99,040.3	229,681.4
2000	6	12.1	0.964	75,104.6	39,786.6
Mean	221	18.4	0.973	72,899.7	112,599.5
Median	221	15.1	0.971	29,645.5	25,987.8

Table 2: Yearly Sample Statistics on SNL Thrift Index and Control Thrifts
Average firm characteristics are reported for each year in the sample. Data in panel (a) are provided by
SNL Securities, and report average summary statistics for seasoned thrifts that comprise the SNL Thrift
Index. For each calendar year, we report the average value for each statistic, and also report average and
median values for the entire sample period. Panels (b) and (c) report summary statistics for the two control
groups described in the text. Post-conversion market capitalization, average daily trading volume and
average bid-ask spread are calculated for each firm using daily CRSP data for all trading days in each
calendar year. Assets, P/E ratio and P/B ratio are calculated as described in Table 1.

Year	N	Post-Conversion Market Cap	Avg. Daily Volume	Bid-Ask Spread	Assets	P/E Ratio	P/B Ratio
Panel (a): SNL Thrift Index							
1993	504	107,490.1	22,047.0	n/a	1,113,340	11.4	1.16
1994	474	105,078.3	29,188.5	n/a	1,225,963	12.0	1.12
1995	442	152,836.8	31,050.3	n/a	1,430,204	13.2	1.17
1996	421	202,813.3	33,275.4	n/a	1,640,729	14.3	1.32
1997	382	311,316.5	42,820.3	n/a	1,726,479	16.9	2.02
1998	337	282,548.0	58,721.1	n/a	1,915,591	17.9	2.17
1999	309	224,669.1	60,683.0	n/a	2,173,410	15.5	1.85
2000	293	357,381.7	57,567.7	n/a	2,549,171	11.3	1.58
Avg.	395	218,016.7	39,348.0	n/a	1,721,860	14.1	1.55
Median	402	47,110.0	36,191.1	n/a	366,648	12.9	1.35
Panel (b): Control Group 1							
1993	22	64,081.4	8,278.9	1.043	774,603	8.95	1.01
1994	46	82,383.6	27,269.6	0.859	1,173,580	11.50	0.99
1995	51	38,400.4	7,058.3	1.127	429,455	12.77	1.01
1996	48	47,342.3	9,838.0	0.712	464,575	28.53	1.03
1997	19	133,215.6	14,049.4	0.836	765,773	17.18	1.08
1998	20	161,022.6	35,535.1	0.601	1,162,530	-13.63	1.03
1999	9	100,665.8	17,383.0	0.248	881,635	13.46	1.01
2000	6	91,772.0	14,086.3	0.212	759,772	18.50	0.99
Avg.	28	75,287.1	15,779.8	0.840	748,134	14.12	1.02
Median	21	33,360.4	3,547.1	0.631	331,852	12.42	1.01

Table 2 continued

Panel (c): Control Group 2							
1993	22	123,082.1	20,097.6	1.112	1,493,120	8.78	1.01
1994	46	42,349.8	16,570.1	0.832	691,810	8.02	1.00
1995	51	74,433.1	13,032.3	0.707	862,209	10.33	1.01
1996	48	81,537.0	11,434.4	0.987	854,255	18.70	1.03
1997	19	154.826.1	10,357.8	0.920	766,062	22.88	1.08
1998	20	686,327.6	76,283.4	0.604	4,792,020	15.54	1.04
1999	9	61,664.6	10,108.1	0.486	644,392	11.56	0.99
2000	6	34,650.5	18,178.5	0.483	921,898	12.10	0.96
Avg.	28	134,736.7	19,681.9	0.827	1,186,630	13.03	1.02
Median	21	40,536.2	3,841.2	0.631	371,364	11.46	1.01

Table 3: Post-IPO Long-Run Returns of Converting Thrifts

Table reports the average buy-and-hold returns for converted thrifts. All reported returns exclude the first five trading days after the IPO. Buy-and-hold returns are calculated for each firm at each horizon, and cross-sectional averages are reported. For each firm, we calculate the cumulative benchmark return with respect to four benchmarks over the corresponding post-issue period: the CRSP value-weighed index, the SNL Thrift Index, and two control groups of matched thrifts. The average abnormal return for each firm is calculated by subtracting the cumulative benchmark return from the firm's cumulative return. The cross-sectional average abnormal returns are reported in the table. Panel (a) calculates BHARs for every holding period for all 221 firms in the original sample. If a firm disappears prior to the end of a holding period, its return through the date of disappearance is used. Panel (b) calculates BHARs for each holding period conditional upon a firm surviving to the end of the holding period. Panel (c) reports the number of firms surviving to the end of each holding period. T-statistics are in parentheses for means and differences in means; for individual medians, parentheses contain p-values from a Sign test for difference from zero; for differences in medians, parentheses contain two-sided p-values from a Wilcoxon rank-sum test for differences in medians.

	Panel (a): All Sample Firms			*BHARS (vs. SNL Index)*					
N	Holding Period Thru Month	Mean IPO return	Mean IPO BHAR vs. mkt index	IPO mean	IPO median	Control 1 mean	Control 1 median	Control 2 mean	Control 2 median
221	6	13.31%	5.28% (4.80)	1.15% (1.23)	-1.14% (0.224)	-4.07%	-3.95%	-2.12%	-2.71%
221	12	29.51%	10.14% (5.60)	1.51% (1.17)	-0.58% (0.419)	-2.45%	-6.49%	-3.53%	-5.62%
221	18	42.84%	10.87% (4.38)	-5.17% (-2.55)	-8.71% (<0.001)	-0.54%	-4.50%	-4.41%	-8.86%
221	24	52.00%	6.07% (1.83)	-13.41% (-4.97)	-17.14% (<0.001)	-1.14%	-4.78%	-3.51%	-6.68%
221	30	61.73%	5.35% (1.28)	-17.38% (-5.33)	-18.21% (<0.001)	-1.15%	-10.74%	-2.36%	-5.59%
221	36	77.21%	8.94% (1.75)	-16.78% (-4.06)	-21.76% (<0.001)	-3.47%	-10.23%	-1.27%	-4.59%
221	42	89.46%	11.19% (1.93)	-13.48% (-3.02)	-21.53% (<0.001)	-2.11%	-10.23%	0.98%	-4.71%
221	48	96.28%	9.83% (1.44)	-14.09% (-2.79)	-22.70% (<0.001)	-2.21%	-5.87%	-1.35%	-7.00%
221	54	105.08%	14.61% (1.84)	-13.52% (-2.17)	-22.77% (<0.001)	-5.61%	-6.72%	-0.64%	-2.57%
221	60	106.38%	13.70% (1.50)	-14.00% (-1.85)	-22.77% (<0.001)	-4.08%	-4.65%	0.59%	-2.91%

Table 3: Panel (a): All Sample Firms continued

IPO BHAR minus Control BHAR

N	Holding Period Thru Month	IPO minus Control 1 mean	IPO minus Control 1 median	IPO minus Control 2 mean	IPO minus Control 2 median
221	6	5.22% (2.67)	2.81% (0.003)	3.27% (1.93)	1.57% (0.107)
221	12	3.96% (1.13)	5.91% (0.005)	5.04% (1.81)	5.04% (0.057)
221	18	-4.63% (-0.97)	-4.21% (0.354)	-0.76% (-0.21)	0.15% (0.768)
221	24	-12.28% (-2.12)	-12.36% (0.016)	-9.90% (-2.27)	-10.46% (0.015)
221	30	-16.23% (-2.43)	-7.47% (0.001)	-15.02% (-3.00)	-12.62% (<0.001)
221	36	-13.31% (-1.85)	-11.53% (0.047)	-15.51% (-2.60)	-17.17% (0.001)
221	42	-11.37% (-1.40)	-11.30% (0.082)	-14.46% (-2.14)	-16.82% (0.005)
221	48	-11.88% (-1.32)	-16.83% (0.035)	-12.74% (-1.63)	-15.70% (0.019)
221	54	-7.91% (-0.81)	-16.05% (0.109)	-12.88% (-1.42)	-20.20% (0.016)
221	60	-9.92% (-0.93)	-18.12% (0.038)	-14.59% (-1.43)	-19.86% (0.006)

Table 3: Panel (b): Firms Surviving To End of Sample Period

| | Holding Period Thru Month | Mean IPO return | Mean IPO BHAR vs. mkt index | BHARS (vs. SNL Index) | | | | | |
N				IPO mean	IPO median	Control 1 mean	Control 1 median	Control 2 mean	Control 2 median
221	6	13.31%	5.28% (4.80)	1.15% (1.23)	-1.14% (0.226)	-4.01%	-3.98%	-2.13%	-2.82%
221	12	29.51%	10.14% (5.60)	1.51% (1.17)	-0.59% (0.419)	-2.81%	-7.37%	-3.96%	-6.25%
219	18	42.50%	10.53% (4.22)	-5.79% (-2.91)	-8.77% (<0.001)	-2.60%	-6.40%	-6.72%	-11.57%
207	24	49.69%	2.60% (0.76)	-17.87% (-7.06)	-20.87% (<0.001)	-7.62%	-10.94%	-8.23%	-12.00%
188	30	57.31%	-2.15% (-0.47)	-25.48% (-7.93)	-25.85% (<0.001)	-8.22%	-14.96%	-9.96%	-10.23%
172	36	71.64%	-5.95% (-1.03)	-29.04% (-6.79)	-32.05% (<0.001)	-14.81%	-27.78%	-9.53%	-13.33%
155	42	81.88%	-8.38% (-1.21)	-28.69% (-5.92)	-31.75% (0.001)	-19.93%	-25.47%	-6.96%	-14.09%
135	48	87.32%	-16.80% (-1.92)	-33.86% (-5.68)	-41.06% (<0.001)	-22.67%	-22.10%	-14.22%	-24.13%
120	54	100.41%	-14.29% (-1.33)	-36.54% (-3.97)	-58.75% (<0.001)	-35.98%	-44.14%	-21.35%	-33.56%
108	60	101.35%	-26.81% (-1.61)	-47.48% (-3.41)	-68.72% (<0.001)	-36.86%	-43.65%	-19.79%	-27.89%

Table 3: Panel (b): Firms Surviving To End of Sample Period continued

IPO BHAR minus Control BHAR

N	Holding Period Thru Month	IPO minus Control 1 mean	IPO minus Control 1 median	IPO minus Control 2 mean	IPO minus Control 2 median
221	6	5.16%	2.84%	3.28%	1.68%
		2.62	(0.002)	(1.92)	(0.107)
221	12	4.32%	6.78%	5.47%	5.67%
		-0.63	(0.005)	(1.95)	(0.024)
219	18	-3.19%	-2.37%	0.93%	2.80%
		(-1.11)	(0.659)	(0.28)	(0.804)
207	24	-10.25%	-9.93%	-9.64%	-8.87%
		(-1.78)	(0.085)	(-2.28)	(0.033)
188	30	-17.26%	-10.89%	-15.52%	-15.62%
		(-2.44)	(0.025)	(-3.00)	(0.001)
172	36	-14.23%	-4.27%	-19.51%	-18.72%
		(-2.12)	(0.131)	(-2.90)	(0.001)
155	42	-8.76%	-6.28%	-21.73%	-17.66%
		(-1.11)	(0.278)	(-2.67)	(0.001)
135	48	-11.19%	-18.96%	-19.64%	-16.93%
		(-1.00)	(0.094)	(-1.82)	(0.016)
120	54	-0.56%	15.39%	-15.19%	4.81%
		(-0.02)	(0.501)	(-1.07)	(0.022)
108	60	-10.62%	-25.07%	-24.74%	-38.54%
		(-0.27)	(0.025)	(-1.39)	(<0.001)

Table 3: Panel (c): Number of Firms Surviving To End of Sample Period

Survive Thru Month	Firms in Thrift Sample	Firms in Control Group 1	Firms in Control Group 2
6	221	218	215
12	221	213	205
18	219	190	185
24	207	170	170
30	188	154	153
36	172	138	136
42	155	123	127
48	135	116	118
54	120	107	109
60	108	99	107

Table 4: Post-IPO Sub-Period Returns for Converting Thrifts

Average buy-and-hold returns for individual six month post-IPO sub-periods for converted thrifts and value weighted CRSP index. Buy-and-hold returns are calculated for each firm that survives to the beginning of the stated sub-period, and cross-sectional averages are reported. For each firm, we also calculate the cumulative benchmark return on the CRSP value-weighed index over the corresponding post-issue sub-period, and report the average cumulative return in this table. The average abnormal return is calculated for each firm by subtracting the cumulative index return from the firm's cumulative return. The cross-sectional average abnormal return is reported in the table. T-statistics are in parentheses for mean differences and p-values are in parentheses for median differences.

| | | | | BHARS (vs. SNL Index) | | | | | |
N	Holding Period Thru Month	Mean IPO return	Mean IPO BHAR vs. mkt index	IPO mean	IPO median	Control 1 mean	Control 1 median	Control 2 mean	Control 2 median
221	5d-6	13.31%	5.28% (4.80)	1.15% (1.23)	-1.14% (0.224)	-4.07%	-3.95%	-2.12%	-2.72%
221	7-12	14.20%	3.95% (3.53)	0.44% (0.45)	-0.97% (0.346)	0.70%	-1.27%	-1.19%	-2.63%
221	13-18	10.44%	-0.12% (-0.11)	-4.71% (-4.44)	-6.53% (<0.001)	2.22%	-1.34%	0.46%	-2.96%
219	19-24	6.47%	-4.15% (-3.52)	-5.39% (-5.60)	-6.31% (<0.001)	-0.56%	-1.24%	1.60%	-0.27%
207	25-30	7.61%	0.30% (0.21)	-2.90% (-2.58)	-3.90% (0.003)	1.47%	-0.94%	2.10%	0.97%
188	31-36	10.98%	2.74% (1.74)	0.14% (0.10)	-0.09% (0.827)	-0.25%	-0.67%	1.81%	1.66%
172	37-42	9.82%	3.14% (1.74)	2.48% (1.79)	1.30% (0.253)	1.18%	-0.34%	1.62%	-0.87%
155	43-48	4.97%	-0.69% (-0.35)	-1.75% (-1.17)	-0.97% (0.335)	3.57%	2.43%	-1.66%	-0.94%
135	49-54	9.77%	7.74% (3.10)	0.54% (0.31)	-0.47% (1.000)	-1.01%	-1.68%	0.20%	0.56%
120	55-60	2.71%	1.82% (0.75)	-0.50% (-0.33)	-0.86% (0.315)	4.08%	3.40%	0.19%	0.83%

Table 4: Post-IPO Sub-Period Returns for Converting Thrifts continued

		IPO BHAR minus Control BHAR			
N	Holding Period Thru Month	IPO minus Control 1 mean	IPO minus Control 1 median	IPO minus Control 2 mean	IPO minus Control 2 median
221	5d-6	5.22% (2.67)	2.81% (0.003)	3.27% (1.93)	1.57% (0.107)
221	7-12	-0.26% (-0.12)	0.30% (0.595)	1.63% (0.86)	1.66% (0.099)
221	13-18	-6.93% (-3.39)	-5.19% (<0.001)	-5.17% (-2.75)	-3.57% (0.010)
219	19-24	-4.83% (-2.49)	-5.07% (0.007)	-6.99% (-3.51)	-6.04% (0.001)
207	25-30	-4.37% (-1.80)	-2.96% (0.116)	-5.00% (-2.79)	-4.87% (0.003)
188	31-36	0.39% (0.16)	0.58% (0.459)	-1.67% (-0.88)	-1.75% (0.334)
172	37-42	1.31% (0.49)	1.64% (0.240)	0.86% (0.42)	2.17% (0.465)
155	43-48	-5.32% (-1.82)	-3.40% (0.064)	-0.09% (-0.04)	-0.02% (0.974)
135	49-54	1.55% (0.43)	1.22% (0.398)	0.34% (0.12)	-1.03% (0.961)
120	55-60	-4.58% (-1.50)	-4.25% (0.155)	-0.69% (-0.27)	-1.68% (0.579)

Table 5: Cumulative Long-Run Alphas for Portfolio of Converting Thrifts

Table reports estimated parameters from a regression of thrift portfolio return on a set of factors. Alpha is reported as a decimal. MKT is the market return minus the risk free rate; SMB and HML are Fama-French size and book-to-market factors, respectively, UMD is a momentum factor, and SNL is the return on the SNL thrift index. The portfolio contains thrifts that convert over the period 1993-2000, and converted thrifts remain in the portfolio for three years, or until the firm ceases to exist, whichever occurs first. Each month, the portfolio return is calculated as the equally weighted average of return on all thrifts in the portfolio. T-statistics are reported in parentheses.

Panel (a): Thrift IPO Regressions

Parameters	CAPM	3-Factor	4-factor	5-factor (SNL)
Alpha	0.013	0.009	0.009	0.008
	(4.41)	(3.60)	(3.31)	(3.38)
MKT	0.282	0.528	0.527	0.207
	(4.33)	(7.51)	(7.53)	(2.58)
SMB		0.385	0.387	0.301
		(5.44)	(5.47)	(4.76)
HML		0.559	0.560	0.238
		(6.30)	(6.30)	(2.54)
UMD			0.038	0.034
			(0.82)	(0.83)
SNL				0.323
				(6.11)
R^2	13.71%	38.12%	38.48%	53.66%

Panel (b): Control Group 1 Regressions

	CAPM	3-Factor	4-factor	5-factor (SNL)
Alpha	0.015	0.011	0.011	0.010
	(4.57)	(3.78)	(3.77)	(3.75)
MKT	0.307	0.509	0.502	0.169
	(4.37)	(6.65)	(6.40)	(1.83)
SMB		0.386	0.383	0.296
		(4.82)	(4.75)	(3.99)
HML		0.521	0.518	0.185
		(5.21)	(5.17)	(1.71)
UMD			-0.022	-0.028
			(-0.42)	(-0.61)
SNL				0.343
				(5.52)
R^2	13.32%	31.90%	32.00%	45.79%
Alpha Diff	-0.002	-0.002	-0.002	-0.002
	(-0.45)	(-0.52)	(-0.50)	(-0.56)

Table 5 continued
Panel (c): Control Group 2 Regressions

Parameters	CAPM	3-Factor	4-factor	5-factor (SNL)
Alpha	0.015	0.010	0.011	0.010
	(4.51)	(3.56)	(3.63)	(3.67)
MKT	0.333	0.582	0.570	0.194
	(4.63)	(7.64)	(7.30)	(2.19)
SMB		0.382	0.378	0.279
		(4.80)	(4.70)	(3.93)
HML		0.619	0.615	0.238
		(6.21)	(6.14)	(2.29)
UMD			-0.040	-0.047
			(-0.76)	(-1.05)
SNL				0.389
				(6.52)
R^2	14.73%	36.55%	36.85%	53.39%
Alpha Diff	-0.002	-0.001	-0.002	-0.002
	(-0.40)	(-0.39)	(-0.49)	(-0.45)

Table 6: Cumulative Long-Run Alphas: Cross-Sectional Averages

Table reports cross-sectional average parameters from firm-level regressions of monthly thrift return on a set of factors. Alpha is reported as a decimal. MKT is the market return minus the risk free rate; SMB and HML are Fama-French size and book-to-market factors, respectively, UMD is a momentum factor, and SNL is the return on the SNL thrift index, minus the risk-free rate. Parameters are estimated separately for each firm over the three-year post-IPO period. Cross-sectional t-statistics for the mean parameters are reported in parentheses. Panel (b) reports cross sectional average alphas from the same regressions using daily returns. These statistics are reported to facilitate comparison to the daily alphas in table 6.

Panel (a): Thrift IPO Regressions

Parameters	CAPM	3-Factor	4-factor	5-factor
Alpha	0.008	0.006	0.006	0.006
	(9.38)	(6.59)	(6.54)	(7.11)
MKT	0.450	0.747	0.755	0.034
	(16.35)	(21.99)	(22.24)	(0.74)
SMB		0.409	0.417	0.210
		(16.47)	(18.16)	(6.61)
HML		0.805	0.799	0.158
		(19.68)	(18.16)	(3.03)
UMD			-0.019	0.063
			(-0.58)	(2.10)
SNL				0.521
				(14.47)
Average R^2	11.42%	21.64%	24.11%	31.38%

Panel (b): Control Group Alphas

Control	CAPM	3-Factor	4-factor	5-factor
Control 1	0.012	0.008	0.007	0.007
	(8.04)	(5.54)	(4.04)	(4.01)
Thrift IPO minus Control 1	-0.003	-0.003	-0.001	-0.001
	(-1.99)	(-1.65)	(-0.75)	(-0.71)
Control 2	0.013	0.009	0.009	0.009
	(9.64)	(6.75)	(5.84)	(5.89)
Thrift IPO minus Control 2	-0.004	-0.003	-0.003	-0.003
	(-2.75)	(-2.17)	(-1.72)	(-1.68)

Table 7: Post-IPO Sub-Period Daily Alphas: Cross-Sectional Averages

Table reports cross-sectional average alphas from firm-level regressions of daily thrift return on a set of factors. Alpha is reported as a decimal. MKT is the market return minus the risk free rate; SMB and HML are Fama-French size and book-to-market factors, respectively, UMD is a momentum factor, and SNL is the return on the SNL thrift index, minus the risk-free rate. Parameters are estimated separately for each firm over the specified post-IPO sub-period. Cross-sectional t-statistics for the mean alpha parameters are reported in the last column.

			Control Group 1		Control Group 2	
Period (months)	IPO Daily Alpha (mean)	t-stat	IPO minus Control 1 (mean)	t-stat	IPO minus Control 2 (mean)	t-stat
5d-6	0.00076	10.22	0.00016	0.92	-0.00002	-0.17
7-12	0.00083	11.54	-0.00005	-0.23	-0.00006	-0.39
13-18	0.00049	6.40	-0.00136	-1.78	-0.00007	-0.23
19-24	0.00041	3.84	-0.00023	-1.41	-0.00098	-1.14
25-30	0.00052	4.40	-0.00040	-1.56	-0.00019	-1.23
31-36	0.00070	7.44	0.00000	0.00	0.00025	1.64
37-42	0.00060	4.82	0.00029	0.69	0.00024	1.55
43-48	0.00020	1.27	-0.00042	-1.72	0.00017	0.62
49-54	0.00057	3.96	-0.00008	-0.28	-0.00008	-0.37
55-60	0.00072	1.79	-0.00020	-0.44	0.00030	1.45

Table 8: Cumulative BHARs for Portfolios Sorted by Size
Table reports the average buy-and-hold returns for size-based portfolios of converted thrifts relative to the SNL Thrift Index. Firms are sorted based upon inflation adjusted post-IPO market capitalization. The average abnormal return for each firm is calculated by subtracting the cumulative benchmark return from the firm's cumulative return. The cross-sectional average abnormal returns are reported in the table. T-statistics are in parentheses for means and differences in means; for medians, parentheses contain p-values from a Sign test for difference from zero.

Thru Month	N	**Small Firms** IPO minus SNL Index (Mean)	IPO minus SNL Index (Median)	N	**Large Firms** IPO minus SNL Index (Mean)	IPO minus SNL Index (Median)
6	110	-0.67% (-0.47)	-4.33% (0.001)	111	2.97% (2.51)	1.86% (0.255)
12	110	-0.19% (-0.10)	-3.44% (0.152)	111	3.19% (1.82)	0.40% (0.850)
18	110	-7.90% (-2.72)	-10.30% (0.001)	111	-2.46% (-0.87)	-6.47% (0.008)
24	110	-20.63% (-5.67)	-23.91% (<0.001)	111	-6.27% (-1.62)	-10.38% (0.008)
30	110	-25.20% (-5.67)	-24.14% (<0.001)	111	-9.63% (-2.06)	-12.68% (<0.001)
36	110	-27.67% (-4.79)	-27.01% (<0.001)	111	-5.98% (-1.04)	-18.84% (0.013)
42	110	-29.81% (-5.00)	-29.69% (<0.001)	111	2.69% (0.43)	-14.25% (0.087)
48	110	-31.30% (-4.54)	-34.71% (<0.001)	111	2.96% (0.42)	-9.78% (0.129)
54	110	-30.34% (-3.14)	-39.91% (<0.001)	111	3.15% (0.41)	-6.05% (0.343)
60	110	-30.54% (-2.44)	-38.68% (<0.001)	111	2.38% (0.29)	-8.25% (0.569)

Table 9: Sub-period BHARs for Portfolios Sorted by Size

Table reports the average buy-and-hold returns over six month post-IPO sub-periods for size-based portfolios of converted thrifts relative to the SNL Thrift Index. Firms are sorted based upon inflation adjusted post-IPO market capitalization. Buy-and-hold returns are calculated for each firm that survives to the beginning of the stated sub-period, and cross-sectional averages are reported. The average abnormal return for each firm is calculated by subtracting the cumulative benchmark return from the firm's cumulative return. The cross-sectional average abnormal returns are reported in the table. T-statistics are in parentheses for means and differences in means; for medians, parentheses contain p-values from a Sign test for difference from zero.

		Small Firms			**Large Firms**	
Sub-period	N	IPO minus SNL Index (Mean)	IPO minus SNL Index (Median)	N	IPO minus SNL Index (Mean)	IPO minus SNL Index (Median)
5d-6	110	-0.67% (-0.47)	-4.33% (0.001)	111	2.97% (2.51)	1.86% (0.255)
7-12	110	0.75% (0.49)	-1.71% (0.634)	111	0.12% (0.10)	-0.86% (0.448)
13-18	110	-5.23% (-3.51)	-5.48% (<0.001)	111	-4.20% (-2.77)	-7.23% (<0.001)
19-24	109	-8.21% (-6.03)	-8.04% (<0.001)	110	-2.59% (-1.97)	-1.69% (0.294)
25-30	101	-1.79% (-1.12)	-2.47% (0.046)	105	-3.97% (-2.48)	-5.93% (0.031)
31-36	90	-0.39% (-0.20)	-1.96% (0.461)	98	0.62% (0.33)	0.84% (0.762)
37-42	82	-1.84% (-0.92)	-1.28% (0.581)	90	6.40% (3.48)	3.03% (0.026)
43-48	73	-3.83% (-1.52)	-3.51% (0.160)	82	0.11% (0.06)	-0.10% (1.000)
49-54	68	-0.02% (-0.01)	0.18% (0.904)	67	1.11% (0.47)	-0.87% (0.807)
55-60	60	-1.25% (-0.60)	-0.95% (0.519)	60	0.25% (0.11)	-0.86% (0.519)

Second Essay

Ownership Structure, Agency Cost and Second-Stage Conversions in the Demutualized
Thrift Industry

Introduction

Mutual to stock conversions have brought considerable academic attention to the thrift industry. While much of this attention focused on built-in under-pricing of thrift IPOs and significant first day excess returns, attention has also been directed at whether significant cost differences exist between mutual and stock ownership.[24] One limitation of those prior studies was the omission of mutual holding companies (MHCs) from their analysis. A MHC limits the amount of stock sold to the public to 49.9 percent while the majority ownership is issued to the holding company. Thus, the original thrift depositors own the MHC and a majority ownership position in the thrift. This paper contributes to the existing literature by analyzing mutual thrifts that choose MHC versus full-stock ownership and MHCs that choose second-stage conversions. This analysis sheds light on agency cost differences across ownership structures and has implications for second-stage conversions. The thrift industry provides a unique opportunity to examine the effect that ownership structure has on agency cost since the thrift industry consists of homogeneous firms operating under distinct ownership structures.

Though the first thrift dates back to 1831 the idea of multiple ownership structures in the thrift industry is a fairly recent phenomenon. Federal stock thrifts were not permitted until 1974 and mutual holding companies (MHCs) were first authorized in 1987. In fact prior to 1982, the thrift industry was dominated by mutual ownership. The following two decades saw an explosion in mutual thrift conversions to stock ownership

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[24] Cebenoyan, et al (1993, 1998), Mester (1989, 1993), Verbugge and Goldstein (1981), Verbugge and Jahera (1981), Blair and Placone (1988) and Sfridis and Daniels (2004) examined the relative cost efficiencies of stock and mutual thrifts.

with full conversion as the primary method. This changed in 2004 when the preferred method of mutual conversion switched to MHCs.

This paper examines four questions surrounding thrift conversions and the growing importance of MHCs. First, do significant agency cost differences exist with respect to ownership structure? Second, do agency costs help explain whether a converting mutual company chooses a MHC or full stock ownership? Third, can agency cost help explain the probability that a MHC will choose a second-stage conversions? Lastly, do agency costs help explain the probability that a publicly traded thrift will be acquired?

We examine four areas of agency costs with respect to converting thrifts: customer-owner conflict; manager-owner conflict; over-capitalization; and MHCs as value enhancing to minority public shareholders. Mayers and Smith (2002) point out that the customer-owner conflict does not exist in mutual thrifts. Customers of a stock thrift have fixed claims, and thus the agency costs associated with the customer-owner conflict in the thrift industry are similar to those associated with the more common bondholder-owner conflict. Consistent with the risk-shifting hypothesis, Esty (1997) finds that mutual-to-stock thrifts engage in riskier lending activities compared to mutual thrifts. The existence of the manager-owner conflict in thrifts has been examined with respect to cost efficiency of mutual versus stock thrift, though with mixed results (see footnote 1). The risk of over-capitalization would appear greater with full conversions since it issue 100 percent of its shares to the public compared to a MHC which is limited to issuing no more than 49.9 percent of its shares to the public. Carow, Cox and Roden (2004) present

evidence that MHCs report significantly higher price-to-book on the initial day of trading following the IPO compared to Non-MHCs. They attribute the higher price-to-book to potential benefits of the MHC ownership structure.

The current paper contributes to the study of ownership structure by identifying significant differences in agency costs in the demutualized thrift industry and significance of agency costs in selection of ownership structure and merger and acquisitions. In particular, this sheds light on mutual thrifts selecting MHCs versus full conversions and MHCs that choose second stage conversions. Our sample includes 209 full conversions, 62 MHCs and 44 second-stage conversions during the period 1993 through 2005.

While we expect to find agency costs differences across ownership structures we anticipate they generally will be found between MHCs and full conversions. Since full and second-stage conversions are 100 percent stock owned thrifts, we anticipate that they will behave somewhat similarly. Our empirical evidence reveals several significant differences in agency costs variables across ownership structures. Our converting thrifts undertake less lending risk than the thrift industry. Full and second-stage conversions undertake greater lending risk throughout the post-conversion sample period and greater lending risk compared to MHCs. Not surprising, three years post-conversion full conversions and second-stage conversions appear similar with respect to lending risk. MHCs appear to engage in the less lending risk throughout the post-conversion period. Thus, there is some evidence differences exist with respect to lending risk across ownership structures. In addition, full conversions report significantly higher interest income to average assets compared to MHCs, second-stage conversions and the thrift

industry for all three years following the year of conversion. This suggests full

conversions are more efficient with respect to asset utilization possibly resulting in better

investment decisions and higher margin investments. However, at the end of the sample

period, full and second-stage conversions appear similar. MHCs underperform the

industry for all sample periods possibly the result of investing in low margin assets or

management shirking with respect to investment decisions. MHCs appear to be costliest

to operate while full and second-stage conversions demonstrate similar cost behavior.

This may reflect management's control of the MHC possibly resulting in wealth

expropriation behavior. Full and second-stage conversions report similar ROAA

throughout the sample periods. However, in the final sample period MHCs outperformed

full, second-stage conversions and the thrift industry with respect to ROAA. This

possibly reflects the low margin low risk investment strategy was successful in a period

of large losses sustained by the thrift industry. In addition, there is little evidence of over-

capitalization with respect to ROAA (which reduces ROAA). All ownership structures

underperformed the thrift industry with respect to ROAE. This is a reflection of the

strong capital position of our sample thrifts compared to the thrift industry. Thus, with

respect to ROAE, all converting thrifts demonstrate signs of over-capitalization. Last,

MHCs and second-stage conversions report higher price-to-book versus full conversions

for the entire sample period; though there are no significant differences at the end of the

sample period. This possibly suggests that the MHC ownership structure provides

temporary greater market valuation to minority shareholders, possibly the result of

potential benefits of the MHC ownership structure (Carow, Cox, and Roden (2004)). This

is significant for management since it may indicate the ability generate greater market valuation for minority public shareholders by electing a MHC versus full conversion and potential value of a two-step process to full conversion.

We find agency costs are significant in explaining the probability mutual thrifts select a MHC over full conversion. In particular, larger mutual thrifts that are inefficient with respect to asset utilization or invest in low margin assets are more likely to choose a MHC.

We also find evidence that agency cost variables are significant in explaining the probability MHCs that choose second-stage conversions and publicly traded thrifts that are acquired. Consistent with Carow, Cox and Roden (2009) who argue that large announcement day returns recorded by MHCs that choose second-stage conversions is evidence of minority public shareholders' approval of adopting a lower agency cost ownership structure, we find agency costs are significant for explaining the probability MHCs that select second-stage conversions. For example, MHCs that report lower price-to-book and are more costly to operate choose second-stage conversions. Thus, while the MHC ownership structure may provides benefits that generally result in higher market valuation, MHCs that experience declining price-to-book ratio are more likely to choose second-state conversions. Since MHCs are effectively controlled by management, this may reflect management's inability to effectively monitor itself, and minority shareholders' desire to subject management to the discipline of the market for corporate control. It may also represent a value investment opportunity for management and existing investors. In addition, we generally find publicly traded thrifts that report higher

price-to-book and greater ROAA are acquired. This may reflect the desire to acquire thrifts that will immediately improve the financial position of the acquirer.

We form portfolios sorted on total assets to examine similar size mutual thrifts that choose MHCs, MHCs that choose second-stage conversion and publicly traded thrifts that are acquired. We find large mutual thrifts that are inefficient with respect to asset utilization or invest in low margin assets are more likely to choose MHCs. Small MHCs with high asset utilization and higher operating costs are more likely to choose second-stage conversions. In addition, they also have strong loan growth. This may suggest small MHCs incurring higher operating costs possibly the result of strong growth are more likely to choose second-stage conversions. Large MHCs that report lower price –to-book are more likely to choose second-stage conversions. This may suggest large MHCs that choose second-stage conversions may represent a value investment opportunity for management and insiders or acknowledgement by management of the inability to effectively manage the MHC without effective monitoring. In addition, small publicly traded thrifts that are acquired report lower interest income to average assets but higher price-to-book while large publicly traded thrifts report both greater interest income to average assets and price-to-book. This suggests acquirers of small thrifts are seeking greater returns possibly through x-efficiencies while acquirers of large thrifts seek immediate improvement to their financial position.

We summarize the impact of ownership structure and agency costs in Figure 1. While it is clear that the various ownership structures have advantages and disadvantages with respect to agency costs no ownership structure can eliminate all agency costs.

The fact that only approximately 600 mutual thrifts remain in the United States does not diminish the significance of the contribution of this paper.[25] Since 1995 credit unions have had the right to convert to mutual thrifts (Wilcox (2006)). In fact during the period 1995 to 2005, 27 credit unions have either converted to mutual thrifts or merged with mutual thrifts. Thus, credit unions are one step away from the decision to convert to full stock ownership or a MHC. Currently, there are over 10,000 credit unions in the United States that can convert to a mutual thrift.

The rest of this paper is organized as follows. Section 1 presents a brief history of thrift conversions. Section 2 presents alternative ownership structure for thrifts. Section 3 analyzes MHCs and second-stage conversions. Section 4 describes agency cost in the thrift industry. Section 5 presents data and methodology. Section 6 presents results. Section 7 concludes.

I.   History of Thrift Conversions

Congress was the catalyst for the surge in mutual-to-stock conversions passing the Garn-St Germain Depository Act of 1982 which legalized stock ownership and mutual-to-stock conversions for federally chartered thrifts (Esty 1997). For approximately the next two decades, the primary method of conversion was a standard or full conversion. A standard or full conversion authorizes the sale of 100 percent of the thrift's stock sold to the public.

Approximately five years after the passage of Garn-St Germain Depository Act, Congress added another ownership structure option for thrifts considering stock

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[25] There were approximately 1,200 mutual thrifts in 1993.

conversion. In 1987, Congress authorized thrifts to reorganize as MHCs.[26] Unlike a standard conversion, a controlling interest in the thrift is maintained by the MHC. Thus, the original owners (depositors) own the MHC and, indirectly, a controlling interest in the thrift.[27]

When a mutual thrift converts to a MHC it has not eliminated the possibility of full demutualization in the future. Congress kept the door open for a MHC to convert from partial to full stock ownership. In order for a MHC to fully demutualize, the MHC undergoes a second step, a second-stage conversion. Following a subscription rights for shares that is similar to those in a standard mutual-to-stock conversion, new shares are sold for the appraised value of the MHC majority interest in the subsidiary (Wilcox 2006). In addition, the original minority shares are cancelled and exchanged for newly issued shares at an exchange ratio that does not dilute the original shareholders level of ownership (Wilcox 2006).

The regulatory changes encouraging thrifts to convert from mutual to stock ownership proved effective. In the 1980s, thrifts were often forced to convert to stock ownership to improve their poor financial condition or face foreclosure. In the 1990s, even in the wake of improved financial condition of thrifts, thrift conversions to stock ownership soared. This is evident in that stock thrifts currently hold approximately 90% of industry assets (Chaddad and Cook 2004).

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[26] Congress first authorized mutual holding companies in the Competitive Equality Banking Act of 1987.
[27] Since 1995, MHCs utilize a three-tier structure with the middle tier stock holding company that owns stock subsidiaries (Smith and Underwood (1997)).

As we moved to 2000 and beyond, thrifts continued to convert to stock ownership, although the number of conversions slowed. However, the utilization of the standard or full conversion as the preferred method of mutual-to-stock ownership changed. The standard conversion was supplanted by MHC as the preferred method. For the period 2004 through 2005, there were 42 conversions completed, 34 by MHC. In the ten years prior, there were over 400 thrifts that went public, less than 20 percent elected a MHC (Kline 2006)).

The change in preference from full conversion to MHC raises several interesting issues. First, the MHC form of ownership structure has been around since 1987 but was used far less frequently than the full conversion for over a decade. Second, even though the MHC structure has become the preferred method of conversion, many MHCs eventually choose to fully demutualize. Thus, in the end, the thrift is 100 percent publicly owned. Yet the factors that have precipitated the move to the MHC form of ownership structure are not yet well understood. Third, it is not clear if the MHC corporate structure benefits shareholders. Finally, it is uncertain whether shareholders are better off with a two-step process to full conversion that typically can involve a waiting period of three to four years between the first and second steps versus a full conversion.[28]

II.   Thrifts ownership structures

The finance industry including the thrift industry is fairly unique with the existence of both customer-owned and stock firms. Rasmussen (1988) observes that the co-existence of mutual associations and a capitalist system may appear to be odd;

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[28] Wilcox 2006, pg. 30

however, mutuals have played a significant role in the banking industry in the United States. The first thrift, Oxford Provident Building Association, preceded by approximately 100 years the creation of the federal mutual charter in 1933. Though market forces shaped thrifts during this period, one thing that did not change was the concept of mutuality with respect to ownership of the thrift (Smith and Underwood (1997)); all subscribers (later to be known as depositors) have a claim to the net worth of the thrift, but no one individual can sell or liquidate that interest. In other words, depositors are owners but they are not residual claimants to the accumulated earnings of the thrifts. In addition, accumulated earnings cannot be distributed to the depositors (owners) by dividends or capital distributions. Mutual thrifts also lack access to capital markets. Thus, mutual thrifts fund growth primarily with internally generated funds, retained earnings.

In stark contrast to a mutual thrift is a stock thrift. Stock thrifts were authorized by Congress in 1974; although, certain states permitted stock thrifts in the 1930s (Smith and Underwood (1997)). Mutual-to-stock ownership through a full conversion requires OTS approval and an affirmative majority vote of eligible votes. The converting thrift employs the sale-of-stock approach to sell 100 percent of its shares to the public. A unique characteristic of a mutual-to-stock conversion utilizing the sale-of-stock approach is the built-in underpricing in the IPO. In fact, Masulis (1987),Barth, Brumbaugh, and Kleidon (1994) and Unal (1997) either imply or explicitly make the point that an economically solvent thrift that converts to stock using the sale of stock

method is almost certain of excess returns.[29] Though the sale-of-stock approach gives depositors the first opportunity to purchase shares, less than five percent of original owners (depositors) exercise their rights to purchase stock. Thus, a sizable transfer of wealth occurs to new shareholders, including insiders who purchase 20 percent of all conversion shares (Dunham (1985)).

Unlike mutual ownership where depositors are both customers and owners of the thrift, stock thrifts separate the owner, manager and customer functions increasing the likelihood of specialization in activities which can lower operating costs (Mayers and Smith (2002)). Also, while mutual ownership does not entitle owners (depositors) a claim against prior earnings of the thrift, the shareholders of a stock thrift do have a claim to the net worth of the thrift. In addition, whereas a mutual thrift cannot pay dividends a stock thrift can.

There are ownership restrictions for thrifts that convert from mutual-to-stock ownership. The FHLBB adopted amendments in 1979 to limit management purchases, which had averaged 34% of the total stock sold (Smith and Underwood (1997)). Management purchases are limited to 25%-35% (depending on size of the thrift) in the aggregate and managers are restricted from selling any shares purchased in the

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[29]A thrift is economically solvent when the value of pre-conversion assets exceeds its liabilities. Maksimovic and Unal (1993) make the observation that, unlike the typical IPO, a thrift conversion may experience subsequent price appreciation even without informational asymmetries due to the existence of pre-conversion market value.

initial subscription for a period of one year (Wilcox (2006)).[30] These amendments also limit maximum purchases during the initial subscription to any person to 5% (Smith and Underwood (1997)). In addition, individuals are limited to no more than 10% of stock for the first three years following conversion, thus, serving as an anti-takeover provision for the converted thrift (Smith and Underwood (1997)).[31]

A third ownership structure exists between mutual ownership and a stock ownership is a MHC.[32] A MHC offers the benefits of stock ownership while remaining a mutual association. Like mutual-to-stock conversions, MHC reorganizations require OTS approval and an affirmative majority vote from eligible votes. Following approval for conversion, the first step in the formation of a MHC is the establishment of a private MHC. The formation of a private MHC is often referred to as a reorganization since no shares of stock have been sold to investors. Thus, a private MHC owns 100 percent of the shares of stock of its stock subsidiary.[33] In addition, the depositors of the subsidiary are owners of the MHC and elect its board of directors (Smith and Underwood (1997)). The vote approving conversion to a MHC authorizes management to sell a minority interest in its subsidiaries. The sale of stock by a MHC, commonly referred to as a first-stage

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[30] Cole and Mehran (1998) find that after the expiration of this lock-up period, managers of the average firm subsequently increased their ownership percentages.
[31] The restriction applies to individuals, companies and people acting jointly.
[32] Wilcox (2006) notes that since 1995, MHCs increasingly use a three-tier structure with a mid-tier holding company that owns that owns stock subsidiaries to facilitate stock repurchases and possible adverse tax consequences of stock repurchases at the thrift level.
[33] The stock subsidiary is almost always a thrift; however, in one case a commercial bank (Wilcox (2006)).

conversion, allows a maximum of 49.9 percent of stock to be issued to public

shareholders while the remaining majority stock ownership is issued to the MHC.[34]

First-stage conversions, like standard conversions, require an independent

appraisal prepared with respect to regulatory guidelines. An independent appraiser, hired

by management, establishes the market value for the converting thrift immediately

following conversion by comparing the converting thrift with a sample of similar publicly

traded thrifts while considering the thrift's intended use of the proceeds. Thus, like a full

conversion, a transfer of wealth can occur to the minority shareholders from the original

owners (depositors) through first-stage-conversions. However, since MHCs can sell up to

49.9 percent of the thrift to public shareholders, the transfer of wealth under a first-stage

conversion is smaller (proportionally) than a full conversion in total dollar terms, but

similar on a per share basis.[35] This is consistent with Wilcox (2006) who finds that first-

day returns for full conversions and first-stage conversions have been broadly similar.[36]

However, Johnston and Madura (2006) present evidence that full conversions have

significantly higher initial returns than MHCs during the period 1990 through 1998.

Johnston and Madura (2006) argue that full conversions possess greater uncertainty thus

greater underpricing compared to MHCs.

Standard conversions and first-stage conversions both involve similar subscription

rights processes, in addition to establishing a price for IPO shares that reflects the value

of the thrift immediately following conversion. Following a first-stage conversion, a

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[34] Typically, the minority shares of a MHC have restricted voting rights (Carow, Cox, Roden (2004)).
[35] On average, MCHs sell 41 percent of the thrift to the public (Carow, Cox, Roden (2004)), pg. 11.
[36] Wilcox (2006) utilizes the results of Luse and Gorman (2005). Luse and Gorman (2005) compare first-day pops for standard conversions with first-day pops for first-stage and second-stage conversions.

majority interest in the subsidiary is held by the MHC which is owned by the depositors while a minority interest is owned by the public.[37] Thus, the original depositors own the MHC and, indirectly, a majority interest in the thrift. However, depositors (owners) do not have a claim to the accumulated earnings of the subsidiary nor can they individually sell their shares (Carow, Cox, Roden (2004)). In addition, control of the thrift often rests with management and directors.[38]

The appeal of a MHC is the flexibility it accords through the benefit of stock ownership without the risks. For example, the MHC receives immediate cash infusion and access to capital markets without the fear of losing control of the thrift. Since a MHC owns the majority of shares of the thrift and voting by directors is non-cumulative, takeover of the thrift is unlikely. Finally, a MHC can pay dividends.

A MHC can convert to full stock ownership through a second-stage conversion. A second-stage conversion requires dissolving the MHC. The first step in a second-stage conversion is OTS approval and an affirmative vote of over 50 percent of eligible votes (Wilcox (2006)). The original minority shares of stock are canceled and exchanged for new shares at an exchange ratio that preserves the ownership position of the original shareholders. In addition, the new shares are sold on a priority subscription rights basis that is similar to a standard mutual-to-stock conversion. This gives a priority in the new

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[37] Carow, Cox and Roden (2004) argue that the MHC ownership structure is a special case of dual-class stock.

[38] Carow, Cox, Roden (2004) argue that without a strong participation from depositors control of the thrift rests with management and the board of directors. In addition, OTS regulations permit a mutual institution's management (including holding companies) to solicit proxies of unlimited duration that go to the board of directors or a committee appointed by the board of directors. The use of these proxies coupled with management's control over meetings of a mutual, weakens the influence of depositors (owners) (Smith and Underwood (1997)).

shares to current members (depositors), ESOP, other members and borrowers, local residents, and external investors that are not local residents (Wilcox (2006)).

III.   MHCs and second-stage conversions

A problem facing successful mutual thrifts is a shortage of capital since they rely almost exclusively on retained earnings to fund growth and acquisitions. The lack of access to capital markets forces mutual thrifts to accumulate retained earnings over long periods in order to accumulate large sums of capital. For example, a mutual thrift seeking to acquire another thrift or insurance agency has to acquire sufficient retained earnings to finance the acquisition. A mutual thrift could undergo a mutual-to-stock conversion to obtain access to capital markets. A full conversion would result in a public offering of shares that gives the mutual thrift's depositors the first right of refusal up to a certain limit. However, since many members will choose not to participate, or participate to some degree, the ownership composition of the mutual thrift will be forever altered.[39]

An alternative short of full conversion available to mutual thrifts is a MHC. Under a MHC, the original thrift owners' (depositors) rights are converted to ownership rights in a non-stock holding company. The original intent behind MHCs was to give converting thrifts incremental access to the equities markets (Cohen (2004)). In other words, unlike a full conversion where a thrift sells 100 percent of its stock on a given day, a mutual thrift converting to a MHC can sell less than 50 percent of its stock on any given day. The ability to raise capital incrementally reduces the likelihood of overcapitalization and

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[39] Aharony, Falk, and Linn (1996) report average subscription rates of 39% for regular depositors and 5% for management. However, Dunham (1985) suggests managers and directors purchase an average of 20% of all conversion shares.

pressure of generating an acceptable return for the new shareholders. In the late 1980s, many full conversions raised too much capital forcing stock thrifts to alter their business plans and pursue much riskier ventures, many of which were not successful (Community Banker, (March 2004)). In essence, the MHC enables a thrift to become partially public and limit the amount of capital raised that is consistent with its operating strategies. Thus, a MHC accords the thrift greater flexibility while maintaining its mutual identity. There is some evidence that a MHC also benefits the new minority public shareholders of the MHC. For example, Carow, Cox and Roden (2004) argue that a MHC allows for the transfer of wealth from thrift depositors to new minority shareholders through the payment of disparate dividends. A MHC can declare and pay dividends to the minority shareholders while the majority shareholders can waive their right to receive the dividend. In addition, they show that MHCs are priced higher than non-MHCs with disparate dividends a significant component of the valuation.

While there appears to be sufficient reasons and evidence supporting the eventual gained acceptance of MHCs, it is not clear MHCs are viewed as a viable long-term ownership structure. This is evident by the number of MHCs that eventually undergo a second-stage conversion to full stock ownership. In some respects it appears that a MHC is viewed as a temporary ownership structure towards a two step process to full stock ownership. Yet, there is nothing in the OTS regulations stating that a MHC was ever intended to be used as an incremental step to full stock ownership. It is even harder to understand a MHC's conversion to full stock ownership considering the results of Carow,

Cox and Roden (2004). In other words, why do minority shareholders sacrifice higher market valuation and disparate dividends?

The concern that MHCs are not viewed as a long-term alternative to full conversions was not ignored by the OTS. In response to the concern that MHCs are not a viable long-term ownership structure, the OTS proposed and passed significant enhancements to the MHC ownership structure to make it more appealing as a long-term alternative to full conversion.[40] While the new rules address a number of different areas, the primary changes that will make MHCs more attractive and appealing relate to the following: Dividend waivers; stock benefit plans; stock repurchase; and acquisition and expansion flexibility.

Investors generally look to share price appreciation and dividends for justification of their investment. For stock thrifts, it is not uncommon for the greatest share price appreciation to come as the result as a takeover premium upon sale of the thrift; however, MHCs are not typically viewed as takeover targets.[41] Thus, the ability of a MHC to pay shareholders attractive and sustained dividend is a key part of the MHC ownership structure (Luse (April 2003)). A distinct advantage of a MHC is the ability to pay cash dividends to its minority shareholders since the MHC can waive its portion of the cash dividend. Carow, Cox, and Roden (2004) demonstrate that such dividends, disparate dividends, increase the value of minority shares at the expense of MHC owners (depositors) who do not own shares.

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[40] Federal Register, July12, 2000.
[41] Friesen and Swift (2009) present evidence that cumulative long-run returns for all acquired thrifts exceed the cumulative long-run returns of thrifts that survive to the end of each holding period.

The ability for a MHC to pay dividends only to minority shareholders enables all earnings to be diverted to the minority shareholders at the expense of the majority owners (depositors) of the MHC. For example, assume that a mutual thrifts converts to a MHC. As a result of the conversion, 40 percent of the thrift's stock is held by minority public shareholders and 60 percent is held the MHC. Further assume that the thrift subsidiary earns $100,000 dollars. If the MHC can pay dividends only to minority shareholders, it would be able to pay out $100,000 to its minority shareholders instead of $40,000. In other words, $60,000 that would ordinarily be attributed to the MHC would be diverted to the public minority shareholders.

To address this concern, the OTS passed a regulation in 1995 opening the possibility of requiring minority shareholders to have their ownership diluted when a MHC waives its right to a cash dividend in the event of a second-stage conversion. The OTS reversed its ruling in July 2000 by clarifying its ruling that MHCs may waive dividends and minority shareholders will not face the possibility of diluted ownership in the event of a subsequent conversion to stock form. Reinstatement of the waiver of dividends allows a MHC to waive its right to the cash dividend. This enables the MHC to avoid corporate taxes on the waived dividend and leaves the capital in the thrift subsidiary (Goodwin, Procter & Hoar (2000)). In addition, the OTS believed that the concern of minority shareholder dilution was a reason for a number of MHCs to fully convert to stock ownership.[42] However, it is worth noting that while the OTS has required

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[42] Federal Register, July 12, 2000.

some dilution in past transactions they involved excess or special dividends paid by the MHC to minority shareholders.[43]

The means to attract and retain professional management is vital for any organization. Denis and McConnell (2003) state the compensation issue of greatest importance is the degree to which executive compensation aligns top executives' interest with those of the shareholders, i.e. the sensitivity of executive pay to firm performance. Over time this sensitivity has increased and is largely achieved through executive ownership of common stock and stock options (Denis and McConnell (2003)). Thus, a key element of attracting and retaining management is stock based compensation that ties management's compensation to the performance of the firm. Mutual thrifts are at a competitive disadvantage to their public counterparts since they lack the ability to attract and compensate management with stock based compensation. Thus, conversion to a MHC or full conversion does allow for employees, management and directors to become owners of the thrift and share in stock price appreciation.

Though MHCs can offer stock option and stock awards to its employees, there were limits to the magnitude of its stock programs. In particular, one shortcoming of the MHC ownership structure is the amount of stock available for benefit plans is directly tied to the amount of stock sold to the public (Luse (2003)). Since MHCs offer less than half the shares of a standard conversion, the stock benefits offered by a MHC will always be smaller than compared to a fully converted thrift. Thus, fully converted thrifts have the ability to offer second and third generation stock benefit plans after their initial stock

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[43] Federal Register, July 12, 2000.

benefit plans are exhausted (Luse (2003)). In addition, after the MHC had awarded all stock or options under their initial stock benefit plans, they did not have the ability to implement additional stock benefit plans (Luse (2003)). Since MHCs lacked the means to implement additional stock benefit plans, this had the effect of forcing MHCs to convert to full stock ownership.

The OTS aware of the limits of MHCs with respect to stock based compensation passed new rules to address this deficiency. The new OTS rules allow MHCs to offer generous stock benefit plans. Specifically, the new OTS rules enable stock option and stock award plans to total up to 25 percent of the outstanding shares held by the minority shareholders. In addition, an ESOP or 401(k) plan may purchase up to 10 percent of the public shares of the MHC. These new rules enable a MHC the ability to grant as many stock options and stock awards a full stock thrift (Luse (2003)). In addition, the new OTS rules allow employees, management and directors to own up to 35 percent of the public shares through stock benefit plans, without consideration to direct purchases by employees, management and directors. Thus, these new rules open up the possibility employees, management and directors of accumulating a controlling interest in the MHC over time and remain in control even in the event of a second-step conversion to full stock ownership. This contrasts with full conversions where employees, management and directors have always been able to become significant shareholders they were normally prevented from acquiring enough shares to effectively control the converted thrift (Luse (April 2003)).

Stock repurchases are an effective capital structure tool for well capitalized financial institutions, including MHCs and stock thrifts. Stock purchases can be used to provide liquidity for lightly traded stocks, supporting stock values in weak markets and a way of delivering wealth to shareholders other than dividends. In fact, stock repurchases are treated by management as more flexible than dividends (Jaganathan, Stephens, Weisbach (2000)). Prior to the new rules, MHCs and stock thrifts were not permitted to repurchase stock during the first year following conversion. In addition, during the second and third years following conversion, thrifts were limited to purchasing 5% of their outstanding shares.

The new rules eliminate any restrictions during the second and third years following and conversion. In addition, thrifts can repurchase outstanding shares during the first year following conversion, provided the thrift files a notice with OTS demonstrating extraordinary circumstances and the OTS does not object to the planned repurchase.

Acquisitions not only allow firms to grow rapidly and diversify they can also generate significant abnormal returns for shareholders of both target and takeover firms (Bradley, Desai, Kim (1988)). MHCs have long possessed the ability to acquire both mutual and stock associations and stock holding companies. Though cash acquisitions by MHCs are fairly common, they have also used stock to acquire other stock institutions; however, MHC acquisitions of mutual thrifts have been less common due to uncertainty and complexity associated with these acquisitions (Luse, (2003)). In addition, on

occasion, a MHC has diversified its holdings.[44] It is important to note that the new rules do not speak to the authority of MHCs to acquire other financial institutions; the OTS merely confirmed that MHCs have this authority.

The MHC offers mutual thrifts greater flexibility while still remaining mutual institutions. Greater flexibility is not just access to capital markets but those powers of a multiple savings and loan holding company excluding insurance activities and of a bank holding company (Smith and Underwood (1997)). These powers of a MHC were expanded with the passage of Gramm-Leach-Bliley Act of 1999 (GLB) and subsequent adoption by the OTS. MHCs now obtain many of the benefits of a financial holding company permitting MHCs to offer a greater variety of financial services including brokerage and insurance in addition to banking. Thus, the passage of GLB enhances the appeal of MHC as an alternative to full conversion.

IV.   Ownership structure and agency costs

The above discussion describes three different ownership structures that make up the thrift industry. Although there are significant differences amongst the three ownership structures, one common characteristic does exist, agency costs. The fact that agency cost is not completely eliminated by any one ownership structure does not mean that agency cost is independent of ownership structure. In fact, ownership structure can influence individual components of agency cost and, possibly, total agency cost. Thus, thrifts may have the ability to manage agency cost by its ownership structure.

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[44] In 2000, Oneida Financial, MHC, used common stock to acquire an insurance agency.

Examining total agency cost in the thrift industry involves analyzing individual components of agency cost within the confines of each unique ownership structure. This is necessary for a couple of reasons. First, the number of separate groups is not constant across ownership structures. Second, incentive and ability to monitor is not constant across ownership structures. Last, the ability to distribute accumulated earnings varies across ownership structures.

Within thrifts, three stakeholders play a key role with respect to agency cost: Owners, managers, and customers. The interaction of these three groups in different ownership structures account for differences in agency cost. Thus, we analyze how the different stakeholders respond to the various ownership structures and incentives used to help align the interest of the stakeholders. We examine four agency issues within the context of the thrift industry: Customer-owner conflict; manager-owner conflict; over-capitalization; and MHC a value enhancing ownership structure.

A.   Customer-owner conflict

Although thrifts provide a variety of financial services, their primary functions are taking deposits and granting loans. Depositors are paid interest on their account balances and pay interest in exchange for loans. Thus, depositors are a primary source of capital to the thrift. In this light, depositors can be viewed as debtholders.[45] This enables

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[45] A stock company is owned by stockholders and depositors are simply customers. In a mutual thrift, depositors are the owners but they cannot discipline managers and they are not residual claimants in the usual sense (Rasmusen (1988)). In other words, depositors do not have individual claims to the accumulation of net worth in the mutual thrift (Smith and Underwood (1997)). In addition, the courts have ruled that depositors do not have a claim to a mutual thrift's accumulated in the event of conversion (Smith and Underwood (1997)).

us to characterize the customer-owner conflict, in the thrift industry, in a manner analogous to the traditional stockholder-debtholder conflict.

The customer-owner conflict arises when depositors and owners are separate groups and their interests diverge. This can lead to managers acting in the interest of owners at the expense of customers. Examples include managers engaging in excess risk taking, holding insufficient capital, or changing dividend policy (Wilcox (2006)). These three activities all represent greater risk borne by debtholders compared to equity holders.

The presence and magnitude of customer-owner conflicts is dependent on ownership structure. For example, a stock thrift allows for separation of the owner and customer functions raising the likelihood of conflict between them. In fact, Esty (1997) argues that mutual-to-stock thrifts invest in riskier assets. In addition, approximately 74% of mutual-to- stock conversions pay dividends within the first year (Carow, Cox, Roden (2004)).

Like a stock thrift, a MHC allows for the separation of the owner and customer functions allowing for potential customer-owner conflicts. However, stockholders are minority owners and control of the thrift rests with management. Thus, the customer-owner conflict exists, theoretically, to a lesser degree with respect to MHCs compared to stock thrifts.

In a mutual thrift, customers and owners are not separate groups. Mayers and Smith (2002) argue that the major benefit of mutual ownership is the elimination of stockholders and potential conflicts between owners and customers. Thus, the customer-owner conflict does not exist in a mutual thrift.

We will analyze our samples of thrifts for significant differences of the customer-owner conflict. Excessive risk taking is evidence of the customer-owner conflict. Thus, our empirical tests are predicated on measuring the riskiness of the thrift's loan portfolio since lending is where risk exists for thrifts. To measure the riskiness of the loan portfolio for three years following the year of conversion, we will use the following measures of credit risk: Net charge-offs to average total loans (NCOs) and non-performing loans to total loans (NPLs).[46] Net charge-offs are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances. Non-performing loans are nonaccrual and restructured loans. This will provide evidence of increased risk taking following conversion and possible persistence.

B.   *Manager-owner conflict*

Jensen and Meckling (1976) argue that the manager who owns less than 100 percent of the residual claims will have divergent interests with outside shareholders, since the manager bears only a fraction of the cost of non-pecuniary benefits taken. This creates an incentive problem trying to align the interest of management and outside stockholders.

The manager-owner conflict can also result in management utilizing less than optimal cost efficiency. Cost efficiency and agency cost in the thrift industry have been examined with mixed results. Many studies have focused on the expense preference hypothesis which suggests that agency problems are the cause of lower cost efficiency of

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[46] Paroush and Schreiber (2008), pp. 12.

mutual thrifts compared to stock thrifts. For example, Verbugge and Goldstein (1981) and Verbugge and Jahera (1981) find evidence supporting the expense preference hypothesis while Blair and Placone (1988), Cebenoyan, et.al (1993, 1998) and Mester (1993) do not. Mester (1993), utilizing a stochastic frontier approach, presents evidence that mutual thrifts are more efficient than stock thrifts. Cebenoyan, et. al (1993), utilizing a similar approach, found that ownership structure had no impact on cost efficiency. Sfiridis and Daniels (2004), utilizing Bayesian-based Markov chain Monte Carlo resampling methods, present evidence that agency costs explain a significant portion of the greater efficiency of stock thrifts versus mutual thrifts.

While the evidence in the existing studies on cost efficiency and agency cost is far from conclusive, it is also incomplete since MHCs are omitted from their analysis. The growing importance of MHCs requires them to be included in any analysis of agency cost in the thrift industry.

A stock thrift completely separates the ownership and management functions raising the likelihood of interest divergence between management and shareholders. The divergence of interest between management and shareholders results from the inability of management to fully benefit from their value adding activities. There are many ways to control the management-owner incentive problem, none is perfect and the conflict persists.[47] For example, control of mutual-to-stock converted thrifts no longer rests with management but with shareholders who can exert greater control compared to either mutual thrifts or MHCs. Management is monitored by a shareholder-elected board of

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[47] Mayer and Smith (2002) list 7 ways to control the management-owner incentive problem.

directors that has the authority to hire and fire managers. In addition, since the thrift is publicly held, management is also monitored in the capital markets by stock analysts, institutional investors, and other large blockholders (Mayers and Smith (2002)). However, it is important to recall that ownership restrictions limit the amount of stock that a shareholder can own to 10 percent of shares sold for three years following the IPO, potentially reducing the effectiveness of monitoring.

Mutual thrifts benefit from control of the customer-owner conflict at the expense of less control of the owner-manager conflict (Mayer and Smith (2002)). Though depositors are owners, there is little evidence indicating that the thrift is actually controlled by them. For example, depositors of savings and loans and credit unions rarely exercise the right to vote for management while depositors for mutual savings banks lack the right to vote (Rasmussen (1988)). In addition, the federal charter can both limit voting rights and limit each member to a single vote (OTS (1998)).

Since a mutual thrift does not allow for transfer of ownership, management of mutual thrifts is not subject to monitoring associated with capital markets possibly leading to management entrenchment. Also, since deposit insurance limits losses, depositors have little incentive to monitor management or firm performance. Transfer of ownership takes place in a MHC; however, since outside ownership is limited to 49.9% ultimate control rests with management and the board. This can insulate management from pressure of outside shareholders which can also lead to management entrenchment. Thus, both mutual thrifts and MHCs lack effective monitors possibly leading to management entrenchment.

In addition to monitoring, the manager-owner conflict can be controlled by compensation packages that tie management's compensation to firm stock performance. Mutual thrifts lack a stock price and the means to compensate managers based on stock price performance. In addition, since depositors (owners) rely on accounting data prepared by management, it is uncertain what they know about management's past performance (Rasmussen (1988)). In contrast, actively traded stock exists for both MHCs and stock thrifts, allowing for compensation packages to include incentive provisions, which tie management's compensation to firm performance, measured either in accounting earnings or stock prices (Mayers and Smith (2002)). There is some evidence of improved thrift returns and greater ownership by managers and outside shareholder following the expiration of anti-takeover provisions (Cole and Mehran (1996)). Thus, it appears that MHCs and stock thrifts are able to more closely align the interests of management with the performance of the thrift, potentially reducing the magnitude of the manager-owner conflict.

We will utilize our samples of thrifts to analyze the owner-manager conflict. Stock thrifts, through more effective monitoring and stock-based compensation, appear to have the best ability to control the owner-manager conflict. Management shirking and less than optimal operational efficiency are evidence of the manager-owner conflict. To test for operational inefficiency for three years following the year of conversion, we will utilize the following measurements: operating expenses to operating revenues (OE/OR) and interest income to average assets (II/AA).[48] Operating expenses includes salary and

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[48] Ang, Lin, Cole (2000).

benefits expense, office occupancy and other noninterest expense. Operating revenues include net interest income, fee income, trading income and other noninterest income. Total interest income includes interest and dividends from balances due, securities and loans.

C.   *Over-Capitalization*

Thrifts that issue IPOs have the responsibility of investing large sums of capital quickly. Thrifts that raise more capital than they can profitably invest can fall victim to overcapitalization. Overcapitalization can depress returns on assets and equity or exacerbate management consumption of perquisites or empire building. Mutual thrifts finance growth primarily from accumulated earnings and are largely immune from overcapitalization.

The magnitude and timing of cash infusion is a distinguishing characteristic between MHCs and stock thrifts. A full conversion involves selling 100 percent of the stock to the public and immediately investing the new funds in positive NPV projects. Thus, one of the concerns with a full conversion is overcapitalization. On the other hand, a MHC sells up to 49.9 percent of the stock of its subsidiaries. Thus, the amount of funds MHCs has to invest will be significantly smaller, proportionally, compared to a full conversion. Accordingly, there is less risk of overcapitalization with a MHC compared to a full conversion. In addition, a MHC can raise funds incrementally as long as the MHC retains a majority interest in the subsidiary thrift (Smith and Underwood (1997)).

We will utilize our samples of thrifts to test for over-capitalization. We anticipate full conversions to experience greater risk with respect to over-capitalization compared to

MHCs. Evidence of overcapitalization would include post-conversion returns on assets and equity that are lower than pre-conversion returns on assets and equity. Thus, our empirical tests include computing and analyzing for the year prior to conversion and three years following the year of conversion both return on assets (ROAA) and return on equity (ROAE).[49] This will provide evidence of overcapitalization and possible persistence of overcapitalization.

D.   MHC: Value enhancing Ownership Structure

Carow, Cox, and Roden (2004) present evidence that MHCs return greater market valuation to shareholders compared to non-MHCs. They state while dividend policy may account for part of the premium observed by MHCs versus non-MHCs potential other benefits of the MHC ownership structure may account for part of the higher price-to-book.[50] In other words, there are features unique to MHCs that result in greater market valuation to shareholders.

The first unique feature of a MHC is dividends. While MHCs and stock thrifts both have the ability to pay dividends, the dual ownership structure of a MHC complicates the payment of dividends. The ownership of a MHC is divided between private majority owners (depositors) and public minority shareholders. The public minority shareholders can receive dividends but the majority owners can waive receipt of the dividend. Carow, Cox, Roden (2004) argue that the MHC structure allows for the potential transfer of wealth from the thrift's original owners (depositors) to the minority

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[49] Ang, Lin, Cole (2000).
[50] Carow, Cox, and Roden (2004) find higher price-to-book for MHCs persists prior to the OTS ruling in 1995 and subsequent to OTS ruling.

shareholders through the payment of disparate dividends. [51] Approximately 94% of

MHCs pay dividends within the first year of conversion (Carow, Cox, Roden (2004)).

A second unique feature of a MHC is an anti-takeover provision. The takeover

market can substitute for corporate governance mechanisms that are weak or ineffective.

Fama (1978) identifies takeover as a factor in controlling the cost of management borne

by the owners. In addition, Jensen (1986, 1988) argues that takeover can discipline

management when internal control mechanisms fail. In other words, a firm is a takeover

target if management fails to maximize firm value. There is some evidence that

shareholders of fully demutualized thrifts that are subsequently acquired experience

higher average returns than thrifts which fully demutualize and are not acquired (Friesen

and Swift (2009)). However, Mayers and Smith (1981) state that a takeover control

mechanism is much weaker in a mutual ownership since the owners would have to

remove current management through a proxy fight and still not capture the gains. In other

words, mutual ownership can lead to management entrenchment. The selection of a MHC

effectively eliminates takeover as a cost control technique. [52] Thus, both MHCs and

mutual ownership serve as anti-takeover devices which can lead to management

entrenchment and exacerbate agency cost.

There are also agency costs associated with takeover attempts. There exists a

body of literature documenting agency costs associated with takeover attempts. In

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[51] Prior to 1995, when a MHC paid a dividend, the holding company could waive its portion of the dividend. This action increases the value of publicly owned shares at the expense of MHC owners who do not receive dividends (Carow, Cox, and Roden (2004)). The Office of Thrift Supervision reversed this ruling in 2000.

[52] Carow, Cox and Roden (2004) state that during their sample period eight MHCs were acquired only one had not completed a second-stage conversion.

particular, Harris (1990) argues that it is perfectly rational for target firm shareholders to adopt anti-takeover provisions. In essence, the anti-takeover provision enables management the ability to bargain for the best possible price. If the MHC is viewed as an anti-takeover provision, then the Harris model suggests that it may rationally increase the premium paid for MHCs that subsequently fully demutualize and acquired. However, since thrifts operate in a heavily regulated environment and a market price already exists for the MHC's subsidiary, it is hard to fathom that management will be able to negotiate a greater premium upon a second-stage conversion.

A third unique feature of a MHC is a two step approach to full conversion. Thus, a mutual thrift may convert to a MHC with full intention to undergo a second-step conversion three to five years in the future. This approach enables the thrift to raise a more manageable amount of capital that they are able to fully invest and possibly exhaust other capital alternatives available to them prior to undergoing a second-stage conversion. In addition, the conversion to a partially public institution allows management time to become comfortable with running a public company without outside pressure of shareholders. Thus, if done properly it is possible that a two step process to full conversion may benefit shareholders. In other words, the antitakeover aspect of a MHC may result in greater return for shareholders compared to a full conversion.

We will utilize our sample of thrifts to determine if MHCs return a larger market valuation to shareholders. In particular, does a market premium for MHCs persist? Market to book ratio is a traditional measures of valuation. We will compute and analyze, for three years following the year of conversion market-to-book ratio for full, MHCs, and

second-stage conversions.[53] This will provide evidence of ownership structure and potential greater valuation to shareholders.

V. Data and Methodology

A. *Sample Construction and Summary Statistics*

We utilize samples of thrift institutions that convert from mutual-to-stock ownership (full), mutual to MHCs, and MHCs to full stock ownership (second-stage) during the period 1993 through 2005. We omit thrifts that converted during the 1980s since many were poorly capitalized and regulators encouraged financially impaired thrifts to convert to stock ownership (Kroszner and Strahan (1997)). Thus, thrifts conversions in our sample are similar with respect to financial position and less pressure to convert to an alternative ownership structure.

The construction of our samples begins with mutual thrifts that performed initial public offerings and MHCs that performed second stage conversions from 1993 through 2005. The initial samples were provided by SNL Securities.[54] From these lists we eliminate all publicly traded firms not traded on NYSE, AMEX or NASDAQ and are included in the COMPUSTAT data base leaving 209 full conversions, 62 MHC conversions and 44 second stage conversions.

Thrift conversions, conversion sample sizes, and mutual thrifts by years are reported in Table 1. In addition, full conversions and MHC conversions as a percentage of mutual thrifts are reported in columns 4 and 6, respectively. With respect to full

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[53]Caprio, Laeven, Levine (2007).
[54] We thank SNL Securities for the list of firms. In particular, we thank Mac Matthews for all his assistance.

conversions, the results in columns 4 and 6 support full conversion as the preferred

method for converting mutual thrifts for the period 1993 through 2003 and the switch to

MHCs in 2004. Second stage conversions are more evenly dispersed throughout the

sample period; though they peak in 1998. It is important to note that the evidence does

support the switch from full conversion to MHCs as the preferred method of thrift

conversion, thereby reducing the number of full conversions. However, the number of

full conversions is also affected the fact that the population of mutual thrifts diminished

by approximately 50 percent from 1993-2005 almost insuring a decrease in the number of

full conversions.

The distribution of standard, MHCs and second-stage conversions suggests that

many factors may influence the timing of thrift conversions. For example, Carow, Cox

and Roden (2004) state that the surge in MHC conversions in 1994 and subsequent

decline in 1995 and 1996 provide evidence that the change in the OTS ruling on dividend

waivers reduced the desirability of the MHC ownership structure. However, their

argument fails to explain the subsequent increase in MHC conversions beginning in 1998

and continuing through 1999 since the OTS did not reverse its position until 2000. A

second possibility is an application of Baker and Wurgler (2002) market timing theory. In

other words, the distribution of thrift conversions could be the result of attempts to time

the market. In an attempt to examine thrift conversions and market timing, we graph the

percentage of full, MHCs, second-stage conversions per year and the annual percentage

change in the NASDAQ. The results are in Figure 2. It does appear that the percentage of

conversions by year tracks the annual percentage change in the NASDAQ. Thus, while it

is possible that MHC conversions were affected by the OTS rule changes in July 2000, it is also conceivable that MHC conversions may be influenced by attempts to time the market. A third possibility is that timing of conversions is in response to growth opportunities available to the thrift.

Since the intent of the OTS rule changes in 2000 was to increase the attractiveness of MHCs, the occurrence of second-stage conversions does allow us to consider the OTS rule changes in 2000 and their impact on second-stage conversions. The peak years for second-stage conversions were 1996 through 1998 prior to the inception of the rules to make the MHC a viable long-term option. In addition, 2000 through 2002 was a slow period for second-stage conversions; although, the period was slow for full and MHC conversions too. However, 2003 through 2005 saw resurgence in second-stage conversions well after the rule changes of 2000. Thus, the occurrence of second-stage conversions presents mixed results on whether OTS enhancements were successful in changing MHC to a viable long-term option for converting thrifts. For example, second-stage conversions peaking prior to rule changes in July 2000 do suggest that the MHC was not viewed as a viable long-term ownership structure. The resurgence in second-stage conversions in 2003 through 2005 may suggest that the view of MHC was not completely altered by the rule changes. In addition, it is possible that management views MHC as a two-step process to full conversion and not a viable long-term ownership structure.

Table 2 reports pre-conversion summary statistics for our samples of converting thrifts. Mutual thrifts that choose MHC are larger compared to mutual thrifts that choose

full conversion. It is interesting to note that the thrift industry reports average tangible

capital of approximately 7.50 percent for the period 1993 through 2005.[55] Thus, prior to

conversion the average thrift in our samples is well capitalized with respect to the thrift

industry.

VI.   Results

A.   Year of Conversion Statistics

Table 3 present initial return and summary firm statistics for the year of

conversion for full, MHC and second-stage conversions. Full and MHCs experience

similar first day returns.[56] Average gross IPO proceeds for full and MHCs are similar in

magnitude even though MHCs are limited to selling less than 50 percent of its common

stock. In addition, full conversions have the lowest price to book while MHCs and

second-stage conversions are similar.[57] However, the median price to book for full

conversions is similar to median price to book for MHCs.

B.   Agency Cost Results

Tables 4 through 10 report firm ratios, thrift industry adjusted firm ratios and

differences amongst ownership structures for the year prior to conversion and the first

three years following the year of conversion. Panel (a) reports firm ratios and Panel (b)

reports firm ratios less thrift industry ratios. All industry adjusted ratios have the prefix

IA. Tables 4 and 5 report lending risk utilizing net charge-offs to average total loans

(NCOs) and non-performing loans to total loans (NPLs). There are a number of

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[55] Data obtained from OTS website.
[56] Consistent with results of Carow, Cox, and Roden (2004).
[57] These results are consistent with Carow, Cox, and Roden (2004).

interesting results. First, it appears that our sample of converting thrifts undertakes less lending risk than the seasoned thrift industry. This is consistent with Esty (1997). Second, full and second-stage conversion appear to undertake greater lending risk compared to MHCs. In addition, by year three post-conversion full conversions and second-stage conversions appear fairly similar with respect to lending risk. This is not surprising since full and second-stage conversion represent 100 percent stock owned thrifts. Full conversions appear to undertake significantly greater lending risk at the end of the sample period versus the period prior to conversion. There is some evidence that second-stage conversions do engage in greater lending risk at the end of the sample period. The evidence regarding MHCs is a scenario of decreased lending risk throughout the sample period. In other words, MHCs appear to engage in significantly less lending risk at the end of the sample period than the period prior to conversion. In addition, at the end of the sample period, MHCs appear to undertake significantly less lending risk compared to either full and second-stage conversions. Thus, there is some evidence of significant differences in lending risk across ownership structures.

Tables 6 and 7 present interest income to average assets (II/AA) and operating expenses to operating revenues (OR/OE) for all converting thrifts. For all sample periods, full conversions report significantly larger II/AA compared to MHCs and the thrift industry. This may suggest full conversions are more efficient with asset utilization possibly the result of better investment decisions compared to MHCs. At the end of the sample period, full and second-stage conversions are fairly similar with respect to asset utilization. MHCs underperform the thrift industry for all sample periods. This may be

the result of investing in low margin assets or possibly indicate management shirking with respect to investment decisions. All ownership structures outperform the thrift industry prior to conversion, incur a reduction immediately following conversion, and recover at the end of the sample period.

With respect to OR/OE, at the end of the sample period, full and second-stage conversions are fairly similar. It is interesting that MHCs report the largest OR/OE ratio that exceeds the thrift industry for all post-conversion periods.[58] This possibly reflects management effectively controlling the MHC. Thus, insulated to effective monitoring by the minority public shareholders. Though there are no significant differences amongst ownership structures, there is some evidence that MHCs are more costly to operate which may indicate management may be expropriating wealth through expense-preference behavior. This contrasts with Cole and Eisenbeis (1996) who found that managers did not expropriate wealth from owners through expense-preference behavior in the1980s thrift crisis. Thus, there is some evidence that the manager-owner conflict exists to a greater extent in MHCs.

Tables 8 and 9 present return on average assets (ROAA) and return on average equity (ROAE) for all converting thrifts. We find a number of interesting results. First, full and second-stage conversions report fairly similar results for ROAA throughout the sample periods. In addition, all ownership structures generally underperform the thrift industry with respect to ROAA prior to and following conversion. The primary exception is MHCs in the last sample period which outperformed the thrift industry. This may

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[58] It does drop considerably by the end of the sample period.

reflect MHCs' investment strategy of low margin lower risk investments in a period of large losses sustained by the thrift industry.[59] In addition, there is little evidence of over-capitalization with respect to ROAA.

All ownership structures report ROAE that underperform the thrift industry prior to and following conversion. In addition, the period immediately following the IPO provides evidence of over-capitalization; however, there is a subsequent recovery in the final two sample periods. Underperformance prior to conversion is evidence of the strong capital position of our sample thrifts with respect to the thrift industry. The subsequent recovery of ROAE demonstrates the time lag from the capital infusion of the IPO and deploying the capital into investments. In the last sample period, MHCs report significantly larger ROAE than both full and second-stage conversions. Again, the result of MHCs deploying a low margin, low risk investment strategy.

Table 10 presents price-to-book for all ownership structures. Full conversions report lower price-to-book for all sample periods. It is surprising that a significant difference exist between full and second-stage conversions in the second sample period. In addition, significant differences exist between MHCs and full conversions for the first two sample periods. However, there are no significant differences in the final sample period. Thus, there is some evidence that MHCs and second-stage conversions return greater valuation to shareholders, although it is temporary. This is consistent with Carow, Cox and Roden (2004) who report that MHCs have significantly higher price-to-book

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[59] Approximately one-third of MHC conversions occurred during the period 2004 through 2005 while less than 1 percent of full conversions and 9 percent of second-stage conversions occurred during the same period. This is significant since the thrift industry experienced -.04%, -1% for ROAA and -.42%, -11.05% for ROAE, for 2007 and 2008, respectively.

ratios compared to non-MHCs. They also find that the significantly higher price-to-book

ratios persist prior to and subsequent to the OTS disparate dividend ruling. This suggests

that the MHC ownership structure may offer other potential benefits.[60] This finding has

special significance for management since they ultimately decide what type of ownership

structure for converting thrifts. The evidence suggests initial greater market valuation for

converting thrifts that select MHC versus full conversion. In addition, the evidence also

suggests that shareholders may receive initial greater market valuation for thrifts that

undergo a two-step approach to full conversion versus a single step.

C.   *Logistic Regression results*

A converting mutual thrift's management must ultimately decide either full

conversion or a MHC. While the decision to convert may indicate a need for capital the

ownership structure choice may also reflect management's preference for investments

and expenses.[61] For example, is a mutual thrift that is inefficient with respect asset

utilization more likely to choose a MHC? Thus, it is possible that we can utilize agency

costs to explaining the choice of ownership structure for a converting mutual thrift.

To test whether agency cost variables are predictors of the initial choice of

ownership structure, we run a logistic regression where the dependent variable is whether

a converting mutual thrift selects a MHC. The explanatory variables include measures of

agency cost reported in Tables 4 through 9 for the year prior to the year of conversion. In

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[60] In this paper, we do not attempt to identify which potential benefits explain the significant higher price to book for MHCs. This does present an interesting research topic. However, a highly significant correlation was found between price to book and a dummy variable representing MHC ownership structure.

[61] Carow, Cox and Roden (2009) state that capital constrained thrifts with greater profit opportunities are more likely to choose full conversion.

addition, log of total assets in thousands is added to account for size. The results are reported in Table 11.

The results in Table 11 indicate agency costs are significant in explaining the probability of a mutual thrift selecting a MHC. In particular, both II/AA and ROAA are highly significant. The results also indicate that asset size is a factor in selecting a MHC. In addition, the signs of the estimated coefficients suggest that the mutual thrifts that are less efficient with respect to asset utilization are more likely to choose a MHC.

In our sample of MHCs, 35 eventually undergo a second-stage conversion to full stock ownership.[62] Though the reasons for second-stage conversions are largely unknown there is some evidence that minority shareholders prefer dissolving the MHC in favor of full stock ownership: Carow, Cox and Roden (2009) argue that announcement of second-stage conversion generates a 12% return which they attribute to a reduction in agency costs. If their conjecture is accurate, than it would appear reasonable that agency cost variables explain the probability MHCs that choose second-stage conversions.

To test whether our agency cost variables are predictors of MHCs that choose second-stage conversion, we run a logistic regression where the dependent variable is whether a MHC selects a second-stage conversion. The logistic regression includes only MHCs. The explanatory variables include all measures of agency cost reported in Tables 4 through 10, log of total assets in thousands, loan growth and Tier 1 Capital. Total assets and loan growth are included to determine if size and growth are predictors of second-

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[62] The average length of time from MHC to second-stage conversion is approximately 3.9 years.

stage conversions. Tier 1 Capital is included as an overall measure of health and strength of the MHC. The results are reported in Table 12.

The results in Table 12 indicate that agency costs are significant in explaining the probability of second-stage conversion in both regressions. In particular, negative estimated coefficient for price-to-book and positive estimated coefficient for OE/OR suggest that lower market valuation and costlier to operate MHCs are more likely to choose second-stage conversions. [63] In other words, MHCs that are exhibiting symptoms of agency cost are more likely to choose second-stage conversions. Thus, are results are consistent with Carow, Cox, and Roden (2009). There is also some evidence that loan growth is significant for explaining second-stage conversion. This suggests need for additional capital that a second-stage conversion would provide. In addition, the negative estimated coefficient for price-to-book suggests that second-stage conversions may represent a value investment opportunity for those that will participate in the stock offering associated with the second-stage conversion in particular, management and insiders of the converting MHC.

It was stated previously that the takeover market can substitute for corporate governance. If the takeover market is a substitute for corporate governance, it is reasonable that agency costs significantly predict publicly traded thrifts that acquired. To test whether agency costs are significant predictors for publicly traded thrifts that are acquired by merger or acquisition, we run a logistic regression where the dependent

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[63]In both regressions, there is an agency cost variable that is significant but does not have the expected sign of increasing agency cost. However, in both cases the estimated coefficient is small. Thus, the contribution to the probability of a second-stage conversion is small.

variable is whether any publicly traded thrift is acquired. The explanatory variables are the same that are used in Table 12. The results are reported in Table 13.

The results in Table 13 indicate that agency costs are significant in explaining the probability of publicly traded thrifts that are acquired. However, the correlation between agency costs and acquisition is the opposite of what we found for MHCs that choose second-stage conversions. In particular, greater ROAA and higher market valuation are significant in explaining the probability of being acquired. In other words, publicly traded thrifts that are not exhibiting symptoms of agency costs are more likely to be acquired. This may suggest that acquirers are looking for thrifts that can improve their financial position immediately.

Since evidence exists demonstrating size is a factor in the performance of mutual-to-stock thrifts, we form subsets of similar size thrifts, based on total assets, to examine the probability of choice of ownership structure, second-stage conversions and merged or acquired thrifts.[64] We ran the same the logistic regressions as above. The results for choice of ownership structure are reported in Table 14, second-stage conversions are reported in Tables 15 and 16 and mergers and acquisitions are reported in Table 17.

The results in Table 14 indicate that agency costs are not significant for explaining the probability small mutual thrifts that choose MHCs; however, they are significant for large mutual thrifts that choose MHCs. Large mutual thrifts that report inefficient asset utilization are more likely to choose MHCs.

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[64] Friesen and Swift (2009) report that large mutual- to- stock thrifts outperformed small mutual-to-stock thrifts over a five year period following conversion.

The results in Table 15 suggest that agency costs do explain the probability small or large MHCs that choose second-stage conversions. For example, small MHCs with high asset utilization, strong loan growth and high operating expenses are more likely to choose second-stage conversions while efficient large MHCs with low market valuation are more likely to choose second-stage conversions.

The results in Table 16 indicate small publicly traded thrifts that report low asset utilization and high market valuations are more likely to be acquired. Large publicly traded thrifts that report higher asset utilization and high market valuation are more likely to be acquired.

To control for the thrift industry, we replace ROAA and ROAE with industry adjusted IAROAA and IAROAE. The results are reported in Tables 17 through Table 22. The results are similar.

VII.   Conclusion

This paper analyzes mutual thrifts that convert to full or partial stock ownership and MHCs that choose second-stage conversions. Different ownership structures allow us to examine significant agency cost differences across different ownership structures. While we find several significant differences of agency cost variables across ownership structures, we also find that full conversions and second-stage conversions report similar results for a number of agency cost variables. For example, at the end of the sample period, full and second-stage conversions appear similar with respect to lending risk. However, MHCs appear to engage in a less risky investing strategy compared to full, second-stage conversions and the thrift industry. Thus, there is some indication of

differences in lending risk across ownership structures. We find that full conversions are more efficient with respect to asset utilization possibly the result of better investment decisions and higher margin investments. MHCs underperform the thrift industry with respect to asset utilization possibly resulting from investments in low margin low risk investments. This may also management shirking with respect to investment decisions. MHCs are the most costly to operate while full and second-stage conversions are similar with respect to costs. This may reflect wealth expropriation behavior by MHCs. Our converting thrifts generally underperform the thrift industry with respect to ROAA. The exception is the final period where MHCs low risk investment strategy outperformed the thrift industry. There is also little evidence of over-capitalization across ownership structures. However, we find evidence of over-capitalization with respect to ROAE; an indication of strong capital position of our converting thrifts relative to the thrift industry. Last, the evidence indicates MHCs and second-stage conversions return temporary greater market valuation to shareholders. Thus, potential benefits of MHCs do not appear to persist into the future.

We find that agency costs are significant for explaining both the probability mutual thrifts choose MHCs and the probability MHCs that choose second-stage conversions. Generally, mutual thrifts that are inefficient with asset utilization choose MHC over full conversion. In addition, MHCs exhibiting symptoms of agency costs choose second-stage conversions. This may reflect management's inability to management itself. However, we find publicly traded thrifts that are not symptomatic of agency costs are acquired. When we create portfolios sorted on asset size agency costs

are significant for explaining ownership structure, second-stage conversions and acquisitions. In particular, large mutual thrifts that exhibit poor asset utilization choose MHC over full conversion. Small MHCs that exhibit both high asset utilization and operating costs are more likely to choose second-stage conversions. In addition, large MHCs exhibiting symptoms of agency cost are more likely to choose second-stage conversion. Small publicly traded stock thrifts that report inefficient asset utilization but higher price-to-book are more likely acquired. However, large public stock thrifts that report higher asset utilization efficiency and increasing price-to-book are more likely to be acquired.

The findings in this paper have particular significance for management of mutual thrifts and credit unions. In the event of conversion, management ultimately bears responsibility of selecting the ownership structure. This decision is made more interesting since there is evidence that MHCs and second-stage conversions return higher, though temporary, market valuation to shareholders. In other words the selection of ownership structure may have a significant effect on the total return to public shareholders.

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Figure 1: Summary of Agency Costs and Proxies

 Figure 1 summarizes the potential impact ownership structure has on agency costs for mutual, MHCs and stock thrifts. "0" indicates the conflict does not exist in the specific ownership structure, "+" represents the degree of the conflict in a specific ownership structure or potential benefit of a specific ownerships structure. The following proxies are used to observe agency cost differences with respect to the various conflicts. First, we utilize net charge-offs to average total loans (NCOs) and non-performing loans to total loans (NPLs) to analyze the customer-owner conflict. Second, operating expenses to operating revenues (OE/OR) and interest income to average assets (II/AA) are used to analyze the manager-owner conflict. Third, return on average assets (ROAA) and return on average equity (ROAE) are utilized to analyze over-capitalization. Last, price-to-book is utilized to analyze potential benefits of MHC ownership structure.

Ownership Type	Customer-Owner Conflict	Manager-Owner Conflict	Over-Capitalization	MHC: Value Enhancing
Mutual	0	+++	0	0
MHC	+	++	+	++
Stock	++	+	++	0
Proxies	NCOs NPLs	OR/OE II/AA	ROAA ROAE	Price-to-book

Figure 2: Percentage of Full Conversions, MHCs and Second-Stage Conversions by Year
This graph presents the NASDAQ annual percentage change and annual percentage of full conversions, MHCs and second-stage conversions during the period 1993 through 2005.
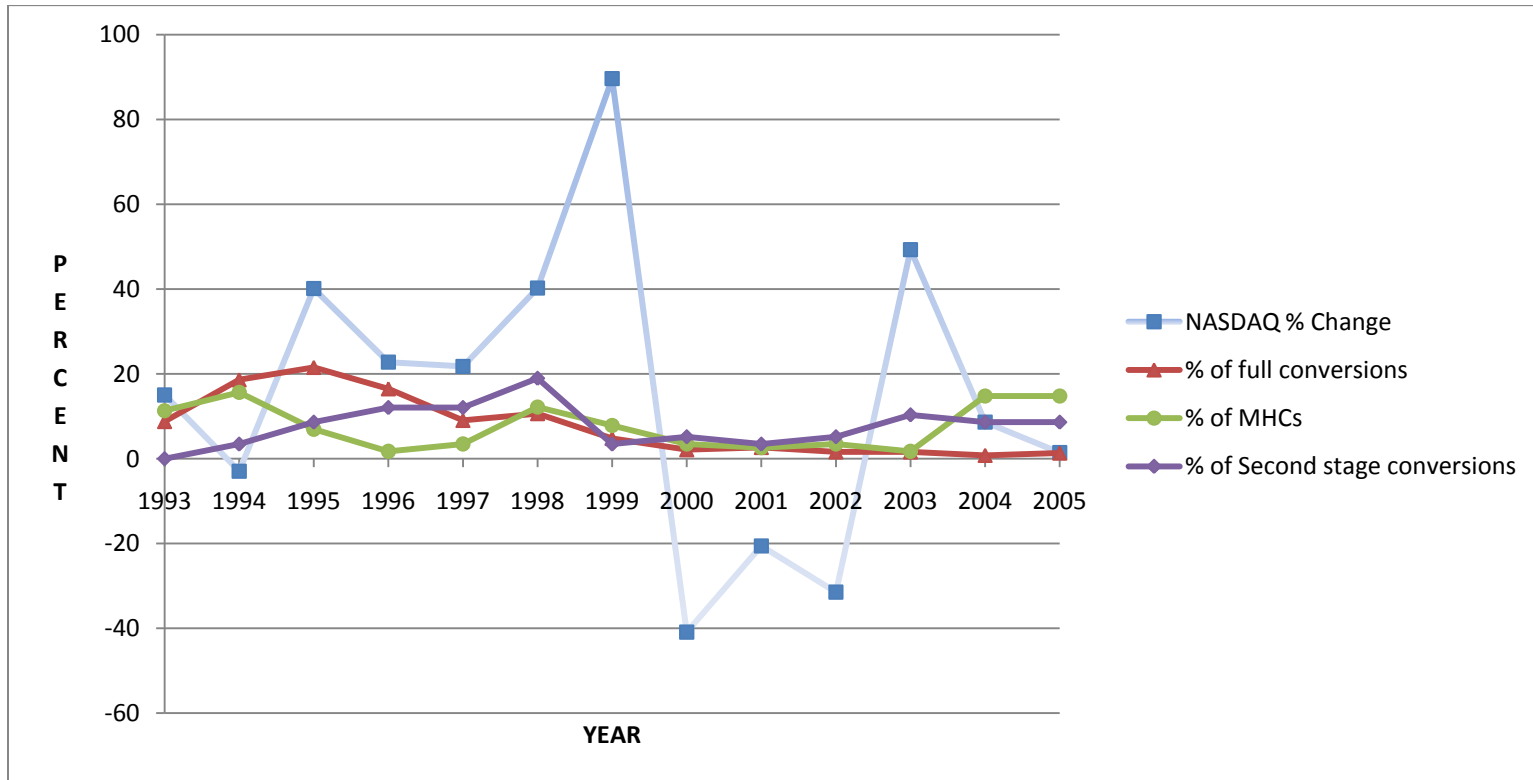
Table 1: Full, MHCs and Second-Stage Conversions by Year

Full, MHCs and second-stage conversions are presented by year. All data provided by SNL Securities. In addition, the population of mutual thrifts is reported by year. Mutual thrift data is from the FDIC website.

Year	Mutual Thrifts	All Full Conversions	All Full Conversion as a % of Mutual Thrifts	All MHC Conversions	All MHC Conversions as a % of Mutual Thrifts	All Second-Stage Conversions	Full Conversions in Sample	MHC Conversions in Sample	Second-Stage Conversions in Sample
1993	1,177	33	2.80	13	1.10	0	19	6	0
1994	1,076	70	6.51	18	1.67	2	45	11	0
1995	979	81	8.27	8	0.82	5	43	4	4
1996	905	62	6.85	2	0.22	7	37	0	4
1997	849	34	4.00	4	0.47	7	20	2	4
1998	779	40	5.13	14	1.80	11	22	8	11
1999	740	18	2.43	9	1.22	2	7	6	2
2000	720	8	1.11	4	0.56	3	6	1	3
2001	698	10	1.43	3	0.43	2	4	2	2
2002	674	6	0.89	4	0.59	3	4	1	3
2003	651	6	0.92	2	0.31	6	0	0	4
2004	625	3	0.48	17	2.72	5	0	10	3
2005	606	5	0.83	17	2.81	5	2	11	4
Total		376		115		58	209	62	44
Average		29		9		4	17	5	4

Table 2: Pre-Conversion Sample Statistics for Full, MHCs and Second-Stage Conversions

Pre-conversion summary statistics are reported for full conversions, MHCs and second-stage conversions. Total assets are the sum of total assets prior to the year of conversion. Total equity is the difference between total assets and total liabilities prior to the year of conversion. TE/TA is tangible equity to tangible assets. Firm data provided by SNL Securities. Thrift industry data were obtained from OTS website.

	Full Conversions	MHCs	Second-Stage
Number of firms	209	62	44
Average total assets (000s)	422,383	751,653	1,172,108
Average total equity (000s)	37,015	79,798	105,828
TE/TA (%)	9.760	10.120	10.237

Table 3: Annual Summary Statistics on Converting Thrifts in Year of Conversion

Average firm characteristics are reported for each year in the sample. The initial return is defined as the closing price on the first day of trade, minus the offer price, divided by the offer price. Offer prices are provided by SNL Securities and hand verified in the *Wall Street Journal*. Number of conversions, Gross IPO Proceeds, Total Assets, Tangible equity to Tangible assets (TE/TA), Tier 1 Capital is provided by SNL Securities, COMPUSTAT and CRSP data are used to calculate post-conversion Price-to-Book (P/B) ratio. P/B is market value of total assets to book value of total assets. Post-conversion market capitalization is calculated for each firm using daily CRSP data for all trading days in the calendar year of conversion.

Panel (a): Sample of Full Conversions

Year	#	First-Day Return (%)	Gross IPO Proceeds (000)	Total Assets (000)	TE/TA (%)	Tier 1 Capital (000)	Price/Book Ratio	Market Capitalization (000)
Avg.	209	18.44	55,619	491,518	19.54	28,243	.812	61,919
Median	209	18.23	51,543	209,457	18.18	69,891	.771	26,285

Panel (b): Sample of MHCs

Year	#	First-Day Return (%)	Gross IPO Proceeds (000)	Total Assets (000)	TE/TA (%)	Tier 1 Capital (000)	Price/Book Ratio	Market Capitalization (000)
Avg.	62	16.95	57,354	854,803	15.39	107,420	1.023	124,806
Median	62	13.47	49,355	400,046	15.09	49,772	.784	37,109

Panel (c): Sample of Second-Stage Conversions

Year	#	First-Day Return (%)	Gross IPO Proceeds (000)	Total Assets (000)	TE/TA (%)	Tier 1 Capital (000)	Price/Book Ratio	Market Capitalization (000)
Avg.	44	10.88	144,699	1,497,847	16.89	195,373	1.012	321,403
Median	44	8.00	68,800	492,303	15.87	59,658	.967	80,549

Table 4: Post-Conversion Net Charge-offs to Average Total loans for Converting Thrifts

Table 4 reports percentage of net charge-offs to average total loans (NCOs) for all converting thrifts. All reported percentages omit the year of conversion. Thus, conversion – 1, conversion + 1, conversion + 2, and conversion + 3 represent the year prior to conversion and first, second, and third years following the year of conversion. Also, (– 1 minus + 3) reports Conversion – 1 minus Conversion + 3. Panel (a) reports firm ratios (NCOs) and Panel (b) reports firm ratios less thrift industry ratios (IANCOs). Net charge-offs are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances (per OTS 2008 Fact Book). Net charge-offs to average total loans for all converting thrifts were provided by SNL Securities. Industry averages were obtained the Office of Thrift Supervision website. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Panel (a): *Net Charge-offs to Average Total loans for Converting Thrifts*

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full NCOs (%)	Mean MHC NCOs (%)	Mean Second-Stage NCOs (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	.160	.158	.103	.002 (.999)	.057 (.597)	.055 (.716)
Conversion + 1	209	62	44	.094	.066	.073	.028 (.699)	.021 (.859)	-.007 (.988)
Conversion + 2	194	54	41	.089	.145	.109	-.056 (.180)	-.020 (.843)	.036 (.669)
Conversion + 3	168	45	33	.088	.093	.086	-.005 (.985)	.002 (.998)	.007 (.985)
-1 minus +3				.072** (.036)	.065* (.086)	.017 (.777)			

Panel (b): Industry Adjusted Net Charge-offs to Average Total loans for Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IANCOs (%)	Mean MHC IANCOs (%)	Mean Second-Stage IANCOs (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	-.422	-.358	-.283	-.064	-.139	-.075
							(.543)	(.103)	(.628)
Conversion + 1	209	62	44	-.295	-.302	-.241	-.007	-.054	-.061
							(.980)	(.449)	(.480)
Conversion + 2	194	54	41	-.251	-.321	-.269	.07	.018	-.052
							(.162)	(.909)	(.569)
Conversion + 3	168	45	33	-.241	-.629	-.407	.388***	.166	-.222*
							(.001)	(.108)	(.066)
-1 minus +3				-.181**	.271***	.124			
				(.001)	(.005)	(.295)			

Table 5: Post-Conversion Non-performing Loans to Total Loans for Converting Thrifts

Percentage of non-performing loans to total loans (NPLs) for each individual year for three years following the year of conversion for converted thrifts. Thus, conversion–1, conversion + 1, conversion + 2, and conversion + 3 represent the year prior to conversion and first, second, and third years following the year of conversion. Also, (– 1 minus + 3) reports Conversion – 1 minus Conversion + 3. Panel (a) reports firm ratios (NPLs) and Panel (b) reports firm ratios less thrift industry ratios (IANPLs). Non-performing loans are nonaccrual and restructured loans. Nonperforming loans are a percentage of total loans were provided by SNL Securities. Industry averages were computed with data from the FDIC website. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Panel (a): Non-performing Loans to Total Loans for Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full NPLs (%)	Mean MHC NPLs (%)	Mean Second-Stage NPLs (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	1.18	.817	.629	.363	.551*	.188
							(.194)	(.052)	(.783)
Conversion + 1	209	62	44	.749	.615	.394	.134	.355**	.221
							(.549)	(.043)	(.418)
Conversion + 2	194	54	41	.625	.597	.577	.028	.048	.020
							(.973)	(.937)	(.992)
Conversion + 3	168	45	33	.630	.470	.682	.160	-.052	-.212
							(.414)	(.929)	(.434)
-1 minus +3				.550***	.347**	-.053			
				(.001)	(.016)	(.829)			

Panel (b): Industry Adjusted Non-performing Loans to Total Loans for Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IANPLs (%)	Mean MHC IANPLs (%)	Mean Second-Stage IANPLs (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	-1.36	-1.100	-1.000	-.260 (.477)	-.36 (.330)	-.100 (.942)
Conversion + 1	209	62	44	-1.044	-.832	-.808	-.212 (.245)	-.236 (.266)	.024 (.990)
Conversion + 2	194	54	41	-.961	-1.010	-.663	.049 (.925)	-.298 (.104)	-.347 (.121)
Conversion + 3	168	45	33	-.758	-1.541	-.648	.783*** (.001)	-.110 (.786)	-.893*** (.001)
-1 minus +3				-.602*** (.001)	.441* (.056)	-.352* (.081)			

Table 6: Post-Conversion Interest Income to Average Assets of Converting Thrifts

Table 6 reports percentage of total interest income to average total assets (II/AA) for all converting thrifts for three years following the year of conversion. Thus, conversion–1, conversion + 1, conversion + 2, and conversion + 3 represent the year prior to conversion and first, second, and third years following the year of conversion. Also, (– 1 minus + 3) reports Conversion – 1 minus Conversion + 3. Panel (a) reports firm (II/AA) and Panel (b) reports firm ratios less thrift industry ratios (IAII/AA). Total interest income includes interest and dividends from balances due, securities and loans. All converting thrift data were provided by SNL Securities. Industry averages were obtained from OTS website. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Panel (a): Interest Income to Average Assets of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full II/AA (%)	Mean MHC II/AA (%)	Mean Second-Stage II/AA (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	7.251	6.505	6.787	.746*** (.001)	.464*** (.003)	-.282 (.220)
Conversion + 1	209	62	44	7.145	6.345	6.410	.800*** (.001)	.735*** (.001)	-.065 (.906)
Conversion + 2	194	54	41	7.150	6.423	6.377	.727*** (.001)	.773*** (.001)	.046 .962
Conversion + 3	168	45	33	7.140	6.329	6.349	.811*** (.001)	.791*** (.001)	-.020 (.994)
-1 minus +3				.110** (.043)	.176 (.427)	.438** (.030)			

Panel (b): Industry Adjusted Interest Income to Average Assets of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IAII/AA (%)	Mean MHC IAII/AA (%)	Mean Second-Stage IAII/AA (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	.320	.268	.168	.052 (.824)	.152 (.273)	.100 (.671)
Conversion + 1	209	62	44	.150	-.204	.083	.354*** (.001)	.067 (.682)	-.287*** (.009)
Conversion + 2	194	54	41	.174	-.232	-.040	.406** (.001)	.214** (.031)	-.192 (.144)
Conversion + 3	168	45	33	.267	-.044	.122	.311*** (.001)	.145 (.301)	-.165 (.343)
-1 minus +3				.053 (.413)	.312*** (.006)	.046 (.463)			

Table 7: Post-Conversion Operating Expenses to Operating Revenues of Converting Thrifts

Table 7 reports percentage of operating expenses to operating revenues (OE/OR) for all converting thrifts for three years following the year of conversion. Thus, conversion – 1, conversion + 1, conversion + 2, and conversion +3 represent the year prior to conversion and first, second, and third years following the year of conversion. Also, (– 1 minus + 3) reports Conversion – 1 minus Conversion + 3. Panel (a) reports firm ratios (OE/OR) and Panel (b) reports firm ratios less thrift industry ratios (IAOR/OE). Operating expenses includes salary and benefits expense, office occupancy and other noninterest expense. Operating revenues include net interest income, fee income, trading income and other noninterest income. SNL Securities provided operating expenses to operating revenues for all converting thrifts. Any missing data were computed from converting thrifts 10-K or COMPUSTAT. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Panel (a): Operating Expenses to Operating Revenues of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full OE/OR (%)	Mean MHC OE/OR (%)	Mean Second-Stage OE/OR (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	63.210	62.157	61.349	1.053 (.937)	1.861 (.848)	.808 (.979)
Conversion + 1	209	62	44	65.848	67.591	63.160	-1.743 (.720)	2.688 (.553)	4.431 (.321)
Conversion + 2	194	54	41	63.000	68.389	63.000	-5.389 (.138)	.000 (.940)	5.389 (.209)
Conversion + 3	168	45	33	63.550	65.482	63.841	-1.932 (.719)	-.291 .994	1.641 (.880)
-1 minus +3				-.290 (.779)	-3.325 (.304)	-2.492 (.396)			

Panel (b): Industry Adjusted Operating Expenses to Operating Revenues of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IAOE/OR (%)	Mean MHC IAOE/OR (%)	Mean Second-Stage IAOE/OR (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	-.902	-1.975	-2.002	1.073 (.936)	1.100 (.945)	.027 (1.000)
Conversion + 1	209	62	44	2.499	4.265	.892	1.766 (.714)	1.607 (.809)	3.373 (.517)
Conversion + 2	194	54	41	.736	4.057	-.225	-.3.321 (.347)	.961 (.931)	4.282 (.379)
Conversion + 3	168	45	33	.199	.652	-.335	-.453 (.982)	.534 (.981)	.987 (.955)
-1 minus +3				-1.101 (.521)	2.627 (.412)	-1.667 (.566)			

Table 8: Post-Conversion Return on Average Assets of Converting Thrifts

Table 8 reports return on average assets (ROAA) for all converting thrifts for three years following the year of conversion. Thus, conversion – 1, conversion + 1, conversion + 2, and conversion + 3 represent the year prior to conversion and first, second, and third years following the year of conversion. Also, (– 1 minus + 3) reports Conversion – 1 minus Conversion + 3. Panel (a) reports firm ratios (IAROAA) and Panel (b) reports firm ratios less thrift industry ratios (IAROAA). Return on average assets is annualized net income divided by average total assets. SNL Securities provided ROAA firm data. Industry average was obtained from the OTS website. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Panel (a): Return on Average Assets of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full ROAA (%)	Mean MHC ROAA (%)	Mean Second-Stage ROAA (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	.684	.794	.809	-.110 (.501)	-.125 (.494)	-.015 (.993)
Conversion + 1	209	62	44	.867	.765	.890	.102 (.200)	-.023 (.943)	-.125 (.276)
Conversion + 2	194	54	41	.833	.612	.732	.221*** (.002)	.101 (.345)	-.120 (.359)
Conversion + 3	168	45	33	.811	.641	.754	.170** (.035)	.057 (.741)	-.113 (.446)
-1 minus +3				-.127** (.047)	.153 (.111)	.055 (.523)			

Panel (b): Industry Adjusted Return on Average Assets of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IAROAA (%)	Mean MHC IAROAA (%)	Mean Second-Stage IAROAA (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	-.039	-.128	-.110	.089 (.666)	.071 (.815)	.018 (.991)
Conversion + 1	209	62	44	.003	-.154	-.120	.157** (.047)	.122 (.237)	-.034 (.923)
Conversion + 2	194	54	41	-.077	-.101	-.162	.024 (.941)***	.085 (.527)	.061 (.793)**
Conversion + 3	168	45	33	-.142	.192	-.111	-.334*** (.001)	-.031 (.942)	-.081* (.019)
-1 minus +3				.103 (.107)	-.320*** (.009)	.001 (.890)			

Table 9: Post-Conversion Return on Average Equity of Converting Thrifts

Table 9 reports return on average equity (ROAE) for three years following the year of conversion for all converting thrifts. Thus, conversion – 1, conversion + 1, conversion + 2, and conversion + 3 represent the year prior to conversion and first, second, and third years following the year of conversion. Also, (– 1 minus + 3) reports Conversion – 1 minus Conversion + 3. Panel (a) reports firm ratios (ROAE) and Panel (b) reports firm ratios less thrift industry ratios (IAROAE). Return on average equity is annualized net income divided by average total equity. All thrift data was provided by SNL Securities. Industry averages were obtained from the OTS website. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Panel (a): Return on Average Equity of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full ROAE (%)	Mean MHC ROAE (%)	Mean Second-Stage ROAE (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	7.167	8.429	7.700	-1.262 (.701)	-.533 (.951)	.729 (.936)
Conversion + 1	209	62	44	4.918	5.338	5.919	-.420 (.567)	-1.001* (.090)	-.581 (.559)
Conversion + 2	194	54	41	5.830	4.438	5.601	1.392** (.015)	.229 (.911)	-1.163 (.191)
Conversion + 3	168	45	33	6.670	5.107	6.430	1.563** (.026)	.240 (.934)	-1.323 (.238)
-1 minus +3				.497 (.589)	3.322*** (.001)	1.27 (.146)			

Panel (b): Industry Adjusted Return on Average Equity of Converting Thrifts

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IAROAE (%)	Mean MHC IAROAE (%)	Mean Second-Stage IAROAE (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion - 1	209	62	44	-2.197	-2.595	-3.385	.398 (.967)	1.188 (.790)	.790 (.929)
Conversion + 1	209	62	44	-5.764	-5.501	-5.990	-.263 (.831)	.226 (.940)	.489 (.758)
Conversion + 2	194	54	41	-5.324	-4.128	-4.975	-1.196 (.128)	-.349 (.868)	.847 (.563)
Conversion + 3	168	45	33	-4.871	-.401	-3.726	-4.470*** (.001)	-1.145 (.478)	3.325** (.015)
-1 minus +3				2.674*** (.008)	-2.194 (.106)	.341 (.713)			

Table 10: Post-Conversion Price to Book of Converting Thrifts

Table 10 reports price to book ratio for three years following the year of conversion for all converting thrifts. Thus, conversion + 1, conversion + 2, and conversion + 3 represent the first, second, and third years following the year of conversion Panel (a) reports firm ratios (Price/Book) and Panel (b) reports firm ratios less thrift industry ratios (IAPrice/Book).Price to book ratio is total market capitalization divided by total book value. The industry ratios were compiled from COMPUSTAT. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

*Panel (a): **Price- to- Book of Converting Thrifts***

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full Price/Book (%)	Mean MHC Price/Book (%)	Mean Second-Stage Price/Book (%)	Full minus MHC	Full minus Second-Stage	MHC minus Second-Stage
Conversion + 1	209	62	44	.918	1.075	1.106	-.157* (.094)	-.188* (.075)	-.031 (.950)
Conversion + 2	194	54	41	.942	1.137	1.135	-.195** (.029)	-.193* (.062)	.002 (1.000)
Conversion + 3	168	45	33	1.041	1.272	1.174	-.231** (.039)	-.133 (.425)	.098 (.727)

*Panel (b): **Industry Adjusted Price- to- Book of Converting Thrifts***

Post-Conversion Period	Full (N)	MHC (N)	Second-Stage (N)	Mean Full IAPrice/Book (%)	Mean MHC IAPrice/Book (%)	Mean Second-Stage IAPrice/Book (%)	Full less MHC	Full less Second-Stage	MHC less Second-Stage
Conversion + 1	209	62	44	-.514	-.313	-.372	-.201** (.016)	-.142 (.197)	.059 (.828)
Conversion + 2	194	54	41	-.587	-.410	-.348	-.177* (.054)	-.239** (.014)	-.062 (.815)
Conversion + 3	168	45	33	-.398	-.349	-.281	-.049 (.659)	-.117 (.346)	-.068 (.862)

Table 11: Logit Estimates of Mutual Thrifts that Choose MHC over Full Conversion
Logit estimates of mutual thrifts that choose MHCs over full conversion. The dependent variable is an indicator variable equal to 1 if the mutual thrift chooses MHC and 0 if it chooses full conversion. The year end balances for the explanatory variables are prior to the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Return on average assets (ROAA) is calculated as annualized net income divided by average total assets at year end. Return on average equity (ROAE) is calculated as annualized net income divided by average total equity at year end. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Intercept	3.926***
	(.001)
NCOs	.937
	(.333)
NPLs	.509
	(.475)
I I/AA	-.894***
	(.001)
OE/OR	.391
	(.582)
ROAA	1.010***
	(.010)
ROAE	.044
	(.835)
Total Assets	3.184*
	(.074)
Observations	315
Likelihood ratio	30.651
P-value	.001
R^2	15.8%

Table 12: Logit Estimates of MHCs Decision to Undergo Second-Stage Conversion
Logit estimates of MHCs decision to choose a second-stage conversion. The dependent variable is an indicator
variable equal to 1 if the MHC chooses to undergo a second-stage conversion and 0 if it chooses to remain a MHC.
Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances
plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing
loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at
year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and
dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to
operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office
occupancy and other noninterest expense divided by operating revenues including net interest income, fee income,
trading income and other noninterest income. Return on average assets (ROAA) is calculated as annualized net
income divided by average total assets at year end. Return on average equity (ROAE) is calculated as annualized net
income divided by average total equity at year end. Total Assets is calculated as the log of the thrift's total assets in
thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier
1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values
are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Intercept	.476
	(.386)
NCOs	.156
	(.692)
NPLs	2.746*
	(.098)
I I/AA	2.517
	(.113)
OE/OR	3.489*
	(.062)
ROAA	.770
	(.380)
ROAE	.177***
	(.005)
Price/Book	-1.457***
	(.001)
Total Assets	2.576
	(.108)
Tier 1Capital	.103
	(.749)
LGR	3.526*
	(.060)
Observations	161
Likelihood ratio	50.838
P-value	.001
R^2	36.4%

Table 13: Logit Estimates of Publicly Traded Thrifts Acquired
Logit estimates of publicly traded thrifts that are acquired. The dependent variable is an indicator variable equal to 1 if the publicly traded thrift is acquired and 0 if it is not. The balances for all explanatory are three years following the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Return on average assets (ROAA) is calculated as annualized net income divided by average total assets at year end. Return on average equity (ROAE) is calculated as annualized net income divided by average total equity at year end. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Intercept	-2.482***
	(.001)
NCOs	1.058
	(.304)
NPLs	.101
	(.751)
I I/AA	1.711
	(.191)
OE/OR	.961
	(.327)
ROAA	2.799*
	(.094)
ROAE	.468
	(.494)
Price/Book	.827***
	(.001)
Total Assets	1.501
	(.221)
Tier 1Capital	1.781
	(.182)
LGR	.529
	(.467)
Observations	850
Likelihood ratio	26.673
P-value	.001
R^2	5.2%

Table 14: Logit Estimates of Mutual Thrifts that Choose MHC over Full Conversion for Portfolios Sorted on Total Assets

Logit estimates of mutual thrifts that choose MHCs over full conversion. The dependent variable is an indicator variable equal to 1 if the mutual thrift chooses MHC and 0 if it chooses full conversion. The year end balances for the explanatory variables are prior to the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Return on average assets (ROAA) is calculated as annualized net income divided by average total assets at year end. Return on average equity (ROAE) is calculated as annualized net income divided by average total equity at year end. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

	Small Mutual Thrifts	Large Mutual Thrifts
Intercept	-1.868***	4.899***
	(.001)	(.001)
NCOs	2.431	1.081
	(.119)	(.299)
NPLs	.040	2.705*
	(.842)	(.100)
I I/AA	.051	-.910***
	(.821)	(.001)
OE/OR	.006	1.739
	(.941)	(.187)
ROAA	1.753	2.118
	(.186)	(.146)
ROAE	.914	1.147
	(.339)	(.284)
Observations	155	160
Likelihood ratio	NA	22.559
P-value	NA	.001
R^2	0%	20.3%

Table 15: Logit Estimates of MHCs Decision to Undergo Second-Stage Conversion for Portfolios Sorted on Total Assets

Logit estimates of MHCs decision to choose a second-stage conversion. The dependent variable is an indicator variable equal to 1 if the MHC chooses to undergo a second-stage conversion and 0 if it chooses to remain a MHC. The balances for all explanatory variables are three years following the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (II/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Return on average assets (ROAA) is calculated as annualized net income divided by average total assets at year end. Return on average equity (ROAE) is calculated as annualized net income divided by average total equity at year end. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

	Small MHCs	Large MHCs
Intercept	-21.883***	4.308***
	(.000)	(.001)
NCOs	1.519	.011
	(.218)	(.916)
NPLs	.052	.006
	(.820)	(.939)
I I/AA	1.885***	2.140
	(.001)	(.140)
OE/OR	.081***	.356
	(.010)	(.550)
ROAA	3.668*	2.632**
	(.055)	(.023)
ROAE	.395**	1.027
	(.030)	(.311)
Price/Book	.303	-4.185**
	(.582)	(.001)
Tier 1Capital	3.47	.001*
	(.556)	(.053)
LGR	.081**	.40
	(.010)	(.527)
Observations	82	79
Likelihood ratio	41.218	72.034
P-value	.001	.001
R^2	53.8%	80.5%

Table 16: Logit Estimates of Publicly Traded Thrifts Acquired for Portfolios Sorted on Total Assets

Logit estimates of publicly traded thrifts that are acquired. The dependent variable is an indicator variable equal to 1 if the publicly traded thrift is acquired and 0 if it is not.. The balances for all explanatory variables are three years following the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (II/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Return on average assets (ROAA) is calculated as annualized net income divided by average total assets at year end. Return on average equity (ROAE) is calculated as annualized net income divided by average total equity at year end. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

	Small Thrifts	**Large Thrifts**
Intercept	1.948	-6.583***
	(.159)	(.001)
NCOs	.915	2.474
	(.339)	(.116)
NPLs	.873	1.486
	(.350)	(.223)
I I/AA	-.603***	.553***
	(.001)	(.001)
OE/OR	1.019	.177
	(.313)	(.674)
ROAA	.955	1.099
	(.329)	(.295)
ROAE	.091	.008
	(.762)	(.928)
Price/Book	.725**	1.158***
	(.005)	(.001)
Tier 1 Capital	1.596	.762
	(.206)	(.383)
LGR	.956	.049
	(.328)	(.825)
Observations	423	427
Likelihood ratio	21.970	29.589
P-value	.001	.001
R^2	8.7%	11.1%

Table 17: Logit Estimates of Mutual Thrifts that Choose MHC over Full Conversion Controlling for the Thrift Industry

Logit estimates of mutual thrifts that choose MHCs over full conversion. To control for the thrift industry, we replace ROAA and ROAE with thrift industry adjusted IAROAA and IAROAE. The dependent variable is an indicator variable equal to 1 if the mutual thrift chooses MHC and 0 if it chooses full conversion. The year end balances for the explanatory variables are prior to the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Industry adjusted return on average assets (IAROAA) is calculated as annualized net income divided by average total assets at year end less thrift industry ROAA. Industry adjusted returns on average equity (IAROAE) is calculated as annualized net income divided by average total equity at year end less thrift industry ROAE. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Intercept	3.671***
	(.001)
NCOs	.133
	(.715)
NPLs	1.771
	(.183)
I I/AA	-.744***
	(.001)
OE/OR	1.943
	(.163)
IAROAA	1.707
	(.191)
IAROAE	.992
	(.319)
Total Assets	3.459*
	(.063)
Observations	315
Likelihood ratio	22.682
P-value	.001
R^2	15.8%

Table 18: Logit Estimates of MHCs Decision to Undergo Second-Stage Conversion Controlling for the Thrift Industry

Logit estimates of MHCs decision to choose a second-stage conversion. To control for the thrift industry, we replace ROAA and ROAE with thrift industry adjusted IAROAA and IAROAE. The dependent variable is an indicator variable equal to 1 if the MHC chooses to undergo a second-stage conversion and 0 if it chooses to remain a MHC. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Industry adjusted return on average assets (IAROAA) is calculated as annualized net income divided by average total assets at year end less thrift industry ROAA. Industry adjusted returns on average equity (IAROAE) is calculated as annualized net income divided by average total equity at year end less thrift industry ROAE. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Intercept	1.948
	(.159)
NCOs	.915
	(.339)
NPLs	.873
	(.350)
I I/AA	-.603***
	(.001)
OE/OR	1.019
	(.313)
IAROAA	.833
	(.361)
IAROAE	.043
	(.836)
Price/Book	.725***
	(.005)
Total Assets	1.782
	(.182)
Tier 1Capital	1.596
	(.206)
LGR	.956
	(.328)
Observations	161
Likelihood ratio	73.149
P-value	.001
R^2	49.1%

Table 19: Logit Estimates of Publicly Traded Thrifts Acquired Controlling for the Thrift Industry

Logit estimates of publicly traded thrifts that are acquired. To control for the thrift industry, we replace ROAA and ROAE with thrift industry adjusted IAROAA and IAROAE. The dependent variable is an indicator variable equal to 1 if the publicly traded thrift is acquired and 0 if it is not. The balances for all explanatory are three years following the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Industry adjusted return on average assets (IAROAA) is calculated as annualized net income divided by average total assets at year end less thrift industry ROAA. Industry adjusted returns on average equity (IAROAE) is calculated as annualized net income divided by average total equity at year end less thrift industry ROAE. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

Intercept	-2.482***
	(.001)
NCOs	1.058
	(.304)
NPLs	.101
	(.751)
I I/AA	1.711
	(.191)
OE/OR	.961
	(.327)
IAROAA	2.799*
	(.094)
IAROAE	.468
	(.494)
Price/Book	.827***
	(.001)
Total Assets	1.501
	(.221)
Tier 1Capital	1.781
	(.182)
LGR	.529
	(.467)
Observations	850
Likelihood ratio	26.673
P-value	.001
R^2	5.2%

Table 20: Logit Estimates of Mutual Thrifts that Choose MHC over Full Conversion for Portfolios Sorted on Total Assets Controlling for the Thrift Industry

Logit estimates of mutual thrifts that choose MHCs over full conversion. To control for the thrift industry, we replace ROAA and ROAE with thrift industry adjusted IAROAA and IAROAE. The dependent variable is an indicator variable equal to 1 if the mutual thrift chooses MHC and 0 if it chooses full conversion. The year end balances for the explanatory variables are prior to the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (I I/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Industry adjusted return on average assets (IAROAA) is calculated as annualized net income divided by average total assets at year end less thrift industry ROAA. Industry adjusted returns on average equity (IAROAE) is calculated as annualized net income divided by average total equity at year end less thrift industry ROAE. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

	Small Mutual Thrifts	Large Mutual Thrifts
Intercept	-1.868***	4.899***
	(.001)	(.001)
NCOs	2.431	1.081
	(.119)	(.299)
NPLs	.040	2.705*
	(.842)	(.100)
I I/AA	.051	-.910***
	(.821)	(.001)
OE/OR	.006	1.739
	(.941)	(.187)
IAROAA	.487	1.079
	(.485)	(.299)
IAROAE	.244	.713
	(.621)	(.398)
Observations	155	160
Likelihood ratio	NA	22.559
P-value	NA	.001
R^2	0%	20.3%

Table 21: Logit Estimates of MHCs Decision to Undergo Second-Stage Conversion for Portfolios Sorted on Total Assets Controlling for the Thrift Industry

Logit estimates of MHCs decision to choose a second-stage conversion. To control for the thrift industry, we replace ROAA and ROAE with thrift industry adjusted IAROAA and IAROAE. The dependent variable is an indicator variable equal to 1 if the MHC chooses to undergo a second-stage conversion and 0 if it chooses to remain a MHC. The balances for all explanatory variables are three years following the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (II/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Industry adjusted return on average assets (IAROAA) is calculated as annualized net income divided by average total assets at year end less thrift industry ROAA. Industry adjusted returns on average equity (IAROAE) is calculated as annualized net income divided by average total equity at year end less thrift industry ROAE. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

	Small MHCs	Large MHCs
Intercept	-16.868***	5.835***
	(.001)	(.001)
NCOs	.947	.001
	(.330)	(.997)
NPLs	.017	-.625*
	(.897)	(.052)
I I/AA	2.205***	1.449
	(.001)	(.229)
OE/OR	.482	.880
	(.488)	(.348)
IAROAA	2.014**	1.042
	(.016)	(.307)
IAROAE	2.867*	1.928
	(.090)	(.165)
Price/Book	2.013	-4.366**
	(.156)	(.001)
Tier 1Capital	.022	2.286
	(.883)	(.131)
LGR	.105***	2.43
	(.003)	(.622)
Observations	82	79
Likelihood ratio	40.099	66.255
P-value	.001	.001
R^2	52.7%	76.5%

Table 22: Logit Estimates of Publicly Traded Thrifts Acquired for Portfolios Sorted on Total Assets Controlling for the Thrift Industry

Logit estimates of publicly traded thrifts that are acquired. To control for the thrift industry, we replace ROAA and ROAE with thrift industry adjusted IAROAA and IAROAE. The dependent variable is an indicator variable equal to 1 if the publicly traded thrift is acquired and 0 if it is not.. The balances for all explanatory variables are three years following the year of conversion. Net charge-offs to total loans (NCOs) are the amount of loss on assets charged off to general valuation allowances plus the amount of loss on assets charged to earnings and provided to specific valuation allowances Non-performing loans to total loans (NPLs) is calculated as the balance of nonaccrual and restructured loans divided by total loans at year end. Interest income to average assets (II/AA) is calculated as total interest income including interest and dividends from balances due, securities and loans divided average total assets at year end. Operating expenses to operating revenues (OE/OR) is calculated as operating expenses including salary and benefits expense, office occupancy and other noninterest expense divided by operating revenues including net interest income, fee income, trading income and other noninterest income. Industry adjusted return on average assets (IAROAA) is calculated as annualized net income divided by average total assets at year end less thrift industry ROAA. Industry adjusted returns on average equity (IAROAE) is calculated as annualized net income divided by average total equity at year end less thrift industry ROAE. Total Assets is calculated as the log of the thrift's total assets in thousands at year end. Price/Book is calculated as ratio is the market capitalization divided by total book value. Tier 1 Capital at year end. Loan growth rate (LGR) is the percentage increase in the thrift's loan portfolio. The p-values are in parentheses. *, **, *** denotes significance at .1, .05, or .01 level for two-tailed tests.

	Small Thrifts	**Large Thrifts**
Intercept	1.948	-7.541***
	(.159)	(.001)
NCOs	.915	.600
	(.339)	(.439)
NPLs	.873	1.235
	(.350)	(.266)
I I/AA	-.603***	.616***
	(.001)	(.001)
OE/OR	1.019	.136
	(.313)	(.713)
IAROAA	.833	2.739*
	(.361)	(.098)
IAROAE	.043	.077**
	(.836)	(.017)
Price/Book	.725**	1.303***
	(.005)	(.001)
Tier 1 Capital	1.596	.263
	(.206)	(.608)
LGR	.956	.178
	(.328)	(.673)
Observations	423	427
Likelihood ratio	21.970	29.589
P-value	.001	.001
R^2	8.7%	13.41%