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## Regulatory Incentives and the Thrift Crisis: Dividends, Mutual-to-Stock Conversions, and Financial Distress

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## **Regulatory Incentives and the Thrift Crisis: Dividends, Mutual-to-Stock Conversions, and Financial Distress**

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WORKING PAPER SERIES NO. 119

Regulatory Incentives and the Thrift Crisis:  
Dividends, Mutual-to-Stock Conversions, and Financial Distress\*

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**Regulatory Incentives and the Thrift Crisis:  
Dividends, Mutual-to-Stock Conversions, and Financial Distress**

Abstract

This paper explores the incentive problems arising from the insolvency of both individual thrifts and the thrift deposit insurance fund during the 1980s. To minimize payouts from the cash-strapped deposit insurance fund prior to its recapitalization in 1989, thrift regulators encouraged private capital inflows to troubled thrifts. The primary method, which brought about \$10 billion into the thrift industry between 1980 and 1988, was mutual-to-stock conversion. To provide sufficient inducement to private investors, we argue that regulators had incentives to relax the enforcement of capital adequacy standards and permit generous payments of dividends rather than require troubled mutual-to-stock converters to retain earnings and rebuild capital. Consistent with our theory, we find insolvent and poorly-capitalized mutual thrifts were much more likely to convert during the period of the deposit insurer's cash shortage than either before or after. Second, insolvent institutions had a higher propensity to pay dividends during the period of cash shortage. Third, using a model of regulatory and thrift behavior relating dividend payments to conversions, capital, and earnings, we find that initially insolvent mutual-to-stock converters were more likely to pay dividends out of earnings and were less constrained by low capital than other stock thrifts. We conclude by discussing how private debt covenants prevent this type of behavior in non-financial firms and how recent legislative changes can be interpreted as requiring regulators to impose similar types of covenants on depository institutions.

JEL Classifications: G21, G35, C51

Key Words: Thrift Crisis, Financial Distress, Dividends

## **Regulatory Incentives and the Thrift Crisis:**

### **Dividends, Mutual-to-Stock Conversions, and Financial Distress**

The interest rate spike of the late 1970s and early 1980s dramatically reduced the value of long-lived assets, such as fixed-rate home mortgages, thereby causing a large fraction of the thrift industry to become insolvent on a market-value basis. As a consequence, by the early 1980s the total liabilities of the Federal Savings & Loan Insurance Corporation (FSLIC) exceeded its resources (see Barth 1991).<sup>1</sup> The effective bankruptcy of both the government's thrift insurance agency and much of the thrift industry led to incentive problems for both regulators and thrift owners. To avoid explicit realization of the agency's insolvency, FSLIC had an incentive to practice regulatory forbearance (Kane 1989). Owners of thinly-capitalized or insolvent thrift institutions, in turn, had a strong incentive to raise the value of the deposit insurance contract through increases in asset risk and capital distributions to shareholders (e.g., Peltzman 1970 and Kormendi et al. 1989).

The combination of the incentive for the regulatory agency to avoid cash payouts, which would have been required to pay off depositors of insolvent thrifts but would have made its insolvency explicit, with the incentive for thrift owners to maximize the value of insurance, we argue, led to an unusual -- and ultimately costly to the taxpayer -- pattern of mutual-to-stock conversions and dividend payments by insolvent institutions. While risk-taking arising from the moral hazard problem associated with deposit insurance has been well-studied (e.g., Kane 1989 and Barth 1991), little attention has been given to the role of capital distributions.<sup>2</sup> We investigate how changes in incentives for both regulators and thrift owners from the late 1970s to the present affected both the mutual-to-stock conversion process and the dividend behavior of both long-standing stock thrifts and mutual-to-stock converters. This analysis permits us to assess the costs of the different regulatory regimes and evaluate how recent legislative changes, such as the 1991 Federal Deposit Insurance Corporation Improvement Act (FDICIA), have addressed these regulatory incentive problems.

More specifically, from the time of its effective bankruptcy until 1989, the FSLIC faced a severe shortage of cash with which to resolve insolvent thrifts. After 1989, a newly recapitalized deposit insurance and regulatory system was enacted with the passage of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA). Given the cash constraint during most of the 1980s, regulators attempted to substitute private capital inflows for payments from the deposit insurance fund. To encourage investors to inject funds into insolvent institutions, we argue that regulators had to provide special inducements such as lenient treatment of capital adequacy and dividend payments. The primary means for facilitating private capital inflows, the mutual-to-stock conversion, in fact brought about \$10 billion into the industry between 1980 and 1988.<sup>3</sup> This response, however, does not appear to have been the least cost alternative. Regulators did not have the incentive to take full account of the long-run costs of their policies; their objective was more to avoid, or at least postpone, the explicit bankruptcy of the FSLIC in the short run.

Our analysis of the data is consistent with the thrift regulators encouraging insolvent mutuals to convert to stock organizations and allowing these institutions to reward new investors with dividends rather than forcing them to retain earnings and rebuild capital.<sup>4</sup> First, we show that insolvent and thinly-capitalized mutual thrifts were much more likely to convert to stock form during the period of FSLIC cash shortage than either before the early 1980s or after the recapitalization of the deposit insurance fund in 1989. Second, we find a higher frequency of insolvent institutions both continuing to pay and increasing dividends during the period of FSLIC cash shortage than after. Third, we estimate a model of regulatory and thrift behavior during the 1980s that relates thrift dividend payments to conversions, capital, and earnings. Consistent with our theory, we find that mutual-to-stock converters paid more dividends out of current income than long-standing, chartered stock thrifts, particularly in cases in which the converted institution was insolvent prior to receiving the cash infusion from new stockholders. In addition, the capital adequacy of an institution does not

appear to have constrained the dividend payout behavior of the mutual-to-stock converters but was a constraint for chartered stock institutions.

The frequency of capital distributions by financially-distressed thrifts contrasts sharply with the behavior of non-financial firms in distress during the 1980s (DeAngelo and DeAngelo 1990 and DeAngelo, DeAngelo, and Skinner 1992). Non-financial firms typically face private debt covenants that prevent the distribution of capital to shareholders as a firm begins to enter financial distress, and insolvent firms will be seized by the debt holders or the courts and prevented from paying dividends to shareholders. This standard solution to the conflict between the interests of equity holders and debt holders did not occur in the thrift industry since regulators often permitted dividend payouts to occur when the thrift had little or no capital. We calculate a conservative, back-of-the-envelope estimate of the costs of the conversion policy, and the associated increases in dividend payments (particularly by insolvent converters), of at least \$6 billion. We conclude that the regulatory reforms of FDICIA can be interpreted as an attempt to introduce the equivalent of private debt covenants to avoid such losses in the future.

The next section briefly summarizes the mutual-to-stock conversion process and describes some important changes in thrift regulation of conversions and dividends. Section II outlines the incentives faced by the regulators and the shareholders during the 1980s and draws implications for conversion and dividend policies before and after the regulatory regime shifts. These implications are then tested in Section III, where we describe our empirical methods and results. Section IV summarizes our results and concludes with an assessment of recent regulatory changes.

## **I. The Regulation of Mutual-to-Stock Conversions and Dividends**

### ***A. Conversions***

During the 1980s, the thrift industry experienced a fundamental shift from mutual to stock as the dominant organizational form. Prior to this time, most thrifts had been mutual organizations in which the depositors, who technically are members of the savings association, legally own the mutual

thrift and, in some cases, hold "shares" rather than "deposits." In practice, however, the depositors-owners cede their voting rights to the board of directors, so management effectively controls these institutions (see Rasmussen 1988). Mutuals are prohibited from paying cash dividends or making capital distributions to the depositor-owners. Alternatively, thrifts may be organized as stock institutions, the same form which predominates in commercial banking. Stock thrifts operate like other corporations and may pay dividends to shareholders, and their depositors have no ownership interest in the thrift. Only after converting to the stock form could a mutual thrift avail itself of the opportunity to distribute cash dividends to owners.

The industry began in the 1930s with extremely few stock institutions. Between 1955 and 1975, the Federal Home Loan Bank Board (FHLBB) imposed a moratorium on virtually all mutual-to-stock conversions. Congress then lifted the moratorium on conversion by federally-chartered mutual thrifts operating in states which permitted stock thrifts, but relatively few mutual thrifts converted after this change. In 1982, the Garn-St Germain Act further relaxed restrictions on conversions by lifting the moratorium on conversion by federally-chartered mutuals in all other states, and the FHLBB streamlined and simplified the procedures for conversion. The rate of conversion immediately accelerated: roughly 80 percent of all mutual-to-stock thrift conversions through 1989 occurred after 1982 (see Cordell et al. 1993, Dunham 1985, Unal 1993 and Williams et al. 1987).

Table I illustrates the growth of stock organizations and the decline of mutuals during the 1980s. As of the end of 1983, roughly 20 percent of thrift institutions holding about 30 percent of total industry assets were stock organizations (Cordell et al. 1993, Unal 1993). Table I, Panel A illustrates the subsequent rapid growth of the stock thrifts. By 1988, stock thrifts represent 40 percent of the industry and hold almost 75 percent of total assets. As Table I, Panel B shows, this transformation occurs through both entry of newly chartered (de novo) stock institutions and the conversion of hundreds of mutual thrifts into stock thrifts. During the 1980s, more than \$10 billion of new capital flowed into the industry as a result of these conversions (Unal 1993).



During the 1980s, conversions could take three basic forms (see Table I, Panel B).<sup>5</sup> First, in the standard approach, the thrift's board would vote to change from a mutual to a stock charter. After obtaining both an independent valuation and approval of the regulators, the conversion could occur. Depositors would then have the right to purchase a fraction of the equity, management would have the right to purchase another fraction, and the rest would be offered to the public. Second, undercapitalized thrifts could undergo a "supervisory" conversion. These deals allowed the regulator to reduce or eliminate the depositor's equity, take actions to restructure the thrift's balance sheet, and recapitalize the firm, typically by issuing the equity to a private acquirer. Third, a mutual organization might convert to stock form in order to be merged with an existing stock institution.

#### *B. Dividend and Capital Regulation*

Prior to passage of FDICIA in 1991, little statutory attention had been given to dividend payments by thrifts (Conner and DeWitt 1991). Unlike commercial banks, thrifts faced no explicit legislative restraints on dividend payments relative to capital or earnings.<sup>6</sup> The only law addressing thrift dividend payments was the 1933 Home Owners' Loan Act which mandated that thrift subsidiaries of holding companies provide the regulators 30 days advance notice of dividend distributions. There were no similar requirements for "stand alone" thrifts.

In the absence of direct statutory authority over dividends, the thrift regulators' ability to regulate dividends arose from their power to enforce capital requirements. If the regulators chose to do so, they could impose on an inadequately capitalized institution a "supervisory agreement" requiring the thrift to retain earnings rather than pay those earnings out as dividends. The regulators, however, had much latitude with respect to determining the adequacy of capital. The 1982 Garn-St Germain Act, for instance, replaced explicit minimum capital adequacy ratios with a standard that simply required that the FHLBB require adequate capital. In addition, during the 1980s, the regulators broadened the definition of what could count as capital under Regulatory Accounting Principles (RAP). Unlike under Generally Accepted Accounting Principles (GAAP), for example,

thrifts were permitted to defer loan losses and include direct capital subsidies from FSLIC such as net worth and income certificates, which contribute directly to RAP capital.<sup>7</sup>

The thrift regulators thus had great flexibility to determine the rules governing dividend payments by individual institutions.<sup>8</sup> For unregulated, non-financial firms, restrictions on dividends typically arise through provisions in debt contracts, e.g., bond covenants, that prevent dividends payments that would impair a firm's capital (e.g., DeAngelo and DeAngelo 1990). In the thrift industry, however, such covenants were rare since most thrift liabilities were government-insured deposits. Since dividend restrictions were imposed primarily by regulators, we can examine thrift dividend policies to draw inferences about regulator's actions and incentives. The next section develops a theory linking the incentives and constraints facing the FSLIC and thrifts to conversion and dividend behavior.

## **II. Regulatory Incentives, Mutual-to-Stock Conversions, and Dividends**

Following the interest rate shock of the late 1970s and early 1980s, FSLIC faced increased pressures from three sources to defer addressing the insolvency problems in the thrift industry. First, owners of insolvent and thinly-capitalized thrifts clearly preferred forbearance to closure. Access to insured deposits gave insolvent thrifts an opportunity of returning to solvency by undertaking risky projects, and delaying regulatory action clearly increased the value of the insurance to the owners (see Kane 1986 and Allen and Saunders 1993). Second, thrift managers certainly preferred forbearance to closure since the former policy would maintain the value of managers' firm-specific (and industry-specific) human capital. The consequent increased pressure to forbear from managers and owners in the industry, unchecked by an offsetting increased pressure to facilitate early closure, may have lead to changes in favor of such policies in the 1980s (Stigler 1971 and Peltzman 1976).<sup>9</sup> Third, independent of increasing industry pressure, the regulators themselves may have had incentives to forbear (e.g., Kane 1989).<sup>10</sup> By postponing the recognition of the FSLIC insolvency, regulators (and politicians) with short time-horizons could push the costs associated with the "day of reckoning"

onto the next cohort of regulators (and politicians). We will test how these incentives were manifested with respect to thrift conversions and dividend policies until such forbearance policies became so costly that regulatory restructuring took place with FIRREA in 1989.

Consider the position of the FSLIC and the FHLBB vis-a-vis the insolvent segment of the industry. In effect, the FSLIC was akin to a holding company with an implicit stake in each thrift institution. Each thrift might be thought of as a separately incorporated and capitalized subsidiary which had the backing of the holding company. The regulator's stake arises because it acts as the guarantor of the unsecured creditors, that is, it was implicitly providing capital which permitted the individual thrifts to raise deposits at low rates.<sup>11</sup> This feature is the familiar put option interpretation of federal deposit insurance (Merton 1977). The stake, hence the potential liability, is directly related to the probability of insolvency of the institution. In contrast to a corporate holding company, however, the FSLIC only faced downside risk; all upside gains would accrue to shareholders.

In a private setting, the holding company would have three possible responses to insolvency at a subsidiary. First, close the troubled subsidiary, draw down the holding company's assets, and, perhaps, bankrupt the company. If the system is structured appropriately, the healthy subsidiaries should remain insulated and avoid bankruptcy. Second, shift capital from healthier subsidiaries to the troubled ones. Fears of such cross-subsidy contagion within a financial services conglomerate have led to strict "firewall" protections. The few commercial banks that have been permitted to enter the equity and bond underwriting business, for example, may do so only through separately capitalized and incorporated subsidiaries having no legal claim on the assets of the commercial bank (see Kroszner forthcoming and Kroszner and Rajan 1995). Finally, a third alternative is to convince the capital market to infuse new funds into the troubled subsidiary.

We argue that by the early 1980s FSLIC was in a similar position to the holding company and faced three similar sets of options.<sup>12</sup> The first course of action, in the context of the thrift industry, was followed in cases of insolvency resolution through liquidation. The FSLIC would seize the thrift,

sell its assets, and pay cash to the depositors. Prior to the \$50 billion infusion with FIRREA in 1989 (and subsequent infusions and increases in borrowing authority for the thrift insurance and resolution agencies), however, the FSLIC had extremely limited resources with which to pursue this option. Few insolvency resolutions involved cash expenditure by the FSLIC until the passage of FIRREA (see Barth et al. 1989). According to Resolution Trust Corporation records, over \$150 billion has been spent resolving over 740 thrifts since 1989. Our evidence in the next section demonstrates how the insolvency and eventual recapitalization affected regulatory incentives and actions.

The second solution, that of cross-subsidization, was not directly feasible because each of the "subsidiaries" of the FSLIC was in fact an independently owned entity. As a result, any merger of a solvent and insolvent institution would require some form of subsidy from the FSLIC. In the cases of "FSLIC assisted" mergers, these subsidies took the form of explicit cash infusions. In "supervisory assisted" mergers, the FSLIC did not pay out cash but simply facilitated the merger of a failing thrift with a healthy thrift. The FSLIC considered mergers when the failed institution had characteristics which might make the institution particularly desirable for another thrift or bank, e.g., location, branch network, large volume of core deposits, and significant tax benefits available (see Barth et al. 1989).

Completing the holding company analogy, the third option discussed above was used most heavily in the case of mutual-to-stock conversions. As noted in Section I, hundreds of conversions took place after passage of the Garn-St Germain Act and the streamlining of the conversion process by the FHLBB in 1982. The conversion of a troubled mutual would bring new private capital into the converting thrift. At least in the short-run, this capital infusion would relieve the FSLIC of the burden of closing the thrift and making a cash disbursement to its guaranteed depositors. The FSLIC was well aware of the salutary effect that conversions had on their cash flow. As members of the Office of the General Counsel at the FHLBB noted (Williams et al. 1987), conversions were encouraged since "... every dollar of outside capital raised could be a dollar that the financially

strapped Federal Savings and Loan Insurance Corp. ('FSLIC') would not have to expend." The problem facing the FSLIC, then, was to convince investors to put money into the many insolvent mutuals while conserving its limited resources (see Unal 1993).

We argue that, during the period of cash shortage, the FSLIC replaced direct cash subsidies with option value to these investors. One objective of the regulators was to minimize cash disbursements, since explicit bankruptcy of the FSLIC was costly to them. The regulators, as argued above, had short time-horizons so they applied a high discount rate to future disbursements. The potential investors would wish to maximize the value of the primary asset of an insolvent thrift, namely the put option of deposit insurance. To encourage private investment, the regulators therefore chose to relax capital adequacy and, hence, dividend policy up to the point where the (heavily discounted) expected future costs balanced the current costs of explicit bankruptcy.<sup>13</sup>

Since the put option value of deposit insurance can be increased by increasing the rate of dividend payout, this hypothesis implies that insolvent mutuals that converted would be permitted to pay higher dividends, conditional on relevant financial characteristics such as earnings and capital, than other stock thrifts. This was possible since no explicit statute linked dividend restrictions to capital or income. By loosening dividend restrictions at mutual-to-stock converters, the FSLIC could encourage subsequent inflows by signaling to potential investors about future treatment. In contrast, DeAngelo and DeAngelo (1990) show that non-financial corporations face explicit debt covenants which typically come into play whenever capital and/or income fall below pre-specified levels, leaving little discretion to pay dividends. The reforms embodied in the 1991 FDICIA largely eliminate the regulator's discretion with respect to dividends, thereby imposing constraints closer to those faced by unregulated firms, so our analysis sheds light on the importance of these recent regulatory changes.

### III. Empirical Implications and Results

#### *A. Thrift Conversion and Dividend Behavior under Different Regulatory Regimes*

In this subsection we describe changes in the pattern of mutual-to-stock conversion and dividends during the following three periods: 1) before the passage of the 1982 Garn-St Germain Act, which approximately coincides with the effective insolvency of the FSLIC, 2) the period of FSLIC bankruptcy and regulatory forbearance (1982-1988), and 3) the period following replacement of the old regulatory bodies and recapitalization of the deposit insurance fund (1989-1992). In the early period, we find few mutual-to-stock conversions of insolvent mutual thrifts. During the second period, we find a large number of insolvent mutual thrifts converting to stock form. In addition, large numbers of insolvent thrifts pay dividends. During the last period, we find a sharp reduction in conversion by insolvent mutual thrifts. In addition, almost no insolvent thrifts paid dividends after recapitalization of the thrift deposit insurance fund.

##### *A.1. Conversions*

If the cash shortage at the FSLIC led thrift regulators to attempt to draw new capital into the industry, insolvent mutuals should have a greater propensity to convert between Garn-St Germain in 1982 and FIRREA in 1989 than before or after. We see precisely this pattern in Table II, which compares annually the percent of mutual thrifts that convert, depending upon their solvency status in the previous year. Since we do not have access to the market values of thrift net worth, we use Tangible Capital (TAP) to evaluate solvency (see Barth 1991, Blacconiere et al. 1991, and White 1991). TAP capital equals GAAP capital minus intangible assets. GAAP capital is defined as the sum of initial capital, that is, par plus surplus value of equity, and retained earnings. TAP capital provides a more conservative and probably more accurate measure from the financial statements of the true capital position of thrifts during the 1980s than either GAAP capital or RAP capital.<sup>14</sup>

Prior to Garn-St Germain, no insolvent mutual converted to stock form while roughly one percent of solvent mutuals per year did convert. Between 1982 and 1988, insolvent mutuals

converted at an average rate of approximately seven percent per year, whereas the rate for solvent mutuals was about four percent per year. In each year, a greater percentage of insolvent than solvent thrifts converted and, in most of these years, the difference is statistically significant. Following FIRREA, the average annual conversion rate for insolvent mutual falls by more than half, while the rate for solvent mutuals remains roughly constant. Except for the transition year 1989, the propensity of insolvent mutuals to convert is below that of the solvent mutuals. Although these differences are not statistically significant after 1989, the gap grows with time so that no mutuals which were insolvent in 1992 converted to stock form in 1993. The elevated conversion rate of insolvent mutuals during the period of FSLIC cash shortage is consistent with the notion that regulators encouraged conversions as a means of avoiding direct outlays to resolve the insolvent thrifts.

As an additional test of whether poorly capitalized mutual thrifts found conversion particularly attractive during this period, we compare the capital-asset ratios of the converters and non-converters and the percent of converter and non-converters that are insolvent. Table III presents annually the mean TAP capital-asset ratio and the percent insolvent for all stock thrifts, non-converting mutual thrifts, and mutuals that convert in the next year.<sup>15</sup>

Before 1982, as noted above, there were no insolvent converters, and there were relatively few insolvent thrifts overall. In sharp contrast, from 1982 to 1988, roughly 27 percent of the converters are insolvent, whereas only approximately 17 percent of the non-converting mutuals are insolvent, which is about the same percent as all stock institutions in these years. After FIRREA, the percent of converters that are insolvent steadily declines to zero by 1992. Between 1989 and 1992, the percent of converters that are insolvent is now less on average than the percent of the population of non-converting mutuals that are insolvent. The incidence of insolvency among the converters thus is high during the period of FSLIC cash shortage, both as a percentage of all converters and relative to the earlier and later periods.

Consider now the TAP capital-asset ratios in Table III. Although the converting mutuals in the pre-1982 period do have lower average capital-asset ratios than the non-converting mutuals, the converters are still relatively well-capitalized, with an average TAP capital-asset ratio of four percent. From 1982 to 1988, the converters again have lower capital ratios than the non-converting mutuals. While not reported in the table, we also find that the mutuals that do convert during this period tended to be larger and had lower returns on assets than the mutuals that do not convert.<sup>16</sup> After 1988, the capital-to-asset ratios now are higher on average higher for converting mutuals than for the other mutuals. This finding is consistent with our hypothesis that once the deposit insurance agency was recapitalized, the regulators would have less reason to encourage the conversion of poorly capitalized mutuals.

#### *A.2. Dividends*

Our theory also has implications for dividend payments by insolvent versus solvent thrifts, particularly for the initially insolvent mutual-to-stock converters. The next subsection focusses on the converters in detail. In this subsection, we contrast dividend payments by insolvent stock thrifts with solvent stock thrifts before and after regulatory changes. We also compare dividend patterns of financially distressed thrifts with non-financial firms experiencing financial distress.

Table IV provides a brief overview of income and dividends paid on common stock at all stock thrifts and at insolvent stock thrifts. The sample period begins in 1984 because that is the first year in which the Thrift Financial Reports have a distinct item for cash dividends paid on common. The statistics in Table IV indicate a clear general shift -- consistent with our regulatory incentives theory -- toward more conservative dividend behavior by insolvent thrifts around the time of FIRREA in 1989. On average, in each year between 1984 and 1988, about 10 percent of insolvent stock thrifts pay dividends compared with roughly 25 percent in the entire population of stock thrifts (see column 2). After FIRREA in 1989, however, the percent of insolvent thrifts paying dividends dwindles to zero while the percent of thrifts overall paying dividends grows to almost 50 percent.



Column 6 of Table IV also shows that insolvent institutions account for about 10 percent of total industry dividends paid before 1989 but a negligible fraction of the amount paid after 1989.<sup>17</sup>

The distribution of dividends to shareholders of thrifts suffering severe financial distress is in marked contrast to the dividend responses of non-financial firms that experience distress during the 1980s. DeAngelo and DeAngelo (1990) and DeAngelo, DeAngelo and Skinner (1992) find that New York Stock Exchange firms with long dividend histories tend to react quickly and vigorously to both one-time losses and protracted financial distress.<sup>18</sup> Half of the DeAngelo et al. (1992) sample experiencing a single annual loss, for example, omit or reduce their payout during the year of the initial loss. For firms experiencing at least three years of annual losses, DeAngelo and DeAngelo (1990) report that 82.5 percent of the firms omit their dividends, 15 percent cut their dividends, and 2.5 percent do not reduce their dividends. They do not find any instances of raising dividends in the face of financial distress. When examining profitable firms, DeAngelo et al. (1992) find only one percent of firms cut their dividends.

To compare the dividend patterns in our thrift sample before and after FIRREA to the results for troubled non-financial firms, we construct a frequency distribution of changes in dividend payouts for stock thrifts in Table V. Since few thrifts have long dividend histories, we simply compare the payment in the previous year to dividends paid in the current year. Rather than present each year separately, Table V reports the distribution of year-to-year changes for stock thrifts in each year between 1985 and 1988 (pre-FIRREA) in Panel A and between 1989 and 1992 (post-FIRREA) in Panel B. The thrifts in each year are divided into two categories based on their financial health: thrifts with positive TAP capital and thrifts with negative TAP capital.<sup>19</sup> Panel A of Table V contains a total of 4,289 firm-year observations, and Panel B has 3,891 firm-year observations. Both before and after FIRREA, we find a much higher proportion of the insolvent thrifts do not pay dividends in either the current or the previous period, relative to thrifts with positive capital. We also find that insolvent thrifts are more likely to omit or decrease their dividends relative to solvent thrifts.

While these results are broadly consistent with DeAngelo and DeAngelo (1990) and DeAngelo et al. (1992), an important difference arises when we examine the frequency of thrifts maintaining or increasing dividends in the face of severe financial distress. In the pre-FIRREA period (Panel A), more than 40 percent of the observations of dividend-paying insolvent institutions involved dividend increases or initiations. In contrast, following FIRREA (Panel B), 89 percent of the observations of the previously dividend-paying insolvent institutions cut or omit their dividends.<sup>20</sup> More specifically, we find 60 insolvent thrifts in the early period but only 3 insolvent thrifts in the later period increasing cash dividends.<sup>21</sup>

DeAngelo and DeAngelo (1990) found that bond covenants were binding for a majority of their distressed firms, thereby requiring cuts or omissions and not permitting increases in the face of financial difficulties. In contrast, thrifts typically did not face private debt covenants since thrift creditors (depositors) were shielded from losses by deposit insurance. Consistent with our regulatory incentives theory, the regulators do not appear to have enforced similar prudential covenants to prevent erosion of capital on a set of thrift institutions during the period of FSLIC cash-shortage but appear to have done so after the recapitalization of the deposit insurance fund. We now explore in more depth the roles of earnings and capital on dividend behavior of initially insolvent mutual-to-stock converters relative to other converters and chartered stock thrifts.

#### *B. Capital and Earnings as Constraints on the Dividend Behavior of Converters and Chartered Stock Thrifts*

We now develop a model relating earnings and capital to dividend payout behavior of different types of thrifts.<sup>22</sup> We compare the dividend behavior of different types of thrifts during the 1984-1988 period, the period following passage of Garn-St Germain but prior to FSLIC recapitalization in 1989 as a test of our model of regulatory behavior during a period of cash shortage. Our discussion of the FSLIC's options in dealing with insolvencies during the 1982-1988 period leads to the following prediction: insolvent mutual-to-stock converters faced less restrictive

dividend constraints than other converters and chartered stock institutions.<sup>23</sup> We estimate the model during this middle period but not the early (pre-1982) or late (post-1988) periods for two reasons. First, as Table III shows, no insolvent mutuals converted before 1983, when Garn-St Germain took effect. In addition, as noted above, comparable data on cash dividends on common stock is not available before 1984. Second, following FIRREA in 1989, only one insolvent mutual that converted paid a dividend through the end of 1992. The primary testable implication of the theory, that insolvent mutual-to-stock converters pay more dividends than other thrifts, thus is estimable only during the 1984-1988 period. The absence of dividend-paying, insolvent converters during the other two periods is consistent with our theory of regulatory incentives.

### *B.1. Variable Definitions and Tobit Specifications*

The key test of our regulatory theory involves special treatment of insolvent converters. In this section, we define a "converter" as any thrift which switched from mutual to stock form after 1983. By "chartered stock" we mean any thrift operating as a stock organization prior to 1983, that is, thrifts originally chartered as stock organizations or which converted prior to 1983.<sup>24</sup> We estimate a model of dividend payments made during the 1984 to 1988 period (in constant dollars).<sup>25</sup>

Since thrift dividends do not exhibit the smooth pattern of non-financial firms, our regression analysis examines a dividend payment horizon longer than one year.<sup>26</sup> We aggregate dividends paid during the entire 1984 to 1988 period, thereby using cross-sectional variation in our regressions. Our dependent variable is calculated by annualizing the dividend (total cash dividend payments over the period divided by the number of years the thrift operates as a stock organization) and dividing by total assets at the beginning of the period.<sup>27</sup> If a thrift operated as a stock institution from 1984 through 1988, for instance, the sum of dividends paid from the beginning of 1984 to the end of 1988 are first annualized by dividing by five. This figure is then divided by total assets as of the end of 1983 to yield the dependent variable. Since roughly half of the thrifts paid no dividend during the sample period, we use a Tobit procedure to estimate the model.<sup>28</sup>

To explain dividend behavior, we focus primarily on the roles of earnings and capital. As our earnings measure, we use the annualized net income earned over the same period in which the dividends were measured (i.e. the sum of net income for each year divided by number of years), again normalized by beginning of period assets. Since dividends may be paid at any time during the 1984 to 1988 period, this earnings measure potentially includes information about past, present and (actual) future earnings, allowing us to remain agnostic in the debate over whether dividends are a forward or backward looking function of earnings (DeAngelo et al. 1992).

We examine two specifications of capital. First, in the simple specification we include an indicator variable equal to one for TAP-capital insolvent thrifts (at the beginning of period) and zero otherwise. For the converters, solvency is calculated as of the end of the year prior to conversion (that is, at the end of the last year of operation as a mutual). For the chartered stock thrifts, the insolvency indicator is measured as of the end of 1983 unless the thrift newly enters (*de novo*) during the 1984 to 1988 period, in which case solvency is calculated as of the end of the first year of operation.

The second capital specification includes a detailed breakdown of the different components of initial capital relative to beginning of period assets, in addition to the insolvency indicator. We estimate the second specification in order to determine whether different components of capital exert different influences on the payment of dividends. Specifically, capital is broken down into the following components: 1) retained earnings, 2) par plus surplus value of equity, 3) intangible assets (primarily goodwill), and 4) other pieces of capital included under Regulatory Accounting Principles (RAP). The timing of the measurement of the capital components is the same beginning of period timing as described above for the insolvency indicator, except for the par plus surplus value of equity for the converters. Since mutuals have no common stock, the value for par plus surplus value of equity is measured at the end of the first year the converter operated as a stock organization. For the converters, this variable measures the inflow of capital resulting from the conversion process.

The first two components of capital, retained earnings and par plus surplus value of equity, constitute the book value of equity capital under Generally Accepted Accounting Principles (GAAP). The other pieces of capital under RAP are primarily net worth and income certificates, deferred losses on loans sold, appraised equity capital and some elements of subordinated debentures (see note 6 for details on the definition of RAP capital). These elements of capital constitute in large part an investment by the FSLIC in the institution rather than investment by stockholders. We can test to see whether regulators permitted a more lenient dividend policy for thrifts with large amounts of RAP capital.

To test the hypothesis that insolvent mutual converters faced less stringent dividend restrictions than other stock thrifts, we interact the insolvency indicator with the net income variable. If the FSLIC replaced cash with implicit option value to draw capital into insolvent mutuals, we would expect the coefficient on the interaction of earnings with insolvency to enter with a positive sign for the converters. Specifically, we expect converters which were initially insolvent to pay a higher proportion of subsequent earnings as dividends than converters that were initially well capitalized. For chartered stock thrifts starting in a state of insolvency, we expect subsequent earnings to be more likely to be retained in order to rebuild capital. This hypothesis suggests that the sum of the coefficient on earnings and the coefficient on the interaction of solvency with earnings should not differ measurably from zero for the chartered stock thrifts.

We also consider an alternative hypothesis that the converting thrifts simply were more likely than other stock thrifts to pursue high risk strategies designed to facilitate high payouts to shareholders. One such strategy is for these thrifts to expand rapidly and invest in assets which would generate cash in the early years to support dividend payouts. According to this alternative, if we control for the desire to pay dividends through risky investment growth, we should not observe any differences between the payout behavior of the converters and chartered stock thrifts. In our first set of regressions (Panels A and B of Table VI) we include the initial ratio of VA, FHA and

conventional home mortgages to total thrift assets in order to control for the extent to which each institution engages in traditional thrift activities (see Barth 1991). We also augment our model of dividend behavior to include proxies for risk based on ex-post behavior (Panel C of Table VI). In particular, we add the change of the share of mortgages relative to assets over the period and the average annual asset growth for each thrift during the period. As with the earnings variable, we interact both the change in the mortgage share and the asset growth variables with the initial insolvency indicator.

All of our specifications also include two variables to control for whether a thrift is closely held. Closely held thrifts may have means besides dividend payment through which to compensate owners. Distributions in the form of high salaries and perquisites to owner-managers and high fees to owner-directors, for instance, may be preferred to dividends because these distributions avoid the double taxation of dividends.<sup>29</sup> In addition, dividends may have less "signalling" value at closely held firms since owners usually will be better informed about the firm's prospects than in widely held firms. As (inverse) proxies for being closely held, we include an indicator for whether the thrift has publicly-traded equity (one if publicly traded and zero otherwise) and the log of initial assets since there is an inverse relationship between ownership concentration and size (see, e.g., Demsetz and Lehn 1985 and Holderness, Kroszner, and Sheehan 1995). If being closely held reduces the propensity to pay dividends, we would expect these variables to correlate positively with dividend payments.

Finally, to adjust for any effects which might be associated with the length of time a thrift operated under the stock form, all of the specifications also include indicator variables controlling for the number of years which the thrift operates as a stock institution during the sample period. For presentational clarity, we do not report the coefficients on the length-of-operation indicators.<sup>30</sup>

## *B.2. Results*

Table VI, Panels A and B, contain the main results. The regressions in Panel A are based on pooled data, including both types of thrift forms; Panel B contains separate estimates for the chartered stock thrifts and the converters. As noted above, we present two basic specifications with respect to capital in each panel: the first has only a beginning of period insolvency indicator while the second also includes all of the components of capital relative to beginning of period assets.<sup>31</sup>

The results for the pooled data in column (1) of Panel A are consistent with what might appear to be "normal" dividend payment behavior. Firms with greater income pay more and firms with impaired capital pay less. Moreover, the negative sign on the interaction of net income and insolvency implies that initially insolvent firms are much more likely to retain earnings and build capital, rather than pay earnings out as dividends. Consistent with the view that smaller firms may use methods besides dividends to reward owners, the coefficient on the log of assets variable is positive. All of these coefficients, except the coefficients on the publicly-traded indicator and the initial insolvency indicator, are statistically significant. When we use the expanded capital specification (column 3), we find the same sign pattern. Retained earnings and par plus surplus of equity have positive and statistically significant coefficients, indicating that these components of capital have an important influence on firms' dividend decisions. If we consider the share of home mortgages in a thrift's portfolio as a proxy for the conservativeness of the thrift's assets, then the positive and statistically significant coefficient on this variable implies that thrifts with "reliable" income streams pay more dividends. The positive relation between mortgages and dividends also may reflect unmeasured capital gains enjoyed by thrifts holding large amounts of mortgages which occurred as interest rates fell during the period.<sup>32</sup> Thrifts with greater assets also appear to pay more dividends. The coefficient on the publicly-traded indicator is very small and not precisely estimated.

To test whether the dividend behavior of chartered stock and mutual thrifts differ, each specification also includes an indicator for whether the thrift converted from mutual to stock after 1983. In each case, the converter indicator is positive and highly statistically significant. This result implies that, *ceteris paribus*, converters on average pay higher dividends than do the chartered stock institutions. More specifically, our theory predicts that the capital impaired converters should be permitted to pay dividends rather than retain earnings. To test this notion, we interact the converter indicator with income and with the interaction between income and initial insolvency in each specification (columns 2 and 4). Focussing on the last interaction term, we find that initially insolvent converters are much more likely to pay out income than are initially insolvent chartered stock thrifts. When the converter interactions are included, the insolvency indicator and the insolvency-income interactions become more negative in both specifications, and the insolvency indicator in the simple specification becomes statistically significant. The levels and precision of estimates of the other coefficients are unchanged. The results in Panel A of Table VI thus are consistent with our prediction: dividend restrictions appear to have been loosened when capital-impaired mutual thrifts convert to stock form with the infusion of private capital.<sup>33</sup>

Panel B of Table VI estimates the dividend model from columns (1) and (3) of Panel A separately for chartered stock thrifts and converters. A likelihood ratio test comparing the log likelihoods of the constrained model (e.g., column 2 from Panel A) to the sum of the log likelihoods in the unconstrained regressions (e.g., columns 1 and 2 of Panel B) clearly rejects the pooled specification. At the bottom of Panel B, we see that a higher proportion of converters pay a dividend during the sample period, and the mean of the annualized flow of dividends (that is, the dependent variable) is somewhat higher. As in the pooled regressions, the coefficient for the insolvency indicator is negative and the coefficient for the income coefficient is positive for both the chartered stock thrifts and the converters. The key contrast is the coefficient estimates for the interaction between net income and insolvency: they are highly statistically significant for both groups of thrifts



but with opposite signs. Consistent with our theory, the interaction coefficient is negative for chartered stock thrifts but positive for the converters. In addition, the sum of the coefficient estimates for the net income variable and its interaction with insolvency is positive and statistically significantly different from zero for the converters but not for the chartered stock thrifts. Unlike insolvent chartered stock institutions which retain income on the margin, insolvent converters tend to pay out increments to income.

To assess the economic significance of these differences, we calculate the marginal impact of a dollar increase in net income on dividends paid at the sample means for the variables in the expanded capital specification (columns 3 and 4). The tobit coefficients imply that an insolvent converter with a return on assets of one percent per year would pay out roughly nine cents of the additional dollar of income, whereas a solvent converter would pay out only two cents. In contrast, an insolvent chartered stock thrift (also with a return on assets of one percent per year) would pay out nothing, whereas a solvent chartered stock would pay out roughly three cents.<sup>34</sup>

The coefficient estimates on the components of capital also yield interesting contrasts. The coefficient on retained earnings to beginning of period assets ratio is positive and statistically significant for chartered stock thrifts. In contrast, this variable appears to have little effect on the converters' dividend decisions. This suggests that the chartered stock sample of thrifts faced capital constraints on dividend behavior not faced by the converters. The coefficient on par plus surplus value of equity is positively and statistically significantly correlated with dividend payments in both samples of thrifts. The coefficient on the part of capital included in RAP capital but not GAAP capital relative to assets is positive for both chartered stock and converters. This coefficient is larger and measured more precisely, but not statistically significantly at conventional levels, for the converters than for the chartered stock thrifts. Intangibles relative to assets does not have a statistically significant influence on dividend payment for either group of institutions. Finally, the sign on the coefficient for mortgages as a fraction of total assets again is positive and statistically

significant for both sets of thrifts, indicating that thrifts which specialized in traditional lines of business paid more dividends.

### *B.3. Robustness of the Results*

We now examine the robustness of the results described above. One concern may be the way in which our model deals with heteroskedasticity, since the Tobit estimator requires homoskedasticity for consistency. By normalizing our variables by total assets, we eliminate heteroskedasticity if the variance in dividend payments is proportional to the square of total assets (i.e. of the standard deviation of dividends is proportional to total assets). Rather than scaling by an initial stock variable, we tried normalizing dividends and earnings by a measure of gross cash flow over the period, namely, total interest income. The Tobit estimation of this model leads to the same results we found with the total assets normalization (see Appendix, Panel C). In particular, as the  $\chi^2$  statistics show, we continue to find that insolvent chartered stock thrifts retained earnings to rebuild capital while initially insolvent converters' dividends increased with earnings.

The results presented to this point establish that initially insolvent converters paid more out of earnings to shareholders than did longstanding stock thrifts. According to our theory, this behavior reflects a policy designed to encourage investment in mutual-to-stock conversions as a mechanism to rescue thinly capitalized mutual thrifts. We now consider the alternative hypothesis that the converting thrifts were more likely than other stock thrifts to pursue a high risk and high growth strategy designed to facilitate high payouts to shareholders.

Panel C of Table VI shows the results of our dividend model augmented with proxies for growth and risk-taking (in columns 1 and 2) and their interactions with initial insolvency (in columns 3 and 4). High-growth thrifts appear to have paid lower, not higher, dividends than slow-growth thrifts. This result indicates that, *ceteris paribus*, the rapidly growing thrifts may have retained more earnings to facilitate such growth; high growth does not appear to be related to high dividends. While the interaction term between initial insolvency and asset growth is positive and statistically significant

for the converters, the sum of the asset growth coefficient and the interaction term remains negative but is not statistically significantly different from zero. Neither coefficient is statistically significant for the chartered stock thrifts. In the first two columns of Panel C, decreases in mortgages as a share of the portfolio (hence greater risk-taking during the period) lead to higher dividends for both the chartered stock and converting thrifts. When the interaction with insolvency is included, however, the sum of the insolvency interaction and the change in the mortgage share of the portfolio is still negative but not statistically significant for either the chartered stock or the converting thrifts. These results provide only limited support for the hypothesis that, *ceteris paribus*, risk-seeking thrifts tended to increase dividends. Despite the inclusion of the risk and growth variables, the key contrast between the converters and chartered stock thrifts remains: insolvent converters, on average, used earnings to support dividend payments while insolvent chartered stock thrifts did not.

### *C. Costs of the Conversion Policy*

Evaluating the costs of the conversion policy and encouraging private capital inflows through lenient dividend treatment of converters is extremely difficult. The key problems are, first, deciding what alternative policy to use as a benchmark and, second, determining the costs associated with that alternative policy (e.g., Kane and Yu 1994). With these important caveats in mind, we consider two very simple feasible alternatives and use a matching technique to measure the costs of the actual conversion policy to the deposit insurance agency.

#### *C.1. The Costs of Permitting Insolvent Mutuals to Convert*

Our first benchmark policy alternative assumes that the regulators did not permit insolvent mutuals to convert and, instead, treated them like other mutual thrifts which, in fact, did not convert during the 1980s. We estimate the costs of preventing only insolvent mutual thrifts from converting as the difference between the ex-post costs of resolving the initially insolvent converters and the ex-post resolution costs associated with a set of ex ante similar mutual thrifts that did not convert. To generate this comparison group, we create a "matched" sample of insolvent mutuals that did not

convert. In the year prior to conversion, we match each insolvent converter with another non-converting mutual with a similar level of (negative) TAP capital.<sup>35</sup> The costs of resolving the matched sample of mutual thrifts provides the benchmark for what it would have cost to resolve the converters if the regulators had not permitted any conversions. The Resolution Trust Corporation (RTC) provides estimates of actual closure costs for individual institutions.<sup>36</sup>

We find that permitting insolvent mutuals to convert is more costly than the alternative policy. On average, the insolvent converters had initial negative TAP capital of \$47.0 million; our matched sample of insolvent mutuals had an average negative TAP capital of \$42.8 million. For the insolvent converters, the average resolution cost of \$154.4 million is \$107.4 million more than the cost of closing them at the time of conversion (using TAP capital as our comparable cost of initial closure).<sup>37</sup> By contrast, the resolution cost for our matched mutuals that did not convert grew by only \$45.7 million, to \$88.5 million. Even though the converting mutuals received an average private capital inflow of \$43 million upon conversion, the insolvent converters were still an average of \$65.9 million more costly for the RTC to resolve than ex ante similar insolvent mutuals that did not convert.<sup>38</sup> Multiplying the average increased resolution cost by the 92 initially insolvent converters, we estimate that the policy of allowing insolvent mutuals to convert rather than preventing the conversions and treating them like other mutuals were treated during the 1980s added about \$6.1 billion to the total resolution costs paid by the RTC.<sup>39</sup> This difference is due, at least in part, to the high dividend payout rate of the initially insolvent mutual-to-stock converters.

### *C.2. The Costs of the Overall Conversion Policy*

The first scenario could overestimate or underestimate the costs of the overall conversion policy, since it only considers initially insolvent converters.<sup>40</sup> To assess the overall policy, our second benchmark alternative assumes that regulators imposed a moratorium on all conversions, so we compare a policy of no conversion between 1984 and 1988 with the actual policy that we observe. Here we estimate the costs of the conversion policy as the difference between the ex-post costs of

resolving the converters with the ex-post resolution costs associated with a set of ex ante similar mutual thrifts that did not convert. As described above, we generate a "matched" sample of mutuals that did not convert. In the year prior to conversion, we match each converter with another non-converting mutual with a similar level of TAP capital.

Overall, the average converter had negative TAP capital of \$2.0 million; our matched sample of mutuals had an average negative TAP capital of \$1.3 million (the difference is not statistically significant). For the converters, the average resolution cost is \$50.2 million, compared with only \$23.9 million for our matched sample of mutuals that did not, in fact, convert. The difference in resolution costs is statistically significant at the five percent level. Despite the inflow of private capital, the converters ultimately were more costly to the RTC (i.e., to the taxpayer) than the non-converting mutuals. The first policy alternative therefore does not appear to overestimate the costs of the actual conversion policy. While the average resolution cost was roughly three times as large for the insolvent converters compared to the average cost for all converters (\$154 billion versus \$50 billion), even the solvent converters ultimately imposed greater costs on the RTC than a similar set of non-converting mutual thrifts. If we take the step of multiplying the difference in the resolution cost by all 443 converters, we have a very rough, back-of-the-envelope added resolution cost of about \$11.5 billion for the conversion policy during the 1984-1988 period.

#### **IV. Conclusions**

We have used evidence on dividend behavior in the thrift industry to investigate the regulatory response to the thrift crisis of the 1980s. The thrift regulators held insufficient cash resources to resolve all of the market-value insolvencies. As a result, we argue, regulators searched for substitute means of recapitalizing troubled thrifts, and one method was to bring new private capital into failing institutions. Mutual-to-stock conversions were the main channel for this inflow. To encourage the continued influx of private capital into troubled thrifts, we argue that the regulators permitted higher dividend payments relative to capital and income for the previously insolvent or thinly-capitalized

converters. This policy allowed the FSLIC to replace direct cash resolutions of failing thrifts with the option value of deposit insurance, thereby inducing investment into failing mutuals.

Consistent with our hypothesis, mutuals that converted on average had weaker capital ratios than the mutuals that did not convert. Relative to stock thrifts, the converters were more likely to pay dividends when their current income was negative and when their TAP capital was negative. A Tobit model contrasting the dividend choices of converters with long-standing stock institutions indicates that initially insolvent converters were more able to pay dividends out of income than either other solvent converters or chartered stock thrifts. The converters, both solvent and insolvent, generally were less constrained by capital and income than the chartered stock thrifts were.

In sharp contrast to non-financial firms, we find a number of distressed thrifts introduced or increased dividends. For firms without government insured liabilities, debt covenants typically would have become binding to prevent dividend payments in such circumstances. The 1991 Federal Deposit Insurance Corporation Improvement Act (FDICIA) has introduced the equivalent of private debt covenant protections for the deposit insurance fund by laying down clear guidelines that relate dividend payments by financial institutions to their financial health -- in terms of both recent earnings and capital (see Conner and DeWitt 1991). Whether the guidelines have been set at appropriate levels, however, is beyond the scope of this paper.

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## FOOTNOTES

1. By the thrift industry we mean state and federal savings associations insured by the FSLIC in the 1980s and now insured by the Savings Association Insurance Fund. This excludes state-chartered savings banks insured by the Federal Deposit Insurance Corporation (FDIC).
2. Recent exceptions are Akerlof and Romer (1993), which touches on thrift industry dividends as an illustration of their theory of "looting," and Esty (1995), which provides a case study of a thinly capitalized mutual-to-stock converter which paid dividends. Peltzman (1970) investigates how bank capital regulation and deposit insurance affects the amount of capital banks choose to hold.
3. To gauge the magnitude of the infusion, for the industry as a whole, total net worth (calculated by generally accepted accounting principles) ranged between \$20 billion and \$50 billion during this period (see Unal 1993).
4. As we discuss in the next section, mutuals cannot pay dividends but mutuals that convert to stock organizations can.
5. Data on conversions are from Cordell (1993) and Fleck (1994). See Peristiani and Wizman (1994) for a detailed description of the conversion process.
6. By law, commercial banks are prohibited from paying dividends that would impair capital, and dividend payments in a year generally may not exceed the sum of current earnings and earnings retained from the previous two years. See Sections 56 and 60 of Title 12 of the United States Code, 12 USC 56 and 12 USC 60, (Conner and DeWitt 1991). The language of these statutory guidelines, however, still left some room for regulatory flexibility with respect to commercial bank dividend policies.
7. Five major changes which reduced the value of RAP as an indicator of the economic well-being of thrift institutions are of note (see Barth 1991 and White 1991). First, beginning in 1980, the FHLBB included a variety of subordinated debentures as part of RAP capital. Second, starting in 1981 thrifts could defer and amortize losses on the sale of mortgage loans, mortgage-related securities and "illiquid" debt securities. Under Generally Accepted Accounting Principles (GAAP), such losses must be recognized immediately. Third, starting in 1982 thrifts were allowed to include appraised equity capital in RAP capital. This item equals the difference between the appraised market value and the current book value of fixed assets such as buildings, offices and land. Fourth, the Garn-St Germain Act authorized the FSLIC to issue promissory notes to undercapitalized thrifts in return for income certificates and net worth certificates. The value of these certificates could then be counted as part of RAP capital (see Blacconiere et al. 1991). Finally, RAP capital became less reliable as a measure of financial health through generous inclusion of intangible

assets. Goodwill, the main element of intangible assets for thrifts, equals the difference between the market and book value of assets purchased by the institution. Large amounts of goodwill were created when thrifts acquired thinly capitalized or insolvent institutions and paid more than the accounting net worth. The FHLBB also extended the amortization period for goodwill from 10 to 40 years.

8. A report by the Office of Thrift Supervision, the successor agency to FHLBB, by Bisenius and Gordon (1989) states: "Currently, there is no uniform regulation controlling capital distributions by thrifts. Instead, a series of rules governs various institutions." The report goes on to describe rules applied to mutual-to-stock converters which placed limits on stock repurchases and dividends for the three years after conversion. The results of our model of dividend payments, however, suggests that the rules on dividends either were not common or not enforced.

9. During the 1980s, the U. S. League of Savings Associations, which represented the views of thrift owners and managers, was an effective lobbyist and significant contributor to politicians' election campaigns (see Kane 1989, Romer and Weingast 1992, and Kroszner and Stratmann 1995). Our discussion of the industry pressure on regulators and politicians to forebear is consistent with a "capture" theory of regulation (Stigler 1971 and Peltzman 1976).

10. This discussion of incentives facing regulators is a specific manifestation of a broader literature on the principal-agent problem (e.g., Alchian and Demsetz 1972 and Jensen and Meckling 1976, and the articles in Putterman and Kroszner forthcoming), applied in the context of government regulators.

11. Strahan (1995) presents evidence that some financially weak thrifts had to bear a small risk premium on insured deposits. Peltzman (1970) examines how deposit insurance substitutes for bank capital.

12. While the exact timing of FSLIC's insolvency and its realization by the regulators is difficult to determine, most observers would not put the date later than 1982 (see, e.g., White 1991).

13. As we describe in more detail below, consistent with this model, while there was a high propensity of relatively poorly capitalized thrifts to convert, the mutual thrifts with the greatest negative net worth did not convert. In these cases the required amount of capital and dividend policy leniency needed to induce private investment would have involved too great an expected future cost (even heavily discounted).

14. Unless otherwise noted, the Thrift Financial Reports, which all thrifts were required to file with the FHLBB, are the source for our data.

15. That is, for mutuals converting in year  $t$ , the comparison is for the end of the year  $t-1$ .

16. The results in Table III are consistent with Unal (1993) which applies the pricing model of Masulis (1987) to a sample of thrift conversions for which sufficient data is available and estimates that the average converter was market-value insolvent prior to conversion. Unal concludes that the market priced the issuance of stock in these conversions such that the increased subsidy from deposit insurance offset the degree of insolvency of the mutual thrift prior to conversion.

17. The proportion of all thrifts which are insolvent also drops dramatically in the later years, so the changes in column 6 must be interpreted cautiously.

18. There are three noteworthy differences between the DeAngelo and DeAngelo (1990) and DeAngelo et al. (1992) samples and the sample of thrifts. First, they exclude all financial firms. Second, they examine only firms which in each of the ten years before their sample begins in 1980 have positive income and pay dividends. Since relatively few thrifts had existed as stock institutions before our sample begins, extremely few thrifts had long dividend histories. Such a restriction also would force us to exclude the interesting data on mutual-to-stock converters. Third, all of their firms are listed on the NYSE, whereas our thrifts included both small, closely-held institutions and large publicly-traded firms. On the other hand, one important similarity between the two samples is the high incidence of financial distress in the general economy during the first part of their 1980 to 1985 sample period and in the thrift industry during the mid-1980s.

19. Insolvency, which comes about through large losses wiping out capital, can be thought of as analogous to protracted financial distress. We also have generated this table using positive or negative net income in the current year, rather than TAP capital, and the results are quite similar. Also, following DeAngelo et al. (1992) and Watts (1973), we use an "overlap" timing of dividends: dividends paid in the second, third and fourth quarter of the initial year or the first quarter of the next year are compared with dividends paid over the same quarters in the initial year. This timing accounts for the fact that management typically set dividends before the results for that quarter are known.

20. For comparison, Horne (1991) examines the 1989 and 1990 dividends of commercial banks in different capital categories. Averaging these two years, only 5 percent (3 banks) of the insolvent banks paid dividends, as did 8 percent of the marginally capitalized banks (14 banks), 42 percent of the adequately capitalized banks (541 banks) and 75 percent of the well capitalized banks (8401 banks). Both the insolvent and marginal banks had negative earnings in these two years. The payout rates for the well capitalized banks was 60 percent. In contrast with thrifts, only 2

dividends and earnings, namely total interest income during the sample period, and found similar results.

28. Note that the converter sample in the Tobit regressions includes only conversions completed during 1984 through 1987. The 1988 cohort was excluded because these institutions did not have sufficient time to establish a meaningful dividend payout pattern before FIRREA changed the regulatory structure and incentives.

29. Esty (1995) describes these non-dividend distributions to owner-managers in the case of a financially distressed Louisiana mutual-to-stock converter.

30. To adjust for any regional effects, we also tried including indicator variables for the individual FHLBB districts. We also estimated the model with Texas and California indicators. Including these variables did not affect the results and are not included in the regression reported below.

31. Variable definitions and summary statistics are in an appendix.

32. Interest rates on new mortgages fell monotonically from 1984 to 1988, from 12.4 percent to 9.2 percent (see Economic Report of the President, Table B-69). We thank Mark Flannery for this interpretation.

33. An alternative explanation for higher dividend payments by the initially insolvent converters, pointed out by Lawrence Cordell, is that the capital inflow from conversion would transform an initially insolvent institution into an "overcapitalized" one that did not need to retain earnings. To check this, we examined the TAP capital to asset ratios before and after conversion. For the initially insolvent institutions in our sample, the median (mean) ratios were -2.60 (-5.33) percent at the year-end before conversion to -0.14 (-0.45) percent at the year-end after conversion. For the initially solvent converters, the median (mean) ratios grow from 3.40 (3.90) percent to 6.16 (6.95) percent, which exceed the ratios for the median and mean chartered stock thrifts. "Overcapitalization," thus, cannot account for the higher dividends paid by the initially insolvent converters, although it may for the initially solvent converters. It is also interesting to note that, as the above figures show, the amount of new capital inflow relative to assets is similar for both the initially insolvent and solvent converters.

34. A table of marginal effects on dividend payout evaluated at different levels of income is available upon request.

35. We also created two other sets of control groups of non-converting mutuals, one by matching on both initial TAP capital and FHLBB district and the other by matching on initial TAP capital, FHLBB district, and the ratio of mortgages to total assets. While we report in the text the results for the simple initial TAP capital matching, the

percent of banks fell into the lowest two capital categories while nearly 90 percent were well capitalized.

21. Akerlof and Romer (1993) argue that government guarantees and insolvency in the thrift industry led to "looting" of troubled thrifts by their owners through such means as dividend payments that would impair (or further impair) capital. This evidence of dividend distributions by insolvent thrifts is consistent with their theory and our regulatory incentives theory. In the next section, we explore more details of the distribution patterns which our theory predicts but about which the "looting" theory has no predictions.

22. Financial services firms typically have been excluded in empirical studies of dividend behavior (e.g., Lintner 1956, Fama and Babiak 1968, and Watts 1973). The only exception we have found is Horne (1991) which estimates a model for dividend payments by commercial banks.

23. Our theory would imply more lenient treatment of any distributions to stockholders that would make the private recapitalization of insolvent thrifts more attractive. We focus on dividends rather than stock repurchases because the FHLBB appears to have followed a policy of not permitting stock repurchases for a minimum of three years after a conversion (Bisenius and Gordon 1989) and because we could not obtain data on repurchases for thrifts that were not publicly traded.

24. Lawrence Cordell provided the list of conversions, based on Fleck (1994). The remainder of the data come directly from the Thrift Financial Reports filed with the FHLBB.

25. We use the Consumer Price Index from the Economic Report of the President to transform all of the variables into real 1988 dollars.

26. During the 1984-1988 period, for example, only about 45 percent of stock thrifts paid a dividend on common stock. Of these, about one quarter paid a dividend in each of the five years; the majority of the payers did not pay dividend in at least half of the years they were in the sample. The relative "lumpiness" of thrift dividend payments may be at least in part due to the lack of long dividend histories by most thrifts, the industry's financial turmoil during the 1980s, and the fact that most stock thrifts are closely held so owner-managers do not need dividends as a signal and can compensate themselves through salary and bonus rather than "double-taxed" dividends. In addition, regulators may respond to large dividend payments by troubled institutions by making subsequent payments more difficult (see Esty 1995).

27. We do not normalize by capital since this value may become negative. As shown in the appendix, we also estimated the model using a cash flow variable to scale

other matching schemes result in larger estimates of the costs of the actual conversion policy for both benchmark alternative scenarios.

36. We compute the resolution costs inclusive of interest costs; that is, we calculate the present value all of the resolution costs to 1988 using the one year Treasury rate. Thrifts which survive without being closed are counted as having zero resolution cost. Also, in this analysis, we exclude two mutual-to-stock converters because their negative TAP was so large that we could not find otherwise similar, non-converting mutual thrifts.

37. While the actual (market) closure costs may not be directly comparable to initial closure costs estimated from accounting numbers (that is, the TAP capital at the time of conversion), the figure of interest is the relative difference in the increased resolution costs between the converters and the "matched" thrifts. Also note that the average resolution costs for each group of thrifts include zeros for thrifts that have not been closed by 1994.

38. The t-statistic on this difference in resolution costs between the insolvent converters and the matched non-converters is 1.26. When we used the alternative matching scheme which matched on both FHLBB district and initial capital, the difference grows to \$93.9 million and the t-statistic rises to 1.90.

39. In contrast, Gilbert (1993) did not find an important effect of dividends on resolution costs for failed commercial banks.

40. We would like to thank an anonymous referee for pointing out this possibility.

Table I

## Annual Changes in the Number and Size of Mutual and Stock Organizations in the Thrift Industry

Panel A		Industry Composition		
	Number of Thrifts		Average Asset Size (Millions of 1988 Dollars)	
	Stock	Mutual	Stock	Mutual
	(1)	(2)	(3)	(4)
1983	837	2,304	\$524	\$229
1984	976	2,164	627	233
1985	1,113	2,107	621	232
1986	1,226	2,002	665	223
1987	1,300	1,856	714	206
1988	1,297	1,641	770	206

Panel B		Industry Evolution				
	Number of New Entrants		Number of Mutual-to-Stock Conversions			
	Stock	Mutual	Standard	Supervisory	Merger	Total
	(1)	(2)	(3)	(4)	(5)	(6)
1975-1982	247	87	130	0	0	130
1983	34	2	72	20	1	93
1984	55	1	87	13	6	106
1985	72	0	55	18	4	77
1986	48	0	67	12	3	82
1987	19	0	116	10	5	131
1988	12	0	61	30	15	106

Sources: Thrift Financial Reports and Cordell et al. (1993).



Table II

Mutual-to-Stock Conversion Choices of Solvent<sup>a</sup> and Insolvent Mutual Thrifts, 1979-1992

	Number of Mutual Thrifts Currently TAP <sup>b</sup> Insolvent	Probability of Converting Next Year for Mutual Thrifts Currently TAP Insolvent	Number of Mutual Thrifts Currently TAP Solvent	Probability of Converting Next Year for Mutual Thrifts Currently TAP Solvent	T-statistic testing column (2) equals column (4)
	(1)	(2)	(3)	(4)	(5)
1979	15	0.0%	3,476	0.5%	NA
1980	25	0.0%	3,366	1.1%	NA
1981	82	0.0%	3,066	1.0%	NA
1982	263	6.8%	2,447	2.4%	2.8
1983	361	7.2%	1,943	4.4%	2.0
1984	475	5.0%	1,689	3.2%	1.7
1985	455	4.6%	1,652	4.1%	0.5
1986	384	7.3%	1,618	6.6%	0.5
1987	363	10.5%	1,493	5.1%	3.2
1988	243	3.7%	1,398	1.6%	1.6
1989	302	4.3%	1,370	3.4%	0.7
1990	251	3.6%	1,236	3.6%	-0.1
1991	169	3.0%	1,370	4.2%	-0.8
1992	94	0.0%	948	7.9%	NA

<sup>a</sup> Solvency is defined as positive TAP capital at the end of the year.

<sup>b</sup> TAP capital equals GAAP capital minus intangibles.

Source: Thrift Financial Reports.

**Table III**  
**TAP<sup>a</sup> Capital-to-Assets Ratios and Percent of Insolvent<sup>b</sup> Thrifts for All Stock Thrifts, Mutual Thrifts**  
**Converting to Stock Form, and Mutual Thrifts not Converting to Stock Form, 1979-1992**

		All Stock Thrifts	Mutual Thrifts not Converting in the Next Year	Mutual Thrifts Converting in the Next Year	T-statistic testing column (2) Mean equals column (3) Mean
		(1)	(2)	(3)	(4)
1979	Mean Capital Ratio	8.1%	6.1%	3.7%	10.2
	Percent Insolvent	0.4%	0.4%	0.0%	
1980	Mean Capital Ratio	9.5%	5.8%	4.2%	5.5
	Percent Insolvent	0.2%	0.8%	0.0%	
1981	Mean Capital Ratio	7.7%	5.0%	4.2%	1.9
	Percent Insolvent	2.2%	2.6%	0.0%	
1982	Mean Capital Ratio	5.7%	4.1%	1.4%	6.2
	Percent Insolvent	11.7%	9.3%	23.1%	
1983	Mean Capital Ratio	4.0%	3.2%	1.6%	2.2
	Percent Insolvent	17.3%	15.4%	23.4%	
1984	Mean Capital Ratio	3.3%	2.7%	1.2%	3.0
	Percent Insolvent	20.8%	21.6%	30.8%	
1985	Mean Capital Ratio	3.9%	2.9%	1.7%	2.8
	Percent Insolvent	20.9%	21.5%	23.9%	
1986	Mean Capital Ratio	2.7%	3.1%	2.4%	0.9
	Percent Insolvent	22.9%	19.1%	20.7%	
1987	Mean Capital Ratio	1.2%	2.4%	0.5%	2.3
	Percent Insolvent	23.9%	18.7%	33.3%	
1988	Mean Capital Ratio	0.6%	3.8%	3.2%	0.7
	Percent Insolvent	21.4%	14.5%	30.0%	
1989	Mean Capital Ratio	-0.9%	2.5%	2.9%	-0.8
	Percent Insolvent	16.7%	17.9%	22.0%	
1990	Mean Capital Ratio	4.9%	2.9%	4.9%	-2.7
	Percent Insolvent	7.2%	16.9%	16.7%	
1991	Mean Capital Ratio	6.3%	6.2%	5.0%	2.3
	Percent Insolvent	2.6%	14.1%	8.1%	
1992	Mean Capital Ratio	7.2%	6.5%	6.6%	-0.2
	Percent Insolvent	0.2%	9.6%	0.0%	

<sup>a</sup> TAP capital equals GAAP capital minus intangibles.

<sup>b</sup> Insolvency is defined as negative TAP capital at the end of the year.

Source: Thrift Financial Reports.

**Table IV**  
**Net Income and Dividends on Common Stock Paid by All Stock Thrifts and Insolvent<sup>a</sup> Stock Thrifts, 1984-1992**

	Number of Thrifts	Percent of Thrifts Paying Dividends	Net Income (Millions of 1988 Dollars)	Net Income for Dividend Payers (Millions of 1988 Dollars)	Total Dividends Paid (Millions of 1988 Dollars)	Portion of Total Thrift Dividends Paid by Insolvent Thrifts
	(1)	(2)	(3)	(4)	(5)	(6)
1984						18.4%
All Stock	976	22.3%	\$747	\$204	\$297	
TAP <sup>b</sup> Insolvent	203	12.2%	(488)	(421)	67	
1985						15.2%
All Stock	1,113	22.9%	2,728	1,276	323	
TAP Insolvent	233	11.2%	178	204	58	
1986						6.1%
All Stock	1,226	25.2%	(24)	1,639	505	
TAP Insolvent	281	10.7%	(3,216)	(464)	33	
1987						3.3%
All Stock	1,300	27.0%	(2,472)	1,611	700	
TAP Insolvent	311	5.8%	(5,095)	129	24	
1988						6.4%
All Stock	1,297	31.0%	(2,686)	1,460	684	
TAP Insolvent	277	9.4%	(4,487)	(145)	47	
1989						1.2%
All Stock	1,219	35.6%	(7,612)	541	902	
TAP Insolvent	208	5.3%	(8,587)	(1)	11	
1990						0.3%
All Stock	1,056	35.8%	(2,150)	879	784	
TAP Insolvent	76	2.6%	(2,444)	11	2	
1991						0.0%
All Stock	967	37.1%	1,096	2,156	1,275	
TAP Insolvent	25	0.0%	(966)	0	0	
1992						0.0%
All Stock	913	47.6%	3,124	2,508	1,287	
TAP Insolvent	2	0.0%	12	0	0	

Note that parentheses indicate negative values.

<sup>a</sup> Solvency is defined as positive TAP capital at the end of the year.

<sup>b</sup> TAP capital equals GAAP capital minus intangibles.

Source: Thrift Financial Reports.

Table V

Changes in Dividends on Common from Prior Year<sup>a</sup> for TAP Solvent and Insolvent Stock Thrifts, 1985 to 1992

	Solvent <sup>b</sup> Thrifts			Insolvent <sup>c</sup> Thrifts		
	Number of Firm- Years	Percent of Total Firm- Years	Percent Firm- Years for Payers	Number of Firm- Years	Percent of Total Firm- Years	Percent Firm- Years for Payers
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: 1985-1988</b>						
Zero Dividend in Current and Prior Year	1,878	57.5%		886	86.4%	
Dividend Reduced to Zero from Positive Level	223		16.1%	68		48.9%
Dividend Decreased but Still Positive	208		15.0%	8		5.8%
Dividend Unchanged from Prior Year	102		7.4%	3		2.2%
Dividend Increased from Prior Year	853		61.5%	60		43.2%
Total Firm-Years	3,264		100%	1,025		100%
<b>Panel B: 1989-1992</b>						
Zero Dividend in Current and Prior Year	1,853	51.1%		236	89.7%	
Dividend Reduced to Zero from Positive Level	312		17.6%	21		77.8%
Dividend Decreased but Still Positive	320		18.0%	3		11.1%
Dividend Unchanged from Prior Year	148		8.3%	0		0.0%
Dividend Increased from Prior Year	995		54.1%	3		11.1%
Total Firm-Years	3,628		100%	263		100%

<sup>a</sup> Following Watts (1973) and DeAngelo et al. (1992), dividends are summed over quarters 2, 3, and 4 of the current year and quarter 1 of the subsequent year.

<sup>b</sup> Solvent thrifts have positive TAP capital at the end of the current year.

<sup>c</sup> Insolvent thrifts have negative TAP capital at the end of the current year.

Source: Thrift Financial Reports.

Table VI

## Tobit Analysis of the Effects of Capital and Income on Dividend Payments, 1984 - 1988

## Panel A: Estimation Results when Chartered Stock and Converters are Pooled

The dependent variable equals the annualized flow of dividends over the period (that is, the sum of cash dividends over the period divided by the number of years the thrift operated as a stock thrift during our sample period) divided by beginning of period assets. The mean of the dependent variable is 0.0012. See Appendix for detailed description of the variables and their means and standard deviations. Standard errors appear in parentheses below the coefficient estimates. The regressions do not include stock thrifts which entered during 1988. Each regression includes an intercept and indicator variables for the number of years in which the institution operated as a stock thrift, but the estimates are not reported. Statistical significance at the 5 percent and 10 percent levels are denoted by "\*\*\*" and "\*\*".

	Specification 1		Specification 2	
	No Converter-Earnings Interaction	Converter-Earnings Interaction	No Converter-Earnings Interaction	Converter-Earnings Interaction
	(1)	(2)	(3)	(4)
Converter Indicator (1 if Converter)	0.0040*** (0.0009)	0.0036*** (0.0009)	0.0032*** (0.0009)	0.0030*** (0.0009)
Insolvency Indicator (1 if Insolvent)	-0.0009 (0.0008)	-0.0020*** (0.0009)	0.0003 (0.0011)	-0.0011 (0.0012)
Net Income Earned from 1984-1988 / Assets	0.0886*** (0.0070)	0.0880*** (0.0072)	0.0797*** (0.0072)	0.0806*** (0.0074)
Net Income Earned from 1984-1988 / Assets * Converter Indicator	-	0.0169 (0.0295)	-	-0.0003 (0.0287)
Net Income Earned from 1984-1988 / Assets * Insolvency Indicator	-0.0403*** (0.0190)	-0.0704*** (0.0204)	-0.0357* (0.0183)	-0.0715*** (0.0205)
Net Income / Assets * Insolvency Indicator * Converter Indicator	-	0.1949*** (0.0610)	-	0.2161*** (0.0611)
Retained Earnings / Assets	-	-	0.0942*** (0.0159)	0.0967*** (0.0158)
Par plus Surplus of Equity / Assets	-	-	0.0134*** (0.0033)	0.0125*** (0.0034)
Intangible Assets / Assets	-	-	-0.0083 (0.0120)	-0.0008 (0.0119)
Other Non-GAAP Capital Included in RAP Capital / Assets	-	-	0.0287 (0.0208)	0.0241 (0.0208)
Home Mortgages / Assets	-	-	0.0046*** (0.0017)	0.0045*** (0.0017)
Log of Total Assets	0.0004*** (0.0002)	0.0005*** (0.0002)	0.0005*** (0.0002)	0.0005*** (0.0002)
Publicly Traded Indicator (1 if Traded)	-0.0001 (0.0009)	-0.0001 (0.0009)	-0.0004 (0.0009)	-0.0003 (0.0009)
N	1,285	1,285	1,285	1,285
[Percent Positive Observations]	[43.6 %]	[43.6 %]	[43.6 %]	[43.6 %]
Log Likelihood	1,544***	1,551***	1,570***	1,577***

Table VI

## Tobit Analysis of the Effects of Capital and Income on Dividend Payments, 1984 - 1988

## Panel B: Regression Results Estimated Separately for Chartered Stock Thrifts and Converters

The dependent variable equals the annualized flow of dividends over the period (that is, the sum of cash dividends over the period divided by the number of years the thrift operated as a stock thrift during our sample period) divided by beginning of period assets. See Appendix for detailed description of the variables and their means and standard deviations. Standard errors appear in parentheses below the coefficient estimates. The regressions do not include stock thrifts which entered during 1988. Each regression includes an intercept and indicator variables for the number of years in which the institution operated as a stock thrift, but the estimates are not reported. Statistical significance at the 5 percent and 10 percent levels are denoted by "\*\*\*" and "\*\*".

	Specification 1		Specification 2	
	Chartered Stock	Converters	Chartered Stock	Converters
	(1)	(2)	(3)	(4)
Insolvency Indicator (1 if Insolvent)	-0.0021* (0.0012)	-0.0018* (0.0010)	-0.0004 (0.0018)	-0.0020* (0.0011)
Net Income Earned from 1984-1988 / Assets	0.0896*** (0.0082)	0.0799*** (0.0197)	0.0832*** (0.0085)	0.0404*** (0.0178)
Net Income Earned from 1984-1988 / Assets * Insolvency Indicator	-0.0690*** (0.0237)	0.1385*** (0.0405)	-0.0704*** (0.0242)	0.1037*** (0.0354)
Retained Earnings / Assets	-	-	0.1388*** (0.0218)	-0.0025 (0.0176)
Par plus Surplus of Equity / Assets	-	-	0.0102*** (0.0043)	0.0402*** (0.0058)
Intangible Assets / Assets	-	-	-0.0090 (0.0168)	0.0042 (0.0139)
Other Non-GAAP Capital Included in RAP Capital / Assets	-	-	0.0180 (0.0290)	0.0303 (0.0218)
Home Mortgages / Assets	-	-	0.0041*** (0.0021)	0.0075*** (0.0022)
Log of Total Assets	0.0006*** (0.0003)	0.0003 (0.0002)	0.0005*** (0.0003)	0.0007*** (0.0003)
Publicly Traded Indicator (1 if Traded)	-0.0014 (0.0014)	0.0009 (0.0008)	-0.0014 (0.0014)	0.0010 (0.0007)
N	934	351	934	351
[Percent Positive Observations]	[39.3 %]	[55.0 %]	[39.3 %]	[55.0 %]
Dependent Variable Mean	0.0011	0.0014	0.0011	0.0014
Log Likelihood	941***	646***	965***	669***
$\chi^2(1)$ statistic testing the null hypothesis that the sum of coefficients for Net Income/Assets and its interaction term equals zero	0.84	36.84***	0.31	20.15***

Table VI

## Tobit Analysis of the Effects of Capital and Income on Dividend Payments, 1984 - 1988

Panel C: Regression Results Estimated Separately for Chartered Stock Thrifts and Converters, Including Asset Growth and Change in Mortgages/Assets Ratio *(Continues on next page)*

The dependent variable equals the annualized flow of dividends over the period (that is, the sum of cash dividends over the period divided by the number of years the thrift operated as a stock thrift during our sample period) divided by beginning of period assets. See Appendix for detailed description of the variables and their means and standard deviations. Standard errors appear in parentheses below the coefficient estimates. The regressions do not include stock thrifts which entered during 1988. Each regression includes an intercept and indicator variables for the number of years in which the institution operated as a stock thrift, but the estimates are not reported. Statistical significance at the 5 percent and 10 percent levels are denoted by "\*\*\*" and "\*\*".

	Chartered Stock	Converters	Chartered Stock	Converters
	(1)	(2)	(3)	(4)
Insolvency Indicator (1 if Insolvent)	-0.0004 (0.0017)	-0.0011 (0.0011)	-0.0020 (0.0070)	-0.0046** (0.0019)
Net Income Earned from 1984-1988 / Assets	0.0889** (0.0084)	0.0526** (0.0179)	0.0894** (0.0084)	0.0603** (0.0184)
Net Income Earned from 1984-1988 / Assets * Insolvency Indicator	-0.0602** (0.0237)	0.0902** (0.0352)	-0.0701** (0.0249)	0.0700** (0.0320)
Retained Earnings / Assets	0.1353** (0.0213)	-0.0073 (0.0168)	0.1332** (0.0213)	-0.0070 (0.0168)
Par plus Surplus of Equity / Assets	0.0138** (0.0049)	0.0533** (0.0064)	0.0143** (0.0049)	0.0538** (0.0062)
Intangible Assets / Assets	-0.0101 (0.0163)	-0.0006 (0.0136)	-0.0107 (0.0163)	0.0035 (0.0138)
Other Non-GAAP Capital Included in RAP Capital / Assets	0.0187 (0.0286)	0.0194 (0.0214)	0.0145 (0.0287)	0.0227 (0.0216)
Home Mortgages / Assets	-0.0025 (0.0025)	0.0050** (0.0024)	-0.0026 (0.0025)	0.0057** (0.0024)
Change in Mortgages / Assets	-0.0106** (0.0022)	-0.0036* (0.0019)	-0.0114** (0.0025)	-0.0029 (0.0020)
Change in Mortgages / Assets * Insolvency Indicator	-	-	0.0078 (0.0061)	-0.0031 (0.0042)
Log of Total Assets	0.0003 (0.0003)	0.0006** (0.0002)	0.0003 (0.0003)	0.0006** (0.0002)
Annual Asset Growth	-0.0011 (0.0016)	-0.0025** (0.0007)	-0.0011 (0.0017)	-0.0034** (0.0008)
Annual Asset Growth * Insolvency Indicator	-	-	0.0022 (0.0062)	0.0023** (0.0010)
Publicly Traded Indicator (1 if Traded)	-0.0010 (0.0013)	0.0007 (0.0007)	-0.0010 (0.0013)	0.0008 (0.0007)

Table VI

## Tobit Analysis of the Effects of Capital and Income on Dividend Payments, 1984 - 1988

Panel C: Regression Results Estimated Separately for Chartered Stock Thrifts and Converters, Including Asset Growth and Change in Mortgages/Assets Ratio (Continued)

N	934	351	934	351
[Percent Positive Observations]	[39.3%]	[55.0%]	[39.3%]	[55.0%]
Dependent Variable Mean	0.0011	0.0014	0.0011	0.0014
Log Likelihood	977 <sup>***</sup>	679 <sup>***</sup>	978 <sup>***</sup>	681 <sup>***</sup>
$\chi^2(1)$ statistic testing the null hypothesis that the sum of coefficients for Net Income/Assets and its interaction term equals zero	1.62	21.01 <sup>***</sup>	0.66	24.68 <sup>***</sup>
$\chi^2(1)$ statistic testing the null hypothesis that the sum of coefficients for Mortgages/Assets and its interaction term equals zero	-	-	0.38	2.50
$\chi^2(1)$ statistic testing the null hypothesis that the sum of coefficients for Asset Growth/Assets and its interaction term equals zero	-	-	0.03	1.62



## APPENDIX

### Panel A: Description of Data and Variables Used in Tobit Regressions

#### Data Description

The sample includes all FSLIC-insured thrifts (federal and state chartered S&Ls and federally chartered savings banks) operating as stock organizations during the 1984-1988 period. This includes institutions resolved by FSLIC during this period. Chartered stock thrifts include all thrifts which were originally chartered as stock as well as those which converted prior to the end of 1983. Converters are all thrifts which switch from mutual to stock organization after the end of 1983. All data are expressed in 1988 dollars using the Consumer Price Index.

For chartered stock thrifts, balance sheet variables are measured as of the end of 1983 or the end of the first year in which the institution began operations. For converters, all balance sheet variables except par plus surplus are from the end of year prior to conversion. Par plus surplus for converters is from the end of the first year after conversion.

For chartered stock, flow variables are measured over the 1984-1988 period or from the first full year of operation through 1988 (or closure). For converters, flow variables are measured from the beginning of the conversion year through 1988 (or closure).

#### Definition of Variables:

Dependent variable = The sum of dividends over the period divided by the number of years which is then divided by total assets as of the beginning of the period.

Converter Indicator = 1 if the thrift underwent a mutual-to-stock conversion after the end of 1983 and 0 otherwise.

Insolvency Indicator = 1 if TAP capital is less than zero at the beginning of the period and 0 otherwise. For converters, the beginning of the period is defined as the end of the year prior to conversion. Tangible capital equals GAAP capital minus intangible assets.

Net Income = The sum of annual net income over the period of interest and divided by the number of years operating as a stock thrift during the sample.

Retained Earnings = Retained earnings as of the beginning of the period.

Par plus Surplus Value of Equity = Total par plus surplus value of equity capital. Note that for converters, this value is measured at the end of the first year of conversion (i.e., one year after the other capital components for the converters).

Intangibles = Total intangible assets at the beginning of the period.

Other Non-GAAP Capital included in RAP Capital = Capital as calculated under Regulatory Accounting Principles (RAP) minus GAAP capital.

Home Mortgages = Total VA, FHA and conventional home mortgages at the beginning of the period.

Assets = Total assets as of the beginning of the period.

Publicly Traded Indicator = 1 if the thrift's equity was publicly traded and 0 otherwise.

Change in Mortgages / Assets = the mortgages-to-assets ratio at the end of the period minus the mortgages-to-assets ratio at the beginning of the period.

Asset Growth = Annualized growth in total assets from the beginning to the end of the period =  $(A_{t+k}/A_t)^{(1/k)}$ .

# APPENDIX

Panel B: Means and Standard Deviations (in parentheses) for Variables in Tobit Regression Analysis

	Pooled Sample	Chartered Stock	Converters
	(1)	(2)	(3)
Converter Indicator	0.2732 (0.4457)	-	-
Insolvency Indicator	0.1580 (0.3649)	0.1435 (0.3507)	0.1966 (0.3980)
Net Income 1984-88 / Assets	-0.0059 (0.0778)	-0.0122 (0.0883)	0.0107 (0.0323)
Net Income 1984-88 / Assets * Converter	0.0029 (0.0175)	-	-
Net Income 1984-88 / Assets * Insolvency	-0.0018 (0.0184)	-0.0027 (0.0176)	0.0006 (0.0201)
Net Income 1984-88 / Assets * Insolvency * Converter	0.0002 (0.1047)	-	-
Retained Earnings / Assets	0.0047 (0.0240)	0.0026 (0.0258)	0.0101 (0.0172)
Par Plus Surplus / Assets	0.0758 (0.1158)	0.0840 (0.1284)	0.0543 (0.0680)
Intangibles / Assets	0.0113 (0.0330)	0.0124 (0.0347)	0.0084 (0.0276)
Other Non-GAAP Capital / Assets	0.0050 (0.0139)	0.0037 (0.0130)	0.0083 (0.0157)
Home Mortgages / Assets	0.5410 (0.1965)	0.5119 (0.2063)	0.6182 (0.1410)
Log of Assets	11.4220 (1.6140)	11.2411 (1.6310)	11.9034 (1.4649)
Publicly Traded Indicator	0.1144 (0.3184)	0.0878 (0.2831)	0.1852 (0.3890)
Change in Mortgages / Assets	-	-0.0392 (0.2465)	-0.0965 (0.1828)
Change in Mortgages / Assets * Insolvency	-	-0.0147 (0.0842)	-0.0225 (0.0972)
Annual Asset Growth Factor	-	1.2451 (0.3878)	1.3498 (0.6805)
Annual Asset Growth Factor * Insolvency	-	0.1588 (0.3947)	0.2963 (0.7585)
N	1,285	934	351

Source: Thrift Financial Reports.

# APPENDIX

## Panel C: Heteroskedasticity Robustness Test Tobit Analysis of the Effects of Capital and Income on Dividend Payments, 1984 - 1988 Dividend and Earnings Variables Scaled by Gross Cash Flow

The dependent variable equals the total dividends paid over the period divided by gross interest income over the same period. See Appendix for detailed description of the variables and their means and standard deviations. Standard errors appear in parentheses below the coefficient estimates. The regressions do not include stock thrifts which entered during 1988. Each regression includes an intercept and indicator variables for the number of years in which the institution operated as a stock thrift, but the estimates are not reported. Statistical significance at the 5 percent and 10 percent levels are denoted by "\*\*\*" and "\*\*".

### Regression Results Estimated Separately for Chartered Stock Thrifts and Converters

	Specification 1		Specification 2	
	Chartered Stock	Converters	Chartered Stock	Converters
	(1)	(2)	(3)	(4)
Insolvency Indicator (1 if Insolvent)	-0.0096* (0.0056)	-0.0039 (0.0024)	-0.0053 (0.0080)	-0.0027 (0.0029)
Net Income, 1984-1988 / Interest Income	0.0501*** (0.0102)	0.0817*** (0.0177)	0.0473*** (0.0101)	0.0761*** (0.0178)
Net Income, 1984-1988 / Interest Income * Insolvency Indicator	-0.0295* (0.0179)	0.0698 (0.0442)	-0.0303 (0.0188)	0.0767* (0.0448)
Retained Earnings / Assets	-	-	0.6205*** (0.0977)	0.0196 (0.0466)
Par plus Surplus of Equity / Assets	-	-	-0.0175 (0.0220)	0.0249* (0.0149)
Intangible Assets / Assets	-	-	-0.0047 (0.0733)	-0.0024 (0.0371)
Other Non-GAAP Capital Included in RAP Capital / Assets	-	-	0.0560 (0.1291)	-0.0506 (0.0600)
Home Mortgages / Assets	-	-	0.0191*** (0.0095)	0.0080 (0.0058)
Log of Total Assets	0.0048*** (0.0012)	0.0006 (0.0006)	0.0027*** (0.0013)	0.0009 (0.0007)
Publicly Traded Indicator (1 if Traded)	-0.0100 (0.0062)	0.0024 (0.0019)	-0.0081 (0.0061)	0.0021 (0.0020)
N	934	351	934	351
[Percent Positive Observations]	[39.3 %]	[55.0 %]	[39.3 %]	[55.0 %]
Dependent Variable Mean	0.0056	0.0042	0.0056	0.0042
Log Likelihood	391**	485**	419**	487**
$\chi^2(1)$ statistic testing the null hypothesis that the sum of coefficients for Net Income/Assets and its interaction term equals zero	1.91	14.07***	1.10	14.08***