

Changes in ownership structure and the value of the firm: The case of mutual-to-stock converting thrift institutions

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Abstract

This study examines some economic and organizational changes resulting from the conversion of mutual thrift institutions (MTI) to publicly traded stock charter corporations. We focus on the relation between the initial value of the converted firm and (i) subscription decisions by management and by regular depositors, and (ii) the employment of a prestigious underwriter or auditor. Whereas the proportion of managerial subscriptions displays a convex relation with the firm's initial value, the relation between the regular depositor subscription and the converted firm's value is linear and positive. The status of the underwriter or auditor is unrelated to the value of the converted firm. These findings are attributed to the regulatory setting governing the MTI conversion process, constraints on ownership holdings and the oversight function of the regulator.

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1. Introduction

The corporate ownership restructuring by the large number of mutual thrift institutions (MTIs) that converted to publicly traded stock charter firms in the 1980's "offers a unique opportunity to further our understanding of the economics of organizational choice" (Masulis, 1987). Masulis, who focuses on "the wealth gains and losses to contractual parties and sources of organizational efficiencies," concludes that "on average, all major claimants in the [MTIs] choosing to convert to stock charter gain from this action." Nevertheless, as reported by Cordell et al. (1993) the demutualization of the MTIs "significantly increased the riskiness of the S and L industry."

With respect to ownership retention Leland and Pyle (1977) predict that the fraction of ownership shares which is retained by principal insiders, and disclosed in an Initial Public Offering (IPO) prospectus, serves as a positive signal of their private information about the firm's value and Maksimovic and Unal (1993) report that "Managerial holdings ... do not act as dissipative signals of value in thrift conversions." Titman and Trueman (1986), who extended Leland and Pyle's model, suggest that by hiring high quality or prestigious underwriters and auditors, with large reputation capital, managers signal the high value of the IPO.

Managerial ownership and voting power play a role in agency relations and affect the value of the firm (e.g. Jensen and Ruback, 1983). Stulz (1988) suggests that, because of possible hostile takeover threats, there is a concave relation between managerial voting power and the value of the firm. Song and Walkling (1993) find that the probability that a firm will be a target of a takeover is inversely related to management's proportional ownership, but when a firm is targeted for a hostile takeover they find a positive correlation between managerial ownership and stockholders' returns.

We extend the work of Masulis, Cordell et al. and Maksimovic and Unal by further examining the relation between the value of converted MTIs and the magnitude of ownership subscription by each of two types of insider claimants: regular depositors and managers or directors (hereafter referred to as management). Whereas previous research provides evidence in support of Stulz, Song and Walkling¹ and Leland and Pyle's models², these models may not hold for converting MTIs, since management of such firms is largely shielded from post-conversion proxy fights and hostile takeover bids. Indeed, Cebenoyan et al. (1993) report evidence indicating a convex relation between managerial holdings and the value of savings and loan institutions. Because of the overlapping functions of the underwriter, auditor and regulator, it is also possible that the

¹ For example, Chang and Mayers (1992) and Song and Walkling (1993).

² See, for example, Downes and Heinkel (1982), Simunic and Stein (1987), Krinsky and Rotenberg (1989a), Krinsky and Rotenberg (1989b) and Clarkson et al. (1991).

Titman and Trueman model does not hold for converting MTIs.³ Indeed, Maksimovic and Unal suggest that the choice of an underwriter by a converting MTI may be due to “reasons not directly related to information transmission to investors.” Therefore, we also reexamine the Titman and Trueman model.

We find that the MTIs’ post-conversion value is: (1) positively related to regular depositors’ initial subscriptions; (2) negatively correlated with management subscriptions and (3) unrelated to the underwriter’s prestige and auditor’s quality. Consistent with Cebenoyan et al. (1993), we find that the magnitude of the negative correlation between the MTIs post-conversion value and management subscription decreases when managerial ownership retention increases.

The MTIs’ organizational structure and regulatory environment are discussed in the next section. In section 3, we present the testable hypotheses. We describe the sample and methodology in section 4, and the empirical results in section 5. A short discussion and conclusions are offered in section 6.

2. Institutional background

A moratorium on conversions of MTIs to stock charter firms was practically in effect from 1955 until 1977. A series of legislation and regulation amendments was introduced from 1977 to 1982. As Dunham (1985), p. 45, reports, the Federal Home Loan Bank Board (FHLBB): (i) “put on hold about 80 applications” for conversion in 1977, (ii) introduced restrictions on ownership transfer in 1978, and (iii) prohibited private placement of unsubscribed stock in 1977. The Depository Institutions Deregulation and Monetary Control Act, enacted in 1980, “authorized mutual capital certificates as an alternative to conversion.” The FHLBB introduced simplified procedures for conversion and sale of control in 1982, and the Garn–St. Germain Act, which was enacted in that year, permitted Federal MTIs in all states to convert to stock charter corporations. The liberalized FHLBB regulations and the enactment of the Garn–St. Germain Act prompted a rapid growth in the number of mutual-to-stock conversions and an increase in the amount of proceeds raised. As Cordell et al. (1993) show, the composition of the S and L industry changed dramatically in the mid-1980’s (see Table 1). During 1983–1987, 473 mutual-to-stock conversions were completed, raising \$9.3 billion. In contrast, during the period of 1978–1982 only 104 MTIs converted to stock ownership, raising \$519 million.⁴

³ For evidence supporting the model see, for example, Beatty and Ritter (1986), Beatty (1989), Carter and Manaster (1990), Davidson and Neu (1993) and Simunic and Stein (1987). For arguments refuting the model and some evidence see Datar et al. (1991) and Feltham et al. (1991).

⁴ The figures were obtained from the Federal Home Loan Bank Board.

2.1. *Major organizational differences between stock charter thrifts and converting MTIs*⁵

In contrast to a share in a stock charter corporation, a deposit in an MTI confers on the depositor a pro rata voting right and a non-transferrable claim on the firm's residual assets. Whereas earnings are distributable to corporate shareholders, MTIs normally retain earnings indefinitely, and cash dividend distribution may be suspended by the regulator.

Deposits up to \$100,000 are shielded against default risk. Because deposits normally do not exceed \$100,000, depositors are assured to receive their money back even when an MTI fails. Therefore they lack incentives to monitor management's performance and generally grant the board of directors perpetual, yet revocable, proxies. The board may also redeem, at its discretion, a member's deposit account and, by so doing, eliminate the associated voting rights. Thus, an MTI has, in essence, a two-tier ownership structure.

The business practices and compensation packages of MTI management are subject, in certain circumstances, to the FHLBB's direct intervention. The regulator may also replace the board of directors or part of it. Whereas managerial incentive plans are common in stock charter thrifts, stock option plans are unavailable to MTI management. Finally, in contrast to chartered stock corporations, FHLBB regulations practically shield MTIs against hostile takeovers during the initial years after conversion and management is essentially "insulated for its first three to five years of post-conversion operation, with substantial protection beyond those provided to chartered-stock [firms]" (Cordell et al., 1993).⁶

2.2. *The conversion process*

In addition to SEC regulations, an MTI's conversion plan must be initiated by the board of directors, endorsed by at least two-thirds majority of its members, and approved, in principle, by the FHLBB. Depositors are then notified about the plan, which is announced in a local newspaper, and they have the right to examine it at the MTI's office. Next, an application for permission to proceed is filed with the regulator. This application must be accompanied by an assessment of the market value of MTI's net-worth, performed by an independent appraiser in conformance with FHLBB guidelines.⁷

⁵ The discussion in this section concerning the nature of MTIs and the IPO process focuses on the regulations which were in effect during the period 1984–1987.

⁶ The 1980 "Anti-Takeover Rule" requires regulatory approval for stock repurchasing by the thrift institution and "beneficial ownership" equity holding by any person (broadly defined) during the initial three post conversion years. Officers and directors cannot trade shares for a year after conversion but management may purchase stock, up to ten percent of the issue, for an employee-stock-ownership plan, which it controls (Cordell et al., 1993).

⁷ The FHLBB, however, does not validate the appraiser's assessment.

After FHLBB's approval, the plan must be approved by a two-thirds majority of eligible depositors⁸, and no vote by proxy is allowed.⁹ Each eligible depositor may subscribe to a number of shares, proportional to the size of his or her deposit, up to a maximum of five percent of the issue. This subscription decision is made under some uncertainty, as only a price range of 15 percent around the independent appraised value is specified at that time. Unsubscribed shares may then be bought by management to bring the collective managerial ownership holdings to a maximum of 15 to 25 percent of the issue.¹⁰

At that stage an underwriter is normally hired and the remaining unsubscribed shares are offered to the public. Subscription by any outsider is limited to two percent of the issue and shares to *all* subscriber categories are issued at the *same* price. Thus, the IPO is similar to a standard rights offering, where the first right to participate is given to existing owners.

This conversion process is “more costly than the typical reorganization of an ongoing entity” (Dunham, 1985) and more expensive than similar-size stock rights offerings (Masulis, 1987). Whereas the total conversion cost is shared by insiders proportionally to their subscriptions, non-subscribers and new owners do not assume any part of the costs. Thus, approval of the IPO issue by the majority of management and the regular depositors implies that both ownership groups expect to benefit from the conversion. However, depositors' vote in favor of conversion is not conditional upon actual subscription. Therefore, it may be sufficient for a depositor to be satisfied that he or she will not be worse off, after conversion, in order to support the IPO decision. The actual investment of resources is more informative about the parties' motives.

3. Hypotheses

3.1. *Percentage of common shares subscribed to by insiders*

The conversion to a stock charter firm alters the distribution of benefits among non-subscribers and regular depositor and management subscribers. Because the former do not share in the residual value of the converted firm, we focus our examination on the subscription decision by each of the latter two groups.

⁸ The cut-off date for eligibility is 90 days before the plan's approval by the board.

⁹ Dunham (1985) notices that “of all votes cast, over 95 percent are usually in favor of the conversion”. However, of the 401 applications filed between 1974 and 1983, about 25 percent were withdrawn or were not activated (Masulis, 1987).

¹⁰ The upper limit for aggregate management purchases varies from 15 percent of the issue for thrifts with total assets exceeding \$500 million and 25 percent for thrifts with assets less than \$50 million. A sliding scale is applied between the two extremes (see Dunham, 1985 and Cordell et al., 1993).

Regular subscribing depositors are less informed than management but better informed than outsiders. They have access to the MTI's unpublished information such as financial statements and the conversion plan and can attend the special meeting called to approve the plan. Their decision, of course, is made with uncertainty: they assume the normal risk associated with subscription to common stocks (see Masulis, 1987, for discussion), and they do not know the exact issuing share price, management's initial subscription, and details of the underwriting contract. By subscribing to the converted MTI's shares, regular depositors cast a vote of confidence in the firm's future. The larger the proportion of common shares subscribed, up to the legal limit, the stronger their optimistic expectations. Thus, consistent with Leland and Pyle's model (Leland and Pyle, 1977), we hypothesize:

H₁: The initial market value of a MTI stock charter converted firm, adjusted for owners' equity size and securities market movements, is positively related to the proportion of common shares to which regular depositors subscribe.

Management's expected net benefits from the conversion can be categorized into those that are experienced by all shareholders (e.g., expected increase in income due to additional capital raised by the IPO, the ability to distribute earnings, and opportunities to realize capital gains due to transferability of shares) and those that are specific to management. The second category may include an increase in management's compensation package and perquisites, which represent a cost to regular depositors and to outside subscribers. Management will initiate a conversion process only if the combination of the two categories is expected to enhance its welfare.

As noted above, management may subscribe to the converted MTI shares in two steps. At the second step, management knows the pattern of subscription by regular depositors. Thus, management's final subscription decision, which is disclosed in the prospectus, signals additional information, beyond the approval decision, about management's expectations.

Where management expects specific net benefits to itself, but zero or negative net benefits to the remaining shareholders, management is unlikely to subscribe to shares beyond the proportion that will ensure its remaining in office and associated benefits. This proportion is a function of the distribution of subscription by regular depositors and outsiders.¹¹ Since the subscription pattern of regular depositors is known to management, and outsiders' subscriptions are restricted to a legal limit of two percent of the issue, managers may estimate with considerable accuracy, the proportion of shares needed to minimize the likelihood of being voted out of

¹¹ This is consistent with Demsetz and Lehn (1985) and Mikkelsen and Partch (1989) who report on an inverse relation between firm size and managerial holdings.

office. Further, as discussed above, no hostile takeover bids are virtually possible in the three-to-five years following the conversion. Thus, management is likely to subscribe to a relatively small proportion of the issue.

When managers expect their share in the net benefits to *all* depositors to exceed the specific net benefits to them, they are likely to subscribe to a higher proportion of shares than the minimum necessary for them to remain in office. Because the regular depositors' subscription distribution is not publicly known, outsiders are less able than managers to estimate the level of managerial holdings necessary to keep them in office. Nevertheless, a small proportion of managerial ownership is likely to convey an unfavorable signal to outsiders. Thus, a small managerial subscription proportion is likely to have a negative effect on the initial market value of the converted MTI, whereas a large proportion is likely to result in a positive effect. Thus, in contrast to Stulz (1988) and Song and Walkling (1993) we hypothesize:

H₂: The relationship between small (large) management ownership proportions – to be defined in section 4 below – and the initial market value of an MTI stock charter converted firm, adjusted for owners' equity size and for securities market movements, is delineated, in a multiple regression model, by a slope coefficient with a negative (less negative or positive) sign.

3.2. Auditor's quality and underwriter's prestige

High quality auditors and prestigious underwriters have more reputation and capital to lose, and are more vulnerable to damage claims, than other auditors and underwriters. The strength of the signal of the auditor or underwriter choice depends on the degree of the perceived overlapping of functions between them, the regulator, and the independent appraiser. Thus, it is possible that the choice of the auditor or underwriter does not convey as strong a signal as has been observed previously for IPOs of unregulated firms. Consistent with Titman and Trueman (1986), we test the following hypothesis:

H₃: The perceived quality of the auditor or underwriter – to be defined in section 4 below – is positively associated with the converting MTI's initial market value, adjusted for owners' equity size and for securities market movements.

4. Data and methodology

Our sample consists of 100 MTIs that completed their conversion to stock charter firms between January 1984 and June 1987. Whereas 1983 marks the beginning of the massive conversion movement, we eliminate firms that converted prior to January 1984 because of the introduction of many regulation amendments

in 1983, and the related strong market reaction (Blacconiere, 1991). Conversions after June 1987 have not been included because of the heavy losses that the savings and loan industry suffered in the latter part of 1987 and the year of 1988 when the S and L crisis was at the peak (Cebenoyan et al., 1993). Also, October 1987 stock market crash and the significant changes in regulations concerning demutualization of MTIs after the crash (Ginsberg, 1988). The sample firms are drawn mainly from issues of *Going Public: The IPO Reporter* (The Dealer's Digest Inc., New York, NY). They must have a firm-commitment underwriter contract and be traded on the first day following the conversion.¹² The primary sources of data are the offering circulars, which we requested directly from each of the 166 qualified thrift institutions. We received a total of 100 offering circulars – a response rate of 60 percent – of which eight went public in 1984, seventeen in 1985, fifty-six in 1986, and nineteen in the first half of 1987. Nearly all of the sample firms (97%) were first traded on the OTC capital market. Although we cannot be sure that our sampling procedure did not result in unbiased observations, the omitted conversions do not appear to be different from those included in our sample.¹³

The following cross-sectional OLS regression model is used to test the hypotheses discussed in section 3:

$$\text{IMV}_j = a_0 + a_1 \cdot \text{RD}_j + a_2 \cdot \alpha_{1,j} + a_3 \cdot \alpha_{2,j} + a_4 \cdot \text{UN}_j + a_5 \cdot \text{AU}_j + \bar{u}_j \quad (1)$$

where:

IMV is the market value of the firm owners' equity at the closing of the first trading day divided by net-worth prior to the conversion plus the IPO proceeds, to control for owners' equity size, and further divided by the log of the OTC Composite Index one day before the public offering date. The OTC Composite Index serves as proxy for both general economic conditions and investors' degree of optimism. It is used here to standardize for general market price movements and for the fact that different firms may issue common stock at various points in the business cycle¹⁴;

¹² According to the FHLBB, the total number of completed conversions during the sample period is 330. Of these, 166 conversions had a firm-commitment clause. The remaining issues either did not involve an underwriter or were not traded in the immediate post-conversion period. Very few completed issues with best-effort contracts are reported for the sample period.

¹³ We compared the median and mean values for total assets, net worth/total value of the IPO, proceeds, and the percentage of stock subscribed by outsiders in our sample to those of the 166 MTIs which converted, during the sample period, to stock charter corporations and found them not be materially different (see Table 1 and section 5.1 below). Also, the proportions of MTIs in our sample which were insured by the Federal Savings and Loan Insurance Corporations (47%) and those which were insured by the Federal Deposit Insurance Corporation (53%) are similar to the corresponding proportions of the population.

¹⁴ The estimation of regression equation (1) was repeated after defining the dependent variable as: (a) market value/(total assets + proceeds)/log(OTC index); (b) (market value/number of outstanding common shares)/log(OTC index); (c) market value/(networth + proceeds); (d) market value/(total assets + proceeds); and (e) market value/common shares outstanding; all yielded a similar pattern.

- a_0 is the intercept;
- RD is the proportion of common stock subscribed by regular depositors;
- α_1 is the proportion of managerial subscription when this proportion is assumed to be “small”- defined as $0.3 \text{ percent} \leq \alpha_1 \leq 5 \text{ percent}$.¹⁵ Otherwise, α_1 is assigned a value of zero;
- α_2 is the proportion of managerial subscription when this proportion is assumed to be “large”- defined as equal to or larger than ten percent. Otherwise, α_2 is assigned a value of zero;
- UN is a dummy variable which equals one if a prestigious underwriter¹⁶ is selected, and to zero otherwise;
- AU is a dummy variable which equals one if a high quality auditor¹⁷ is selected, and to zero otherwise;
- $\bar{u}$ is a random error term satisfying the OLS regression requirements; and $j = 1, \dots, 100$ thrift institutions.

The proportion of shares that management needs to ensure its remaining in office depends on the dispersal of regular depositor and outsider subscriptions which is not publicly known. Thus, we chose the legal cap of five percent of the issue on subscriptions by regular depositors as a benchmark for defining a “small” proportion. Indeed, Masulis’ sample of MTI conversions between 1976 and 1983, consists of 32 and 43 IPOs with managerial subscriptions of five percent or less and more than five percent, respectively (Masulis, 1987). For the former group he reports six cases (19%) with a negative return on the first trading day and only two cases (4.6%) for the latter. Further, Morck et al. (1988) who examined the relation between firm’s Tobin’s Q values (proxy for the firm’s value) and managerial share holdings also used the five percent cut-off as their lowest benchmark. Consequently, we define a “small” proportion as being a subscription to five percent or less of the issue.

By regulation, non-management shareholders’ holding is limited to ten percent of the outstanding shares during the first three to five years after the IPO. Further, Masulis (1987) reports a positive first day return for all 29 (39%) issues in his sample with management subscription of ten percent or more. We, therefore, use

¹⁵ Note that the smallest managerial subscription proportion in our sample is 0.3 percent (See Table 1).

¹⁶ We employ the prestige classification scheme first suggested by Hayes (1971), Hayes (1979) and commonly used in the finance literature. Accordingly, the prestigious group of underwriters consists of the top three brackets of the underwriters’ hierarchy, known as the special, major, and sub-major brackets. Other underwriters are classified as non-prestigious.

¹⁷ Auditor quality is measured by the widely used two-tier classification scheme of the Big Eight versus non-Big Eight auditing firms (DeAngelo, 1981, Beatty, 1989 and Davidson and Neu, 1993).

the ten percent as the benchmark for the definition of a “large” proportion of managerial subscription.¹⁸

Hypotheses H_1 and H_3 predict coefficients a_1 , a_4 , and a_5 to be positive. Hypothesis H_2 predicts a negative sign for a_2 whereas the predicted sign of a_3 depends on whether the magnitude of the “large” managerial subscription proportions is sufficiently strong to convey a favorable signal to outsiders.

5. Results

5.1. Sample statistics

Summary measures of various sample characteristics are presented in Table 1.¹⁹ A comparison with the data for the population indicates great similarity. The measures are also quite comparable to those reported by Maksimovic and Unal (1993) for their sample. Further, the average abnormal return on the first trading day for the whole sample is comparable to that reported by Masulis (1987) and Jordan et al. (1988) for their samples of thrift IPOs. The differential abnormal return for our two asset size subgroups is consistent with findings reported by Ibbotson et al. (1988) and Carter and Manaster (1990) who show that IPOs of smaller firms tend to be more underpriced than IPOs of larger firms.

5.2. Cross-sectional results

The regression results in Table 2 are consistent with both hypotheses H_1 and H_2 . The positive and highly significant coefficient estimate for RD strongly supports hypothesis H_1 , in line with Leland and Pyle’s model. Thus, subscriptions by regular depositors convey a positive signal of their private information concerning the firm’s initial market value.

As predicted by hypothesis H_2 , a negative and significant coefficient estimate is obtained for α_1 – the “small” proportion subscribed by management – and the estimated coefficient for α_2 – management’s “large” fractional subscriptions – is considerably less negative (and insignificantly different from zero) than that for α_1 (–0.07 vs. –0.32). This is consistent with the assertion that, in light of the insulation of MTIs’ management from hostile takeover bids, a small fractional

¹⁸ If the newly raised capital leads to increase in profits, management may increase its remuneration accordingly. The legal cap of 15 to 25 percent for management’s initial purchase of shares might also have served as indicator for “large” proportion. The small number of observations in this category in our sample, however, does not allow for a meaningful statistical analysis. Only four managerial subscription proportions are larger than 15 percent of the issue.

¹⁹ Comparable summary measures for the population were compiled from various issues of *Going Public: The IPO Reporter*.

Table 1
Median, mean and dispersion values of variables pertaining to a sample of 100 MTIs which converted to chartered stock corporations between January 1984 and July 1987

	Median	Mean	Std. Dev.	Minimum	Maximum
1. Total Assets (\$000) ^a	358,292 (369,300) ^b	934,809 (962,400)	1,509,401	69,993	7,946,431
2. Net worth/Total assets	0.046 (0.047)	0.045 (0.046)	0.021	-0.010	0.084
3. Total initial offering value of common stock (\$000) ^c	26,331 (22,400)	39,993 (38,000)	39,861	4,250	218,213
4. Total initial market value of common stock (\$000) ^d	27,875	43,114	43,428	4,250	247,969
5. Total proceeds from nonsubscribers (\$000) ^e	12,187 (10,500)	23,807 (22,300)	28,428	406	132,416
6. % of common stock issued to nonsubscribers ^f	59.7% (61.3%)	55.3% (55.4%)	24.4%	3.9%	96.2%
7. % of common stock subscribed by regular depositors	35.8%	39.4%	23.1%	2.1%	91.6%
8. % of common stock subscribed by management	3.9%	5.3%	4.3%	0.3%	20.8%
9. First trading day abnormal return	2.8%	6.5%	9.0%	5.3%	30.9%
“Large” subgroup ^g	1.8%	4.8%	8.3%	-5.3%	26.4%
“Small” subgroup	4.7%	8.3%	9.5%	-2.6%	30.8%

^a Accounting data for items 1 and 2 were obtained from the latest annual reports disclosed in the offering circulars prior to the conversion.

^b Median and mean values for the 166 MTI population are given in parentheses. No comparable data for items 4, 7, 8 and 9 are available.

^c Offering price per share x total number of common shares outstanding.

^d First trading day closing price per share x total number of common shares outstanding.

^e Offering price per share x number of common shares sold by underwriters in public offerings.

^f Percentages in 6, 7, and 8 are of total number of common shares outstanding.

^g The first trading day abnormal return for each IPO is calculated by subtracting the OTC Composite Index return at the first day of the thrift's trading from its initial return. The sample was partitioned into two equal subgroups, by size of total assets disclosed in the latest annual report prior to the conversion. The median size of total assets (\$000) is 895,825 and 201,680 for the “large” and “small” subgroups, respectively.

Table 2

Results of the following regression model for 100 MTIs which converted to chartered stock corporations between January 1984 and July 1987.

$$IMV_j = a_0 + a_1 \cdot RD_j + a_2 \cdot \alpha_{1,j} + a_3 \cdot \alpha_{2,j} + a_4 \cdot UN_j + a_5 \cdot AU_j + \bar{u}_j$$

Independent variable	coefficient	t-statistics ¹
a_0 – Intercept	0.09	11.03 ^b
RD – Regular Depositor's Subs.	0.056	4.62 ^b
α_1 – Management's "Small" Subs.	–0.32	–1.57 ^a
α_2 – Management's "Large" Subs.	–0.07	–1.10
UN – Underwriter's Prestige	0.003	0.47
AU – Auditor's Quality	0.002	0.03
Adjusted $R^2 = 0.17$		
F Value = 4.93		

¹ The t-statistics are OLS estimates modified by using White's heteroskedasticity-consistent covariance matrix estimator in computing standard errors (White, 1980). (Regular OLS t-statistics provided similar results).

^b Significant at the 1.0 percent level (one-tailed test).

^a Significant at the 10.0 percent level (one-tailed test).

management holding conveys an unfavorable signal about the firm's value. The strength of this negative relationship declines with the increase in management ownership holdings beyond the minimum necessary to sustain them in office. ²⁰

Finally, the estimated coefficients for UN and AU are positive as predicted by hypothesis H_3 , but statistically insignificant. This is consistent with our conjecture that an overlap of functions between (i) independent appraisers and underwriters, and (ii) regulators and auditors reduces the signalling content of using prestigious underwriters and auditors.

Previous studies of IPO valuation (e.g., Downes and Heinkel, 1982, Krinsky and Rotenberg, 1989a, Krinsky and Rotenberg, 1989b) suggest the inclusion of additional firm-specific variables to control for cross-sectional variation in the dependent variable. Further, Keeley (1990) demonstrates an inverse relation between the riskiness of financial institutions and their respective market values. Consequently, we expand our model by including the following eight firm-specific risk and economic indicators: firm's assets size, net-worth, growth rate of loan origination fees, geographical business region, (cf. Masulis, 1987), quality of loan portfolio, FHLBB loan advances, net interest margin, and type of insurance agency (FSLIC vs FDIC). ²¹ With two exceptions, the coefficients for all additional variables are statistically insignificant. The two exceptions, with marginal statistically significant coefficients, are those for FHLBB loan advances and the dummy variable for the type of insurance agency. Yet, the signs, magnitudes and significance level of the coefficients for RD, α_1 , α_2 , UN, and AU remain virtually the same as for the model in eq. (1) (Table 2). ²² We conclude, therefore, that the results pertaining to our tested hypotheses are robust.

6. Discussion and conclusions

The unique two-tier ownership structure of MTIs and the regulatory environment governing the conversion process and ownership holding during the first three to five years after conversion, provides a natural setting for testing the Leland and Pyle (1977) model. We predict that the model holds for regular depositor subscriptions but not for managerial holdings. In contrast to Stulz (1988), we find a negative correlation between small managerial subscription proportions and the initial converted MTI value. This relation turns less negative or positive when managerial subscriptions become larger. In essence, whereas Stulz predicts a concave relation between the votes that management controls and

²⁰ In a previous draft of our study we utilized a regression model using a simple continuous measure for managerial holding. The results of this analysis are:

$$\text{IMV} = 1.60 + 0.81\text{RD} - 2.40\alpha + 0.231\text{UN} + 0.05\text{AU}$$

where α is the proportion of managerial subscriptions and the other variables are as in eq. (1). All coefficients, except AU are significant. Morck et al. (1988) suggest, however, “that imposing a simple linear structure on the data is inappropriate” (p. 295) in a context of a study such as ours. Indeed, hypothesis H₂ and the resulting coefficients for α_1 and α_2 are indicative to a convex relation between IMV and the proportions of managerial subscription. In order to gain more insight about this relation we repeated the analysis utilizing the regression method in Cebenoyan et al. (1993); defining IMV, RD, UN and AU as in eq. (1), α_3 as the managerial subscription proportions and $\alpha_4 = (\alpha_3)^2$. The results of this analysis are:

$$\text{IMV} = 0.095 - 0.18\alpha_3 + 0.89\alpha_4 + 0.06\text{RD} - 0.0003\text{UN} - 0.001\text{AU}$$

Although the coefficients for α_3 and α_4 are statistically insignificant, their pattern is consistent with the convex hypothesis. We also employed three piecewise OLS regressions as in Morck et al. (1988). Because the variables necessary to calculate Tobin's Q values are not publicly available for our sample, and for the sake of consistency, we use IMV as the dependent variable. The results for the three regressions are:

Variable	α . 0 to 5	α . 5 to 10	α . over 10
intercept	0.100 *	0.088 *	0.089 *
RD	0.061 *	0.054 *	0.054 *
α	-0.188	-0.003	-0.038
UN	0.002	0.002	0.002
AU	-0.0006	0.0008	0.0009

where: α is the proportion of managerial subscriptions and the other variables are defined as in eq. (1); α . 0 to 5 = α if $\alpha < 5\%$; 5% if $\alpha \geq 5\%$; α . 5 to 10 = 0 if $\alpha \leq 5\%$; $\alpha - 5\%$ if $5\% \leq \alpha \leq 10\%$; 5% if $\alpha \geq 10\%$; α . over 10 = 0 if $\alpha < 10\%$; $\alpha - 10\%$ if $\alpha > 10\%$. * = Significant at the 5% level. The results are generally consistent with those in eq. (1). The coefficient for α in the third regression, however, is more negative than that for α in the second regression. This may be due to the very few $\alpha \geq 15\%$ observations in our sample.

²¹ FSLIC Firms demonstrated smaller size measures (cf. Maksimovic and Unal, 1993) and have been viewed riskier because of the lower liquidity and capital requirement by this agency (Cordell et al., 1993).

²² A full description of the control variables employed, and regression results, may be obtained from the authors upon request.

the value of the firm, we find a convex relation. The results of our examination are consistent with our prediction and with those reported by Cebenoyan et al. (1993).

These results have some policy implications. Regular depositors make their subscription decision under some uncertainty because only a range of the issuance price is disclosed to them. It is possible that by disclosing a more precise estimate of the issuance price, this uncertainty will be reduced. This may intensify the signal conveyed by regular depositor subscriptions and enhance the value of the converted MTI.

We conjecture that the indicative convex relation between the managerial subscriptions and the converted MTI's value is due to regulatory protection of management from post-conversion hostile takeovers and proxy fights. The removal of such restrictions may motivate management to increase the operational efficiency making the firms less likely to become takeover targets. This will enhance the firms' value or discourage inefficient MTIs from going public.

We also assert that, because the functions of the underwriter and the auditor overlap with those of the regulator, the choice of auditors and underwriters does not convey a strong signal about the value of the converted MTI. Our results are consistent with this assertion. It is possible that by reducing the degree of redundancy between the functions of the regulator and those of the underwriter and the auditor, the choice of the latter may better signal the converting firm's properties. This might also reduce the cost of regulatory oversight.

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