

Capital Markets, Product Markets, and Organizational Form: Evidence from the Life Insurance Industry

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Abstract

This work studies an organizational form phenomenon for which agency explanations are problematic. A recent demutualization wave in the U.S. life insurance industry offers an opportunity to identify determinants of organizational form outside the traditional area of agency costs. Analysis and empirical evidence indicate that innovations in the product and capital markets, together with the advent of risk based capital disclosures, are responsible for the sudden change in the structure of the industry. The results also provide evidence regarding the role of dividends in mutual firms.

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1 Introduction

Organizational form theory has long relied on agency issues to explain organizational form phenomena, following Alchian and Demsetz (1972). Fama and Jensen (1983a,b) continue the emphasis while recognizing that other issues may be important:

“Absent fiat, the form of organization that survives in an activity is the one that delivers the product demanded by customers at the lowest price while covering costs.”

Two potentially important considerations, in addition to agency costs, are capital costs and product market issues. If capital costs vary by organizational form, then capital market issues may influence the relative strengths of different organizational forms. Similarly, if different products are most efficiently produced by different organizational forms, then product market changes can alter the optimal organizational form for production.

This work studies an organizational form phenomenon for which agency explanations are problematic: the partial demutualization of the U.S. life insurance industry. From 1995 to 2002 managers representing approximately 30% of the assets in the U.S. life insurance industry chose to convert their firms from the all-but-unmonitored mutual form, which is customer owned, to the stock form. The converting firms were neither financially distressed, nor recently restricted from converting, nor encouraged by regulators to demutualize. Similar waves occurred globally. This phenomenon raises questions regarding the causes, the timing, and the industry specificity.

This paper presents analysis and provides evidence suggesting that the industry wide spate of conversions stemmed from changes in the capital and product markets, together with newly required risk based capital (RBC) disclosures. The relevance of the findings extends beyond a single industry. The same capital market changes affect all organizational forms with nontraded equity claims. Product markets with their many aspects merit consideration when studying other elements of organizational form such as size that involve firms in all industries. Finally, by documenting large consequences of a regulation designed for minimal impact, this work offers a caveat to proponents of regulation.

The paper proceeds as follows. Section ?? provides background information about the U.S. life insurance industry. Section ?? describes the demutualization wave and develops testable hypotheses. Section ?? contains empirical analysis, and Section ?? concludes.

2 Background

The U.S. life insurance industry consists of \$3.5 trillion in aggregate assets and \$511 billion in annual premiums as of year end, 2002. The market is mature: the growth rate in premiums is 5.6 percent over the decade ending in 2002. Insurance companies operate in groups. The insurer group corresponds to the economic concept of a firm, as described in Lamm-Tennant and Starks (1993). A typical group consists of a parent company and several subsidiaries. As

of 2002, the industry consisted of 1933 companies operating in 455 groups. The largest 100 groups hold 98 percent of industry assets.

A striking feature of the financial sector is the coexistence of investor owned stock firms and customer owned mutual firms. Banking, Life insurance, and property-casualty insurance all exhibit this feature. The coexistence is longstanding and global. It continues after waves of demutualization in the life insurance and thrift industries. Mutuals hold 16% of assets in the life insurance industry, 26% of assets in the property-casualty insurance industry, and approximately 11% of assets in the thrift industry.¹ Figure 1 shows the market shares of mutuals in financial industries where the mutual and stock organizational forms coexist.

The coexistence of two different organizational forms in the same product market indicates there are trade-offs between the advantages and disadvantages of the organizational forms, as argued in Fama and Jensen (1983a,b). Indeed several empirical studies document trade-offs of coexisting organizational forms. For example, Brickley and Dark (1987) studies franchisee owned and franchisor owned retail businesses, and Coughenour and Deli(2002) studies specialist owned and investor owned NYSE specialist firms. A significant change in the relative market shares of two coexisting organizational forms suggests that the costs and benefits of the trade-offs has changed. Therefore to understand changes in the organizational structure of an industry, we first must identify the trade-offs inherent in the coexistence. Then we must understand the underlying factors affecting the trade-offs. Only then can we consider changes in these factors and the consequences for the relative strengths of the two organizational structures in question. In the case of the life insurance industry, we first identify the trade-offs inherent in stock and mutual firms that make both types of firms viable, and then examine how the costs and benefits of each organizational form have changed. We undertake these tasks next.

Numerous empirical studies of coexisting stock and mutual firms in the financial sector document features that can function as trade-offs. Stock firms exhibit higher risk (e.g., A.M. Best, 1991, 1992; Cordell et al., 1993; Esty, 1997; Lamm-Tennant and Starks, 1993) and lower costs (e.g., Cummins, Weiss, and Zi, 1999; Mester, 1989) than do their mutual counterparts. Remmers (2003) offers an equilibrium model of coexisting stock and mutual financial firms with these characteristics and explains the coexistence as follows. Stock firms offer low priced risky products and mutual firms offer high priced low risk products. Investor oversight of stock firms encourages both efficient operations and a higher level of risk. The lack of customer oversight in mutual firms allows managers both to pursue low risk strategies and to operate inefficiently. Also, the inability to monetize the mutual ownership claim raises the capital costs of a mutual firm. When firm default risk reduces product value, as for financial products, customers are willing to pay higher prices for products from safer firms. The amount they are willing to pay for safety varies among customers and determines whether they will support the mutual firm's higher costs. Risk tolerant financial customers thus patronize stock firms and risk averse customers patronize mutuals.

¹By law, commercial banks are stock companies and credit unions are mutuals.

During the demutualization wave, a new hybrid organizational form emerged: the mutual holding company (MHC). The MHC is a hybrid organizational form that shares characteristics of both mutual and stock firms, as described below. The industry initiated the push to allow the new form. Mutual conversions created all extant MHCs. Understanding demutualization requires understanding the MHC, which also emerged globally.

Table 1 compares mutual, MHC, and stock life insurers. The organizational forms are defined by their ownership. Customers own mutual firms. Initially customers own a MHC. MHCs have the option to issue stock as long as the stock shares represent less than half of the value of the firm. So customers always own at least half of a MHC, and investors own the remainder. Investors own stock firms. The three organizational forms differ significantly in terms of capital raising methods and managerial oversight by owners. Mutuals have the fewest methods and least oversight. Stock insurers occupy the other extreme and MHCs are in between stocks and mutuals in terms of capital raising and managerial oversight. We next discuss how capital raising and oversight varies across the three organizational forms.

To raise risk capital, mutuals can issue participating policies, surplus notes, and subsidiary equity. Participating policies are policies that pay dividends in addition to providing insurance protection. Life insurers provide estimates of future dividends to customers who are considering participating policies. Like dividends to stock holders, the policy dividends are discretionary. Just as traded equity can be viewed as claims on future discretionary dividends, the non enforceable dividend claims of mutual firms can be viewed as capital raising devices. Participating policy holders cannot separate the dividend claims from their policies and sell them. Evidence abounds that illiquidity significantly lowers the price of financial claims (e.g., Amihud and Mendelson, 1986; Amihud et al., 1997; Boudoukh and Whitelaw, 1993; Longstaff, 1995; Silber, 1991). This gives rise to a financing cost that is unique to participating policies. Although all types of insurers can sell participating policies, in practice mutual firms sell the vast bulk of participating policies. The association of the mutual organizational form with participating policies is evident in our sample in Table ??.

The view of dividend claims as capital raising devices, is consistent both with the practice of returning capital only to participating customers in demutualization and with the corporate tax treatment of mutual dividends. For taxes, mutual dividends are decomposed into two components corresponding to the return on capital and to the return of capital. Only the latter component is deductible from taxable income (PricewaterhouseCoopers, 2005).

Capital raising functions of mutual dividend claims is a recent and untested addition to academic literature.² Prior literature contains two types of theories of the role of participating policies and their coexistence with non participating policies. In one the dividend claim derives its value from its risk sharing characteristics (Doherty and Dionne, 1993). In the second, dividends solve an information problem between customers and insurers (Smith and Stutzer (1990, 1995); Ligon and Thistle(2002)). Neither type of theory explains the association between participating policies and the mutual organizational form evident in practice. Viewing the dividend claim as a capital raising device that entails an incremental cost to compensate

²Remmers(2003) delivers a formal theory in the context of modeling the coexistence of stock and mutual financial firms.

for illiquidity, however, offers a simple explanation for the connection. Stock firms and MHCs, with less costly capital raising methods at their disposal avoid the incremental cost inherent in participating policies. Only mutuals, lacking access to the less costly methods, bear the incremental cost of raising capital via illiquid dividend claims attached to policies. Demutualization offers a new time series prediction regarding participating policies, discussed in section ??, that can evaluate whether capital costs are important both to the demutualization wave and to the role that customer dividends play in mutual companies.

Surplus notes are subordinated debt issued by operating insurance companies (i.e., not by holding company parents). Payments to the note holders require regulatory approval giving rise to significant regulatory risk³ that discourages the use of surplus notes as a capital source.

Mutuals, like all firms, can issue securities through subsidiaries, which are always stock companies, however, this is not a popular choice. Outside investors who purchase the securities must contend with both the presence of a large inside shareholder and the possibility of outsized upstream dividends to the parent. The severe agency problems can explain the lack of widespread use of subsidiary securities to raise capital.

Mutuals are not equally affected by the capital restrictions associated with the mutual form because they have different amounts of captured capital. Captured capital is capital or earnings on capital retained from prior customers. Mutual ownership ceases when the customer status ceases. To the extent that capital contributions and earnings from a customer exceed payouts, the insurer captures capital from the customer. Not all mutual firms have substantial captured capital; those that do can rely less on participating policies and surplus notes. Quantifying captured capital is hampered by accounting conventions. Conceptually one can decompose the total capital of a mutual into a captured component, and components raised by surplus notes and participating policies. Only total capital and surplus notes are accounted for explicitly, so disentangling the remaining two components is not feasible. policies.

The MHC structure confers two capital raising benefits compared to pure mutuals. MHCs, like stock firms, can issue tradeable equity claims. As of 2002, however, none of the 12 MHCs in the study sample had traded equity. The ability to issue equity can be valuable even if unused, but the lack of any traded equity merits further consideration of the value of the MHC structure. MHCs can also issue debt from a holding company. Only by issuing debt at the holding company level, can insurers issue debt that is not subordinated to policyholders. Holding company debt dominates surplus notes from the capital cost point of view. The debt is not subordinated to the insurance claims. Although regulators can prevent a distressed insurer subsidiary from sending a dividend upstream, they do not have direct control over payments to debt holders as they do in surplus notes.

Stock insurers have the most flexibility with regards to raising risk capital. In addition to all the aforementioned options, they also can issue equity from the operating insurance company.

³For example, Lumbermen's Mutual Casualty Co. defaulted on \$700 million in surplus notes after the Illinois Department of Insurance denied the companys request to make interest payments on the notes.

The organizational forms also vary in the amount of managerial oversight provided by owners. Managerial monitoring by mutual customers is minimal. Customers are highly dispersed, many in number, and own small portions of the mutual firm. All these factors erode the incentives of customers to monitor. Low monitoring leads to increased managerial discretion. Managers enjoy notable discretion on the demutualizations studied here. In every demutualization managers initiate the conversion process. Managers also always decide the type of conversion. Policyholders approved all plans. All demutualization attempts succeeded and none switched type. Thus mutual managers effectively control the decisions regarding whether and how demutualize.

Two anecdotes illustrate the amount of managerial discretion and the difficulty that highly dispersed mutual customers face when trying to influence a manager. First, the management of Massachusetts Mutual, the one mutual insurer with policyholders asking for demutualization, did not accede to policyholder pressure. Second, managers of Franklin Mutual, a property-casualty insurer, used corporate assets to thwart the demutualization plans of a competitor, Mercer Mutual. Mercer had spurned two merger overtures from Franklin in 1998. In 1999, Franklin financed a campaign that convinced Mercer policyholders to vote down the demutualization plan proposed by Mercer managers.

The inalienability of mutual ownership claims further protects mutual managers. Outside investors cannot gain control of a badly run mutual firm. So specters of hostile takeovers do not constrain mutual managers. The MHC has attracted criticism for similarly shielding managers from the market for corporate control. Since outside investors cannot acquire a controlling share, MHC managers operate in the absence of takeover threats. The critics see MHCs as inferior stock companies and ignore the historical strengths of the mutual form. An alternate view is that MHCs are superior mutual companies. Like mutuals, MHCs avoid control by non customer investors. The discretion conferred on managers not only raises operating costs, but also frees managers to act on their own aversion to default risk, which aligns them with customers. Thus, MHCs can ensure safety like other mutuals, but are less hindered by liquidity related capital costs since they take can advantage of additional methods to raise capital.

All insurers are regulated by state insurance commissions. Insurers that issue traded equity are also regulated by the SEC. State regulators make few distinctions between stock and mutual insurers, and do not give an obvious advantage to either form. A distinctive feature of the insurance industry is that it is regulated at the company level, as opposed to the group level. This results in the widespread practice of insurers maintaining legally separate but functionally integrated companies inside one insurance group, as we explain next.

States regulate companies that sell policies to state residents. The insurance regulations of most states are *territorial*: they only apply to policies sold to state residents. New York is exceptional in that it exercises extra territorial jurisdiction over companies operating in the state. Its regulations apply to all business of the insurance company. Since New York is the strictest regulator, many insurers set up subsidiaries to conduct business only in New York. Isolating an insurer's New York business in a separate company shields the out-of-state business of the insurer from New York regulators. Also, some states restrict mutuals to issuing participating policies. Mutual insurers operating in such states can issue non participating

policies only by setting up a subsidiary. Since subsidiaries are always stock companies, they may sell both participating and non participating policies.

The National Association of Insurance Commissioners (NAIC) coordinates regulatory activities in an effort to eliminate the redundancy involved in state regulation. The NAIC receives and distributes financial reports, performs ratio-based solvency analysis, and promulgates model laws. Financial reporting is largely coordinated: all states accept a standard annual statement. Regulatory reports follow statutory accounting rules that are more conservative than GAAP, reflecting the solvency concerns of regulators.

The primary emphasis of life insurance regulation is solvency. Regulators employ both triennial examinations and ratio based analysis to identify troubled insurers. Regulators first required risk based capital (RBC) ratios as part of the 1993 annual statements. Prior to 1993, the NAIC used multiple ratios of financial statement values to screen insurers. Life insurance RBC regulations are similar to those in banking. Insurers calculate a baseline level of capital that reflects the risk of the insurer. An insurer's RBC ratio is the ratio of the insurer's actual capital to the baseline amount. "Prompt Corrective Action" (PCA) rules require regulators to become increasingly involved with, and eventually shut down, insurers as RBC ratios fall below critical levels. In establishing the calculation, the NAIC deliberately created a low hurdle. They aimed to avoid disruptions to an industry that had few solvency problems. Consistent with this intention, the portion of companies with RBCs above the level at which the mildest action takes effect, has been approximately 98 percent every year.

3 Recent Demutualization Activity and Hypothetical Determinants

In recent years, managers of mutual life insurers have converted their firms to stock or stock-like firms at a striking rate. For instance, in 1996 seven of the top ten U.S. life insurers were mutuals. Six years later, only three of the seven were mutuals. The time periods the four converting firms spent as mutual organizations range from 85 to 137 years. Conversions were not restricted to large old firms. Firms of all sizes converted. In aggregate, life insurers that demutualized during 1994-2002, represent approximately 30% of industry assets. Historically, demutualization activity has been sparse: only thirty-seven life insurers demutualized in the 92 years from 1902 to 1994. In contrast, 31 demutualized from 1995 through 2002, a period of only seven years. Figure 2 depicts the recent spate of conversions. In the first half of the 1900's, demutualizations were approximately balanced by mutualizations, i.e., conversions of stock insurers to mutuals. Mutualizations are not a feature of the current era, nor are new mutuals without a common bond uniting customers. Nevertheless, the mutual organizational form remains viable. Life insurers representing the bulk of the approximately 16% of industry assets remaining in mutuals have declared their intention to remain mutually organized.

There are two types of demutualization. In full demutualizations the insurer converts to a stock company. In partial demutualizations the insurer converts to an MHC that remains at least half owned by customers. In both cases the managers design the conversion plan, and

policyholders vote on the plan. Typically⁴ a majority of voting policyholders must approve the plan. Regulators oversee the process and hold a public hearing prior to granting approval.

Under full demutualization, the insurer makes a distribution to its policyholders as compensation for relinquishing ownership. The amount of the distribution is determined by management (overseen by regulators) and is meant to reflect the market value of the firm. Distributions take the form of cash, stock, or policy credits. Individual policyholders typically have some choice regarding the form of the distribution. The insurer then issues new capital stock to shareholders. Proceeds from the IPO replace the capital used to pay policyholders. The firm goes forward as a stock company.

Full demutualization is lengthy and expensive. The time from announcement to conversion for the firms studied here averaged 17 months and ranged from six to 46 months. Costs for the two largest conversions, Prudential and Metropolitan, are \$830 million and \$361 million, which is 27 percent and 13 percent of the respective gross IPO proceeds. Demutualization costs averaged \$171 million for the the nine sample firms with available cost data.

Allocating the distribution to individual policyholders is a complex task. The allocation always takes into account prior contributions to surplus and sometimes future contributions, i.e., profits from policies. The policyholder's capital contribution is part of the premium payment and not accounted for separately. So capital contributions, both historical and future, must be estimated. Future profits entail additional estimates of lapse rates, mortality, investment results, and expense trends. The variety of policies sold, the length of time over which they were sold, and the many risk classifications of customers all contribute to the complexity.

Regulators hire outside experts to scrutinize proposed allocation and conversion plans. The converting firm pays for the outside consultants. Conversion plans are lengthy documents, numbering in the hundreds of pages, in which managers describe and justify the conversion process. Prior to the policyholder vote, the firm mails a copy of the plan to every policyholder. The Metropolitan plan mailing was the largest mailing in the history of the U.S. Postal Service.

Partial demutualization to an MHC is faster and less costly than fully converting to a stock firm. The lack of surplus distribution to policyholders, and the associated allocation process, accounts for much of the cost savings. Conversion to a MHC involves first creating a holding company that is owned by customers. Then the operating insurance company converts to a stock company that is owned by the holding company. The stock company may issue non controlling amounts of equity to shareholders. By design, customers own at least half of the firm. Ownership is in terms of voting rights, not cash flow rights. Policyholders do not receive a proportionate share of shareholder dividends. Instead, as in the case of full demutualization, customers continue to receive policy dividends to the extent that a dedicated "closed" block of assets supports them.

The recent demutualization activity in the life insurance industry offers a unique opportunity to study organizational form issues. The time compression suggests that the conversions are reactions to industry conditions rather than to idiosyncratic company circumstances. This

⁴Since U.S. insurance regulation is done at the state level, there is some variation from state to state.

distinguishes this work from studies of changes in organizational form over long periods. Broad features of the phenomenon, such as its industry specificity, global aspect, and timing, suggest a change in equilibrium: specifically, a contraction in the share of the life insurance market best served by mutual organizations. The goal of this work is to identify the underlying factors behind the decreased ability of mutual firms to compete against stock firms in the life insurance industry during the 1990s. Life insurers are regulated, and participate in markets for labor, products, and capital. These are natural places to look for demutualization explanations. Next we discuss each of them in turn.

The labor market is an unlikely driver of demutualization, despite the active role of managers in initiating and designing conversions. We consider agency issues such as monitoring and rewarding managers to be labor market issues. First, demutualization is a global phenomenon while the labor market is not global. In particular, stock based executive compensation is not available in all the countries exhibiting life insurer demutualization. The lack of a wave of demutualization in the U.S. property-casualty industry also suggests the irrelevance of the managerial labor market. Also, managers are constrained by class action lawsuits – actual or threatened – that accompany demutualizations. Typical conversion plans restrict managers both from participating in the IPO and from receiving stock options for a period of six months. The restrictions close an avenue to managerial enrichment taken in some thrift demutualizations. This work argues that managers decide to demutualize for reasons of efficiency related to the capital and product markets, and goaded by regulation not by self-enrichment. This is not to say that agency issues are unimportant to the organizational form of these firms. Indeed, the relative features of stock and mutual firms are hard to explain without reference to agency issues. We simply note that there are no changes in monitoring and rewarding managers that are consistent with the broad features of recent life insurer demutualizations.

Capital and product markets are promising places to look for demutualization explanations. Capital market involvement appears likely because conversions change a firm’s capital sources. Also, capital market conditions have requisite global elements. A necessary feature of any reasonable explanation is global relevance. Product market importance appears likely because the phenomenon affects a single industry. The increasing globalization of the life insurance product market also satisfies the aforementioned requirement. Next we discuss the implications of capital market changes, product market changes, and regulations for organizational form competition. This analysis generates testable hypotheses we evaluate.

3.1 Capital Markets

We now analyze capital market innovations and conclude that they have increased the mutual’s cost disadvantage.

When small investors do not have access to liquid equity investments, mutuals do not suffer relative to stock firms for raising their capital from their customers via untradeable claims. Historically, small investors lacked access to liquid equity investments. Compensation for non tradeability was not necessary then because small traded equity investments did not exist. Therefore the posited incremental capital costs of the mutual insurers we study were not

relevant at their inception. Inception dates are shown in Table 2. With access to liquid investment alternatives, however, rational investors require compensation for illiquidity. Over the last century, small equity investments grew increasingly liquid, as documented in Jones (2000). Reasons for this include the deregulation of stock commissions, the advent of mutual funds, and the improvement of technology, all of which lower transaction costs for small investors. The increased liquidity of small equity stakes gives rise to a financing cost for firms that rely on illiquid equity such as mutual firms. The access of small investors to liquid equity hinders the ability of mutual firms to compete against stock firms. If nontraded claims to dividend streams did not entail an incremental liquidity related capital cost, then mutuals could raise capital competitively with stock firms by simply promising higher dividends and raising the nominal premium. The argument here implies that mutuals that demutualize will stop issuing participating policies once they have the additional capital raising opportunities available to MHCs and stock firms.

The above analysis generates the following hypotheses regarding drivers of demutualization arising from capital market considerations.

H1. Mutuals with a greater need for capital are more likely to demutualize than highly capitalized mutuals.

H2. Demutualizing firms will stop issuing participating policies and surplus notes; mutuals that stay mutual will continue issuing participating policies, and surplus notes.

3.2 Product Markets

Life insurance product innovation is relatively unhindered by regulation, compared to other financial industries. In contrast to banking, regulators do not define permitted products. Unlike the auto insurance market, price regulation is absent. We now consider product market innovations and conclude that they have eroded the value of the mutual's historic advantage: low firm default risk. Recall that mutuals have low risk and high costs relative to stock insurers. If the ability to operate with low risk ceases to be a valuable advantage then mutuals will not be able to attract business when competing with stock firms that have lower costs.

Several changes in the life insurance product market have decreased the value of low insurer default risk to the customer. First, industry sponsored guarantee funds arose. Second, the investment role, as opposed to the protection role, of life insurance products grew in importance. In fact, products primarily oriented towards investment, such as deferred annuities, represent an increasingly large share of the product market. Annuity premiums first exceeded life premiums in the 1980s and continue to do so. Third, life insurers developed the financial innovation of legally separate accounts. We now describe how these changes led to a decline in the value of the ability of an insurer to operate safely.

The introduction of life insurer guarantee funds eroded the value of low default risk in general account product markets. Guaranty funds are industry supported arrangements whereby solvent insurers are assessed to cover the claims of state residents upon insolvent insurers. Figure 3 shows the expansion of life insurer guarantee funds. Although New York's guarantee fund

started in 1941, other states did not generally follow suit until the 1970s. By 1991, residents of all 50 states and the District of Columbia had guarantee fund coverage. This coverage is limited. There are size limits, exclusions, and delays that make this coverage far less complete than FDIC insurance. Additionally, there are concerns about the capacity of the funds to cover the failure of a large insurer. Thus guaranty funds erode, but do not eliminate, the value of the ability to operate with low default risk.

Life insurance products provide both protection and investment opportunities to customers. Protection payoffs protect against death related financial losses. The investment component promises an agreed upon cash value to customers that forgo future protection by redeeming their policies. Traditional products, such as whole life insurance and life contingent annuity payments, emphasize protection. They either lack cash values (in the case of life contingent payout annuities) or have cash values that are unattractive compared to other investment opportunities.

A trend toward emphasis on the investment component of life insurance products began the 1970s. Several factors drove the change in emphasis. First, consumers gained access to a wide array of new investment opportunities such as mutual funds and low priced equity transactions. Second, consumers saw inflation erode the value of the nominal amounts promised by life insurers. Third, a consumer rights movement criticized corporations in all industries for not providing quality products to customers. For the life insurance, the pressure to justify their products not only as protection but also as investments, culminated in 1979 when the Federal Trade Commission published a report suggesting that traditional life insurance products benefitted insurance companies more than customers.

To survive in this new environment, life insurers promoted products with investment components that dwarfed their protection elements. Among the most significant such products are variable deferred annuities. These are near substitutes for mutual funds, but they have a different tax status which makes them more attractive to some investors. In particular, because they have a protection component, variable deferred annuities qualify for life insurance tax deferral. However, the protection elements necessary to qualify for insurance status are *de minimus*, and insurers often include only a token amount of protection in these products. In the case of deferred annuities, the protection element is small enough to make them comparable to mutual fund shares. Life insurers market deferred annuities as an alternative to mutuals fund investments.

The important distinction of protection payoffs relative to investment payoffs is that protection payoffs occur in very bad states of the customer's personal world. Protection payoffs are not replicable with capital market securities. Therefore a customer, for a given decrease in default probability, is willing to pay more than the value, from an investment perspective, of the increase in expected payoff. The additional payment increases with customer risk aversion. When customers start valuing payoffs as investments rather than as protection, the additional amount they are willing to pay for lower default risk decreases. This idea is introduced in Merton (1989) and is discussed further in Merton and Bodie (1992). Mutual viability depends on customer willingness to pay enough for mutuals' lower default risk to support their higher costs.

The importance of firm default risk to the insurance customer was further decreased by the introduction of legally separate accounts. Separate accounts hold assets which back products where the customer bears the investment risk. Cash values of such products are tied to the value of an investment sub account. Regulators require that this sub account be legally separate from the insurer's general account, in order to shield general account customers (for whom the insurer takes the investment risk) from the generally higher investment risk of these products. Separate accounts do not face the regulatory asset restrictions applicable to an insurer's general account. This requirement has the additional effect of shielding separate account customers from insurer default risk arising from the general account. Since separate account customers are largely shielded from firm default risk, motivation to pay extra for insurer default risk is minimal. Therefore, mutuals' ability to operate free of shareholder influence that leads to additional risk generates little value for separate account products. Figure 4 shows the growth in separate accounts.

Note that the argument is not that stock insurers have an advantage specific to separate account products. That would imply that separate account products alone would be enough to spur demutualization. It would also imply that stock firms in general would have more separate account products than do mutual insurers. The argument is that mutual's strong points are not valuable for these products. Customers are therefore indifferent to purchasing these products from firms of either organizational form. Indifference contrasts to the usual case, with general account products, of a preference for the safer haven of the mutual organization (that may or may not be valued enough by the customer to render them willing to support the higher costs of the mutual).

All mutuals are motivated to demutualize considering only capital raising constraints. Justifying continued mutual organization requires an advantage to continuing to operate as mutuals. Mutuals with mostly protection products backed by general account assets have this; those with mostly investment products backed by assets in separate accounts do not. We view the move to separate accounts as a demand shock driven by forces exogenous to the firm. In order to survive, most firms had to offer separate account products.

The above product market analysis generates the following hypothesis relevant to life insurance demutualization.

H3a. As the mix of a mutual insurer's products contain more investment elements and fewer protection elements, the ability to remain competitive as a mutual weakens, and the probability that it will convert increases.

H3b. When assets placed in a separate account back the investment elements of a mutual insurer's products, the ability to remain competitive as a mutual weakens, and the probability that it will convert increases.

The analysis is consistent with the lack of a similar spate of conversions in the property-casualty insurance industry. Property-casualty insurance offers protection, not investment opportunities. Also, there are no separate accounts and the guarantee funds have limitations.

The hypothesis is a strong test of the importance of product market issues because capital considerations exert an effect in the opposite direction. That is, separate account products

require smaller reserves and hence less capital to support them relative to general account products. So separate account products are easier to support than general account products for capital constrained firms like mutuals. Conversely, stock firms, considering only capital raising differences between organizational forms, have less of an advantage over their mutual competitors when supporting separate account products than when supporting general account products. Therefore data regarding the relative sizes of general and separate accounts can illuminate whether the product market issue of relative firm risk, which only affects general account products, is important enough to customers to override the cost efficiencies associated with stock firms. In other words, the mutual organizational form is viable only if enough general account customers place a high value on low firm default risk. Then, the presence of such default risk sensitive customers will render demutualization less likely.

3.3 Regulation

None of our above hypotheses address the timing of the demutualization wave. We now develop our timing related hypothesis that risk based capital (RBC) regulations provided the impetus for the conversions.

Any impact of regulation on recent life insurer demutualization is indirect. Regulators have long allowed demutualization. Also, no recent regulations give an obvious advantage to stock firms over mutuals. The lack of direct regulatory influence distinguishes the phenomenon studied here from the wave of demutualization in the thrift industry in the 1980's. Thrift demutualizations took place under an insolvent regulator while the industry was financially distressed. Kroszner and Strahan (1996) describes the resulting distorted incentives affecting thrifts in the 1980's. Masulis (1987), Esty (1997a, 1997b), and Cole and Mehran (1998) study the thrift conversions.

Any regulation that plays a role must be globally prevalent, since the U.S. conversion activity is part of a global phenomenon that involves five continents and a variety of regulatory regimes. One type of regulation qualifies: RBC rules. The RBC regulations applicable to U.S. life insurers took effect in 1993, and are discussed in section ???. RBC regulations alone, however, cannot explain demutualization because the phenomenon is specific to life insurance whereas RBC regulations apply to both property-casualty and life insurance. The RBC regulations for U.S. property-casualty insurers took effect in 1994, after which there was no wave of demutualization of property-casualty insurers.

The NAIC states that the RBC ratio is only meaningful at critical levels, and that comparisons between companies, particularly companies with relatively high RBCs, are unjustified. The NAIC also promulgated laws that prohibited using the ratios for business purposes, including insurance sales. These widely adopted laws did not convince managers and industry observers that RBC ratios would not be used to compare insurers and that such comparisons would not reach customers. Disclosure of RBC ratios allowed, for the first time, a firm-by-firm

ranking based on an officially sanctioned measure of solvency. An industry publication (A.M. Best, 1994) states⁵

[I]t is inevitable that insurers—even those whose capital comfortably exceeds regulatory thresholds—will be improperly compared and ranked by the RBC results they disclose in their annual NAIC statements. Despite the NAIC’s efforts, RBC is bound to be used by agents, brokers, risk managers and others in both a negative and a positive marketing sense ... This will lead many insurers to improve, if not optimize, their RBC standing.

Indeed, managements of many healthy companies took measures to boost RBC ratios that were adequate from the regulatory perspective. Issuing stock raises the RBC ratio. Mutual insurers, which cannot issue stock, issued surplus notes in unprecedented amounts. Figure 5 shows the sudden surge in the use of this previously unpopular method of raising capital around the start of RBC regulations. Insurers also boosted the ratio via cash sales of subsidiaries and reallocation of their asset portfolios.

We hypothesize that the RBC ratio disclosures provided the impetus for some mutuals to undergo the conversion process by bringing the capital raising limitations of mutuals to the fore. The limitations were most salient to the mutual managers who most wanted to boost their ratio. We identify such firms and managers ex post, by whether they raised funds around the start of RBC disclosures.

This allows us to formulate the following hypothesis:

H4: Mutuals that raised significant capital near the start of RBC disclosures are more likely to demutualize than those that did not.

4 Evidence

In this section we provide formal tests of our hypotheses (H1-H4) regarding the capital market, the product market, and the risk based capital disclosures, as driving forces behind recent demutualizations in the life insurance industry.

4.1 Data

The primary data consists of annual statement values for all life and health insurers operating in the U.S., for the annual statement year of 1993.⁶ Various A.M. Best’s Insurance Reports supply additional data (ratings, capital raising, and group membership). The study period

⁵The quote refers to RBC regulations for property-casualty insurers but is equally relevant to life insurers.

⁶Data source: National Association of Insurance Commissioners (NAIC), by permission. The NAIC does not endorse any analysis or conclusions based on the use of its data.

runs from year end, 1993, to year end, 2002. The data is reported by company, not group, so the first step in the sample construction is aggregating the company data into groups. Historical group membership data is limited to a list of the 100 largest groups for a given year and is first available for 1991. To create the sample we start with the 100 largest groups that consist of multiple companies, at year end 1993, as measured by total admitted assets. These groups account for 83% of the total industry assets. Single company groups larger than the 100th largest multiple company group as of 1993, and smaller multiple company groups that made the top 100 list for 1991 – 2000 were added until we have a subset containing 95% of industry assets. Since our data is limited to the U.S., it gives an incomplete view of firms with substantial life insurance business outside the U.S.. Such firms, all Canadian, are removed from the sample. Health insurers that do not sell life insurance products are also removed.

The 41 mutuals that remain comprise the mutual firm sample. They are listed in Table 2. Each mutual firm is paired with a stock firm, based on total admitted assets as of 1993. Classifying a group of companies as stock or mutual requires a definition. Strictly speaking only companies and not groups are stock or mutual. Single company groups are categorized by the organizational form of the company. Multiple company groups are categorized by the organizational form of the parent company, since subsidiaries are always stock companies. The ultimate source of capital categorizes a group as stock or mutual in this definition. If the capital is supplied by customers who have non tradable claims to dividends, whether or not these customers are customers of the life insurance company, the insurer is a mutual. If the capital is provided by investors with tradeable claims, the insurer is a stock company. The parent is included in the group if the parent is a life insurer; otherwise the parent is not included. An example of this last type is State Farm Life. The group is comprised of subsidiaries of the mutual parent, a property-casualty insurer.

The mutual sample is divided into three subsamples based on the organizational form of the insurer at the end of the study period. Mutuals that merge are categorized by any subsequent demutualization of the resulting entity. Thirteen mutuals, denoted *remutuals*, remain mutuals. Twelve, *HCmutuals*, have partially demutualized and are MHCs at the end of 2002. Some MHCs have had IPOs and some have not. The two that did subsequently took the further step of fully demutualizing by the end of the study period and are classified as demutuals. So no HCmutuals have traded equity. Sixteen mutuals, *demutuals*, fully demutualized. Included in this last group are two hybrids. Nationwide issued stock but is majority owned by a mutual property-casualty parent. Provident also is a hybrid by virtue of Nationwide’s 2002 purchase of it from its customers (called a sponsored demutualization). The classification coincides with any changes in sources of capital. The structure of insurers is verified from A.M. Best publications and insurer web sites.

4.2 Methodology

The primary question we study follows. Do mutual firm characteristics predict whether and how the firm demutualizes?

We use calendar time in all tests to avoid two problems associated with event time. One is the proper adjustment for time trends in the data, particularly for the growth of separate account assets. Since there are plausible arguments for trending by the industry as a whole or by the separate portions of the industry according to organizational form, the proper adjustment is unclear. A second problem involves defining pre demutualization, the time at which we collect firm characteristics. Since we want to identify determinants of demutualization, we want the data to be unaffected by changes that the firms undergo once the decision is made.

Several considerations dictate our use of year end, 1993 data for pre demutualization values. That is the earliest date for which machine readable data is available. Since the sample demutualizations occur up to nine years later, the experimental design offers a strong test of our hypotheses. The problem of post decision contamination is limited by the small number of early conversions. Only one conversion occurs before October, 1995. Additionally, RBC ratio disclosure regulations took effect for life insurers at that time.

For the empirical tests, we require measures of capital strength, investment oriented products, and participating products. We describe these variables next.

For capital strength we use several measures. The first is an objective measure of capital strength, RBC_{group} . We calculate RBC_{group} for a sample insurer by taking the weighted average of the RBC ratios of all the companies in a group. We use total admitted assets as weights in the calculation. As with all regulatory values, RBC ratios are calculated for companies not groups.

RBC_{group} has limitations as a measure of capital adequacy. The NAIC reports that small firms have higher and more variable ratios than large firms. Consistent with this, we report significant negative correlation with size of -0.26 in Table 3. To separate the effects of RBC_{group} from size, we construct a new measure, CAP_{obj} . CAP_{obj} is the OLS residual from the regression of RBC_{group} on $Size$.

A second limitation of RBC_{group} is that firms may have capital targets of their own, distinct from the average of other firms. We refer to the level of a firm's capital with respect to internal targets as subjective capital adequacy. We employ two basic measures of subjective capital adequacy. $\Delta Rating$ indicates recent movement in the AM Best rating. AM Best is the primary rating agency for insurers and is intended to reflect "claims paying ability." $\Delta Rating$ takes on respective values of $-1, 0$, and 1 when ratings drop, are stable, or rise over the period 1990 – 1993. The second measure of subjective capital adequacy, $RaiseRBC$, reflects whether firms raised significant funds around the commencement of RBC disclosures at the end of 1993. $RaiseRBC$ is 1 if a firm issued surplus notes or sold a subsidiary for cash in 1993 or 1994. Otherwise $RaiseRBC$ is 0. We also construct a composite measure of subjective capital adequacy: $CAP_{subj} = \Delta Rating - RaiseRBC$.

Statutory accounting conventions limit the choice of variables for investment products. Ideally, one variable would correspond to all investment products and another to separate account products, but only the latter variable is available. Therefore we can only test hypothesis H3b and not H3a. Recall that there are two aspects to the lower sensitivity to default risk of investment customers compared to protection customers. The first is that, unlike protection product

payoffs, investment payoffs are unrelated to policyholder utility. Unfortunately statutory reporting defines products in a manner that not distinguish between investment and protection orientations. For example, the category of annuities includes both life contingent payouts, a protection product, and deferred variable annuities, an investment product. The second aspect of the lower sensitivity is the additional insulation from firm default risk provided by separate accounts. Measuring this second aspect is feasible. We use *SepAcct*, the proportion of assets held in separate accounts to quantify the importance of investment products to an insurer.

Our measure of the reliance of an insurer on dividend claims to raise capital also is also constrained by accounting conventions. First we describe ideal measures, and the practical considerations that preclude them. Then we describe the one feasible measure we employ, and its implications.

Conceptually, there are two equivalent methods that quantify the amounts of capital raised. One measures the amounts collected from the capital contributors. For stock companies, this quantity is the amount shareholders pay for newly issued shares and is readily available. For mutual companies this quantity is the present value of the portion of each premium that is a capital contribution. The portion of the premium that represents the capital contribution is not accounted for separately from the rest of the premium, and so measuring them is not feasible. The second method measures the present value of future cash flows expected to be paid to the capital suppliers. For stock companies this amount is the present value of all future dividends payable to the shareholders. For mutual companies this is the present value of all future dividends payable to the customers. Although prospective mutual customers receive estimates of the future dividends, aggregate estimated values are not available.

Instead of the above measures, we use a rudimentary measure of the reliance of a mutual insurer on dividends to raise capital. The measure is *Par*, the percentage of total premiums that are for participating policies. A drawback of this measure is that it cannot capture changes in reliance reflected in the size of the promised dividends per unit premium. For example a company can raise additional capital by increasing the size of promised dividends on each participating policy without changing the proportion of participating policies sold. The measure works fine, however, for our hypotheses that involve merely the existence of dividend paying policies.

We also employ a fourth variable, *Size*. The cost differences between full and partial demutualization offer an analytic justification. Since size, as measured by total admitted assets, has a fat right tail, we use the natural log of assets as our measure.

Table 3 provides summary statistics for the variables of interest. Panel B shows that size is correlated with *RaiseRBC*, $\Delta Rating$, RBC_{group} , and *SepAcct*. CAP_{subj} has the convenient property that it is not correlated with size although both of its components, *RaiseRBC* and $\Delta Rating$ do. We employ CAP_{obj} , RBC_{group} orthogonalized with respect to size, to distinguish between size and capital effects. The correlation of *SepAcct* and *Size* disappears when firms without separate account products are eliminated, so we handle those firms separately by

employing *NoSA*, a binary variable that takes the value of 1 if the firm has less than one percent⁷ of assets in separate accounts, in the multivariate analysis.

To test the importance of capital issues in a time series context, i.e., hypothesis of H2, we collect data from A.M. Best’s Review on the issuance of surplus notes by firms in our sample during the sample period. We also note the percentage of policies issued by the lead company of each group in 1993 and 2002 that are participating. Using the lead company instead of the entire group allows us to handle merging firms simply.

4.3 Results

We perform two univariate analyses of the 1993 data. First we compare sample and subsample values to size matched stock firms. Although our main goal is to discriminate between mutuals that make different conversion decisions, the stock comparison allows us to compare capital adequacy via the RBC ratio, unconfounded by size. Then we compare the subsamples. For this we use the size adjusted RBC ratio to measure objective capital adequacy. We also include subjective measures of capital adequacy to gauge the effect of internal capital targets on the decision to convert.

Table 4 shows univariate results for pair-wise comparisons between mutual firms and size matched stock firms. Panel A compares the full sample of mutuals and stocks. The stock firms are smaller than the mutual firms despite the size matching. This is a consequence of the fact that two largest firms in the industry are mutuals. The RBC_{group} of stocks and all mutuals are similar suggesting that, in aggregate, the stock firm’s access to capital markets is balanced by the captured capital present in the mutual firm. Mutual firms issue more participating policies than stock firms. This is consistent with the view of nontraded dividend claims being a capital raising device that is more costly than issuing tradeable equity. Mutual and stock firms have similar proportions of assets in separate accounts. This justifies viewing the product market movements toward investment products as an exogenous shock to the firms.

Panel B-D compares subsamples of mutual firms to size matched stock firms. The objective capital position, as measured by RBC_{group} , of the remutuals is significantly stronger than that of the stock firms, and the two types of converting mutuals is weaker, but not significantly. The Par comparisons are similar to the ones in Panel A and support the same conclusions. The remutuals have fewer assets in separate accounts than the stock firms, and the two types of converting mutuals have more, but not significantly. The stock firms are smaller than the demutualizing mutual firms despite the size matching. This is a consequence of the fact that the two largest firms in the industry are mutuals that demutualized.

Table 5 compares the mutual subsamples to each other. Size is marginally different between the two types of converting firms, so fixed cost differences may be an important factor. The capital position of the subsamples has the expected monotone relation to full, partial, and no demutualization status nine years later. Only for the subjective capital measures, however,

⁷Some firms that do not sell separate account products segregate assets backing executive pension liabilities in separate accounts.

are the relationships consistently statistically significant. The *SepAcct* comparisons are also as expected, but not significant.

Now we turn to a more realistic multivariate setting. We employ two types of probit regressions in our multivariate analysis of the 1993 mutual data. The first type takes size into consideration. The second does not. Next we describe the analysis that considers size, and report the results. Then we describe the analysis that ignores size, and report the results.

We are ultimately interested in finding the determinants of a three-pronged choice facing mutual managers: remain a mutual, convert to an MHC, or convert to a stock firm. TO address this question, we use an ordered probit model, where the dependent variable is 0 for remutuals, 1 for HCmutuals, and 2 for demutuals. The model reflects a view that the MHC structure represents a middle ground between stock and mutual companies, which is consistent with our analysis of the potentially important factors from the capital and product markets.

Testing the importance of size, however, requires an adjustment. Recall that size is potentially important to the extent that costs of the two types of demutualization differ. So size is only potentially important to converting firms. To address this we first estimate a probability of converting from a binary probit regression where the dependent variable is 0 for remutuals and 1 for all other mutuals. Then we estimate the ordered probit model using two explanatory variables. One is the fitted probability from the initial probit estimation and the second is the firm size multiplied by a dummy variable that is 1 if the fitted probability of demutualization is greater than the sample probability of demutualization and 0 otherwise. Thus, we can test whether size is important to converting firms.

Panel A of Table ?? shows the results for the binary probit models that estimate conversion probabilities to use in the ordered probit model. The results indicate that product market emphasis and subjective, but not objective, capital strength of a firm are important considerations in the decision whether or not to demutualize. Panel B show the results for the ordered probits that test the effect of size on the choice of demutualization method.

The coefficients on the size variable reported in Panel B are not significant. The lack of significance of size is robust to the choice of explanatory variables used in the probit estimate that yields the fitted probabilities. This indicates that size itself is not driving the choice between the two conversion types. Although the costs may vary between the two conversion types, it may be that the varying benefits render size unimportant. Establishing that size is not important allows us to employ a single step analysis using an ordered probit model.

Table 7 shows the results for the ordered probit models that do not use size as an explanatory variable. Negative coefficients are associated with explanatory variables that encourage demutualization. Models (3)-(6) employ various combinations of capital strength measures as explanatory variables along with the product measures. Taken together the results indicate the importance of both product market focus and *subjective* capital strength to the decision whether and how to convert a mutual. This supports H3b. and a specific variant of H1. Insurers with a higher proportion of assets held in separate accounts are more likely to demutualize. Insurers with recent ratings drops and insurers that raise capital around the initiation of RBC disclosures also are more likely to demutualize. The insurers that fully demutualized,

as opposed to partially, had the strongest focus on separate accounts and the least amount of capital relative to their internal targets. In contrast, *objective* measures of capital strength were only marginally important. Whether an insurer had a higher or lower RBC ratio than other insurers of similar size did not affect the conversion decision of the firm as much as the subjective assessment of capital strength did.

The other notable result is that both components of subjective capital strength, and in particular *RaiseRBC*, affect the decision. Mutual firms that raise funds near the advent of RBC ratio disclosures are more likely to demutualize. This supports hypothesis H4. Recall that RBC regulations prompted insurers to raise capital. The effect is particularly noticeable in the market for surplus notes, as seen in Figure 5. Also recall that the insurers were raising capital to boost RBC ratios that were already adequate from the regulatory perspective. The regulations brought the capital raising limitations of the mutual form to the fore, and played a role in the conversion wave despite the NAIC's intention not to disrupt the industry. The evidence suggests that RBC regulations contributed to both partial and full demutualization. Since stock companies tend to be riskier than their mutual counterparts, the ironic result of the solvency regulation may be to raise aggregate insolvency risk. Thus the life insurance demutualization wave represents a consequence to regulation that is not only unintended but also may be contrary to the goal of solvency regulations.

Last, we further explore the importance of capital issues. These corroborative results appear in Table 8. For hypothesis H2, instead of employing non parametric statistical tests, we choose to describe the striking patterns in the data. There were 26 issuances of surplus notes by sample firms during the sample period. 24 were issued by firms while they were organized as mutuals. Four of the 24 were issued by remutuals. Nine were issued by HCmutuals before they converted. 11 were issued by demutuals before they converted. After conversion, two HCmutuals and no demutuals issued surplus notes. This evidence confirms that capital issues influence mutuals and play a role in the demutualization decision.

We also consider the use of participating policies in a time series context by comparing the lead company of a firm's percentage of participating policies issued, *Par*, in 1993 and 2002. The average *Par* for remutuals increased from 91 percent to 97 percent. By contrast, the average *Par* for HCmutuals decreased from 92 percent to 65 percent, and the average *Par* for demutuals decreased from 82 percent to 17 percent. Categorizing the individual change in *Par* for every sample firm tells a similar story. We tabulate whether *Par* for each firm increases or decreases between 1993 and 2002. *Pars* that remain at 100 percent count as an increase, and *Pars* that remain at zero count as a decrease. Of the 13 remutuals, all but one *Par* increased. Of the HCmutuals, seven *Pars* increased and five decreased. Of the 16 demutuals, all but one decreased. Again, this is strong corroborative evidence that capital issues influence the demutualization decision, although not as strong as hypothesized in H2. Still it is difficult to come up with alternative stories for these patterns. These results also offer new and strong support for the view that capital raising is of primary importance for mutual dividends.

Finally we look at MHCs to see if they took advantage of the increased capital raising methods offered to them as an MHC. Recall that no MHCs had traded equity at the end of 2002. Two had traded equity before 2002 but took the further step of fully demutualizing before

the end of the study period. So the ability to raise capital via traded equity is unconvincing as a driving force behind the new organizational form. Another possibility lies in the broader range of financing vehicles available to MHCs relative to those available to mutuals. As a further check of the importance of capital issues to MHCs we investigate whether any issued securities at the holding company level. Seven of the 15 firms that spent part of the study period organized as MHCs did so. This suggests that capital issues were important, but not the sole factor behind the decision to partially convert.

5 Conclusion

This paper has analyzed innovations affecting the life insurance industry in light of their influence on the competitive viability of the mutual organizational form.

Product market innovations, such as separate accounts and guaranty funds, erode the value of a strength of the mutual form: its ability to operate with little risk. The trend toward investment rather than protection products also erodes the value of low firm default risk. With fewer customers willing to support the mutual's high costs in return for low risk, fewer mutual firms are needed to meet demand. Capital market innovations put mutual firms at a relative disadvantage to their stock competitors. When small investors have access to liquid equity securities, additional compensation is required to induce them to hold illiquid equity claims like the mutual ownership claim. Capital market disadvantages become more important when mutual firms want to raise capital, as some did around the time RBC regulations took effect. The significance of the RBC ratio is not that it revealed inadequacy from the regulatory perspective, but that it allowed for the first time a firm-by-firm ranking of insurer capital adequacy, and thus provided a motivation to increase capital.

Empirical tests support the above analysis. In particular, insurers with a higher proportion of separate account business and less capital are more likely to demutualize. Subjective capital adequacy predicts demutualization during the study period better than does objective capital strength.

This demonstrates the importance of capital costs and product markets to organizational form, despite the strong focus on agency costs in the literature. Much of the capital cost analysis also applies to securities exchanges, which are undergoing their own spate of demutualization. Considering the effects of product markets and capital markets on other elements of organizational form represents fertile ground for future organizational form research. The results also support capital raising as the primary role of dividend claims for mutual firms, rather than information signals or risk sharing.

The Life insurance demutualization wave also provides an example of unintended consequences of a regulation. The advent of RBC regulations prompted healthy insurers to raise capital to boost RBC ratios that were already adequate from the regulatory perspective, motivated by the comparison between firms that the RBC ratio disclosures made possible. Due to this effect, the capital raising limitations of mutual firms became increasingly disadvantageous. Despite the NAIC's intention not to disrupt the market, evidence suggests that RBC

regulations contributed to both partial and full demutualization. Since stock companies tend to be riskier than their mutual counterparts, the ironic result of the solvency regulation may be to raise aggregate insolvency risk.

Table 1: Organizational Form Implications for US Life Insurers

	Mutual Firm	Stock Firm	Mutual Holding Company
Owners	Customers	Investors	Must be at least half owned by customers. In practice wholly owned by customers.
Capital Raising Opportunities	Participating policies Surplus notes Subsidiary debt and equity	Participating policies Surplus notes Subsidiary debt and equity Holding company debt and equity Operating company equity	Participating policies Surplus notes Subsidiary debt and equity Holding company debt and equity
Capital Raising in Practice	Participating policies Surplus notes	Holding company debt and equity Operating company equity	Holding company debt
Regulation	State Insurance Regulators	State Insurance Regulators SEC	State Insurance Regulators SEC only after any IPO
Mergers and Acquisitions	Merge with other mutuals Buy stock firms for cash Precludes hostile takeovers	Merge with other stock firms Buy stock firms for cash or stock Hostile takeovers are possible	Merge with other MHCs Buy stock firms for cash or stock Precludes hostile takeovers

Table 2: U.S. Mutual Life Insurers, as of 1993

<u>Insurer</u>	<u>Assets</u> (\$ Billion)	<u>Companies</u> in Group	<u>Inception</u> Date	<u>Conversion</u> Date	<u>2002</u> Structure
Prudential	173.1	4	1873	2001	Stock
Metropolitan	133.6	5	1868	2000	Stock
New York Life	67.3	4	1841	n/a	Mutual
John Hancock	46.7	3	1862	2000	Stock
Northwestern	44.1	2	1857	n/a	Mutual
Principal	40.6	3	1879	1998/2001*	Stock
Massachusetts Mutual	34.8	3	1851	n/a	Mutual
Nationwide	25.6	6	1929	1997	Hybrid
State Farm Life	17.6	3	1929	n/a	Mutual
Pacific Mutual	17.6	3	1868	1997	MHC
Mutual of NY	16.8	2	1842	1998	Stock
The New England	16.7	3	1835	2000	Stock
Connecticut Mutual	12.8	3	1846	n/a	Mutual
Guardian	12.5	2	1860	n/a	Mutual
Phoenix Home Life	11.8	3	1851	2001	Stock
Liberty	11.7	3	1905	2000	MHC
State Mutual Life	10.5	2	1844	1995	Stock
Mutual of Omaha	8.9	4	1909	n/a	Mutual
General American	8.5	5	1933	1997/2000*	Stock
Minnesota Mutual	7.8	4	1880	1998	MHC
Mutual of America	7.5	3	1945	n/a	Mutual
Western & Southern Life	7.4	4	1888	2001	MHC
Penn Mutual	7.0	2	1847	n/a	Mutual
American United Life	5.5	1	1877	2000	MHC
National Life	5.1	2	1848	1999	MHC
Provident Mutual	4.3	3	1865	2002	Hybrid
Union Central	4.0	2	1867	n/a	Mutual
Security Benefit	3.7	2	1892	1998	MHC
Standard Insurance	3.0	1	1906	1999	Stock
American Mutual	2.5	2	1896	1996/2000*	Stock
Century Companies of America	2.4	2	1879	n/a	Mutual
CUNA	2.1	2	1935	n/a	Mutual
Pan American Life	2.0	4	1911	n/a	Mutual
Ameritas	2.0	4	1887	1997	MHC
Acacia	1.3	2	1869	1997	MHC
Indianapolis Life	1.3	1	1905	2001	Stock
Midland Life	1.2	1	1905	1994	Stock
Guarantee Life	1.0	3	1901	1995	Stock
Mutual Trust Life	0.7	1	1904	1999	MHC
Woodmen Accident & Life	0.6	1	1890	1999	MHC
Ohio National	0.5	2	1909	1998	MHC

*The insurer had two conversions: first to a MHC and then to a stock firm.

Table 3: **Explanatory Variables**

Size is total admitted assets, measured in billions. CAP_{obj} is the size-adjusted weighted-average risk based capital ratio of the companies comprising the group. Weights are the company assets. *RaiseRBC* is one if the firm issued surplus notes or sold a subsidiary in 1993 or 1994, and zero otherwise. $\Delta Rating$ indicates the change in the A.M. Best rating of the firm over 1990-1993. Values of $-1, 0,$ and 1 indicates that the rating dropped, remained stable, or increased. *Par* is the percentage of 1993 policies that are participating, i.e., have an associated dividend claim. *SepAcct* is the fraction of total admitted assets held in separate accounts. *, **, and *** indicate significance at the 1%, 5%, and 10% levels.

Panel A.		Descriptive Statistics			
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Minimum</u>	<u>Median</u>	<u>Maximum</u>
<i>Size</i>	29.576	1.442	27.031	29.646	32.785
<i>RBC</i>	5.228	2.031	2.815	4.619	12.706
<i>Par</i>	0.777	0.331	0.000	0.966	1.000
<i>SepAcct</i>	0.126	0.116	0.000	0.098	0.373
$\Delta Rating$	-0.146	0.761	-1.000	0.000	1.000
<i>RaiseRBC</i>	0.365	0.490	0.000	0.000	1.000
Panel B.		Correlations			
	<i>Size</i>	$\Delta Rating$	<i>RaiseRBC</i>	<i>RBC</i>	<i>Par</i>
$\Delta Rating$	0.348**				
<i>RaiseRBC</i>	0.474***	0.148			
<i>RBC</i>	-0.260*	0.256	-0.206		
<i>Par</i>	-0.018	0.048	0.073	-0.168	
<i>SepAcct</i>	0.565***	0.090	0.300*	-0.291*	-0.143

Table 4: Univariate Analysis of Mutuals v. Stocks

The number reported in each column is the mean value for the variable as of 1993. *Size* is the log of total admitted assets, measured in billions. *RBC_{group}* is the average RBC of the companies in the group, weighted by assets. *Par* is the percentage of policies that are participating, i.e., have an associated dividend claim. *SepAcct* is the fraction of assets held in separate accounts. Remutuals remained mutuals during the sample period. HCmutuals converted to mutual holding companies. Demutuals fully demutualized. Stock firms are size-matched to the comparison group of mutuals. *, **, and *** indicate significance at the 1%, 5%, and 10% levels.

Panel A.	All Mutuals		Stock		Student t-Stat	
	mean	median	mean	median	for equal means	Wilcoxin S-Stat
<i>Size</i>	29.63	29.69	29.55	29.66	2.39**	225.5***
<i>RBC_{group}</i>	5.23	4.62	5.45	4.84	-0.37	28.5
<i>Par</i>	0.77	0.95	0.04	0.00	13.33***	406.0***
<i>SepAcct</i>	0.13	0.12	0.12	0.02	0.18	66.5
Panel B.	Remutuals		Stock		Student t-Stat	
	mean	median	mean	median	for equal means	Wilcoxin S-Stat
<i>Size</i>	29.89	29.82	29.87	29.85	1.54	19.5
<i>RBC_{group}</i>	5.75	5.36	4.55	4.48	2.01*	25.5**
<i>Par</i>	0.73	0.95	0.02	0.00	6.06***	39.0***
<i>SepAcct</i>	0.09	0.08	0.16	0.03	-1.06	-11.5
Panel C.	HCmutuals		Stock		Student t-Stat	
	mean	median	mean	median	for equal means	Wilcoxin S-Stat
<i>Size</i>	28.76	29.10	28.77	29.10	-0.49 -	4.0
<i>RBC_{group}</i>	5.59	5.17	5.83	5.38	-0.41	-5.0
<i>Par</i>	0.79	0.99	0.08	0.00	5.58***	37.0***
<i>SepAcct</i>	0.11	0.05	0.09	0.00	0.36	9.0
Panel D.	Demutuals		Stock		Student t-Stat	
	mean	median	mean	median	for equal means	Wilcoxin S-Stat
<i>Size</i>	30.08	30.09	29.88	30.02	2.74**	60.0***
<i>RBC_{group}</i>	4.53	3.89	5.90	4.31	-0.99	-20.0
<i>Par</i>	0.80	0.85	0.02	0.00	14.38***	68.0***
<i>SepAcct</i>	0.18	0.20	0.12	0.07	1.42	-24.5

Table 5: Univariate Analysis of Mutuals by Demutualization Status

The number reported in each column is the mean or median value for the variable as of 1993. *Size* is the log of total admitted assets, measured in billions. *CAP_{obj}* is the size adjusted weighted average risk based capital ratio of the companies comprising the group. Weights are the company assets. $\Delta Rating$ is 1, -1, or 0 if the insurer's A.M. Best rating increased, decreased, or remained constant from 1991-1993. *RaiseRBC* is 1 if the firm raised capital via surplus notes or a cash sale of a subsidiary in 1993 or 1994. *CAP_{subj}* is $\Delta Rating$ minus *RaiseRBC*.

Par is the percentage of policies that are participating, i.e., have an associated dividend claim. *SepAcct* is the fraction of assets held in separate accounts. Remutuals remain mutuals during the sample period. HCmutuals convert to mutual holding companies. Demutuals fully demutualize. Stock firms are size-matched to the comparison group of mutuals. *, **, and *** indicate significance at the 1%, 5%, and 10% levels.

	Remutuals		HCmutuals		Demutuals		Tukey-Kramer t-Stats for Equal Means		Kruskal-Wallis	
	mean	median	mean	median	mean	median	Re v. HC	HC v. De		Re v. De
<i>Size</i>	29.89	29.82	28.76	29.10	29.94	30.09	2.05	2.25*	0.11	5.53*
<i>CAP_{obj}</i>	0.55	0.28	-0.22	-0.37	-0.55	-1.05	0.99	0.54	1.61	5.22*
$\Delta Rating$	0.23	0.00	-0.08	0.00	-0.50	-1.00	1.20	1.53	2.75**	7.03**
<i>RaiseRBC</i>	0.15	0.00	0.33	0.00	0.56	0.50	0.95	1.28	2.34*	5.11*
<i>CAP_{subj}</i>	0.08	0.00	-0.42	-0.50	-1.00	-1.00	1.75	2.41*	4.34***	13.07***
<i>Par</i>	0.73	0.95	0.79	0.99	0.80	0.85	0.41	0.67	0.23	1.60
<i>SepAcct</i>	0.09	0.80	0.12	0.05	0.18	0.20	0.55	1.71	1.10	2.33

Table 6: **Multivariate Analysis with Size**

Two step probit analysis of mutual firm characteristics in 1993 and the decision to convert over the period 1994 through 2002. Coefficient estimates appear above p-values. Intercept coefficients are not reported. The initial binary probit models are used to estimate P_{demut} , the fitted probability of converting. The dependent variable is 0 if the firm remains a mutual and 1 if it converts. $Size$ is the log of total admitted assets, measured in billions. $SepAcct$ is the fraction of an insurer's assets held in separate accounts. $NoSA$ takes the value of 1 if $SepAcct < 0.01$, and 0 otherwise. $RBCraise$ is 1 if the firm raised capital via surplus notes or a subsidiary sale in 1993 or 1994. $\Delta Rating$ is 1, -1, or 0 if the insurer's A.M. Best rating increased, decreased, or remained constant from 1991-1993. $CAP_{subj} = \Delta Rating - RBCraise$. CAP_{obj} is the size-adjusted weighted-average RBC ratio of the companies comprising the group. Weights are the company assets. In the ordered probit models, the dependent variable takes the value 0 if the firm remains a mutual, 1 if the firm partially demutualizes, and 2 if the firm fully demutualizes. $P*Size$ is 0 if P_{demut} is less than the sample rate of conversion, and equal to $Size$ otherwise. Remutuals remain mutuals during the sample period. HCmutuals convert to mutual holding companies. Demutuals fully demutualize. *, **, and *** indicate significance at the 1%, 5%, and 10% levels.

Panel A.		Binary Probit Models				
	(1)	(2)	(3)	(4)	(5)	
$SepAcct$	-5.011*	-5.079*	-5.136*	-5.095*	-5.100*	
	0.098	0.094	0.089	0.057	0.092	
$NoSA$	-0.854	-0.680	-0.769	-0.979	-1.033	
	0.233	0.324	0.281	0.126	0.174	
$\Delta Rating$	0.968**				0.853**	
	0.011				0.039	
$RBCraise$	-1.526**				-1.530**	
	0.020				0.021	
CAP_{subj}		1.038***	0.978**			
		0.001	0.011			
CAP_{obj}			0.075	0.186	0.113	
			0.523	0.109	0.443	
Pseudo- R^2	0.360	0.368	0.366	0.446	0.356	
Correctly Classified						
Remutuals (13 total)	11	11	11	10	11	
Converters (28 total)	22	22	21	20	22	
All (41 total)	33	33	32	30	33	
Panel B.		Ordered Probit Models				
	(1)	(2)	(3)	(4)	(5)	
P_{demut}	-3.317**	-2.161	-2.059	-0.689	-3.067	
	0.029	0.136	0.142	0.687	0.038	
$P*Size$	-0.001	-0.026	-0.026	-0.035	-0.003	
	0.973	0.275	0.255	0.104	0.904	
Pseudo- R^2	0.706	0.694	0.697	0.782	0.700	
Correctly Classified						
Remutuals (13 total)	9	11	11	10	8	
HCmutuals (12 total)	1	2	1	0	4	
Demutuals (16 total)	12	12	13	13	13	
All (41 total)	22	25	25	23	25	

Table 7: **Multivariate Analysis without Size**

Ordered probit analysis of mutual firm characteristics in 1993 and the decision to remain a mutual, partially demutualize, or fully demutualize over the period 1994 through 2002. Coefficient estimates appear above p-values. The dependent variable takes the value 0 if the firm remains a mutual, 1 if the firm partially demutualizes, and 2 if the firm fully demutualizes. Size is the log of total admitted assets, measured in billions. *SepAcct* is the fraction of an insurer's assets held in separate accounts. *NoSA* takes the value of 1 if *SepAcct* < 0.01, and 0 otherwise. *RBCraise* is 1 if the firm raised capital via surplus notes or a subsidiary sale in 1993 or 1994. $\Delta Rating$ is 1, -1, or 0 if the insurer's A.M. Best rating increased, decreased, or remained constant from 1991-1993. $CAP_{subj} = \Delta Rating - RBCraise$. CAP_{obj} is the size-adjusted weighted-average RBC ratio of the companies comprising the group. Weights are the company assets. Intercept coefficients are not reported. Remutuals remain mutuals during the sample period. HCmutuals convert to mutual holding companies. Demutuals fully demutualize. *, **, and *** indicate significance at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5)
<i>SepAcct</i>	-4.942**	-4.846**	-4.869**	-4.796**	-4.981**
	0.029	0.030	0.029	0.019	0.027
<i>NoSA</i>	-0.788	-0.590	-0.635	-0.924	-0.907
	0.193	0.295	0.281	0.087*	0.149
$\Delta Rating$	0.993***				0.897***
	0.002				0.009
<i>RBCraise</i>	-1.431***				-1.438***
	0.003				0.003
CAP_{subj}		1.083***	1.037***		
		< 0.001	0.001		
CAP_{obj}			0.064	0.183*	0.098
			0.594	0.077	0.432
Pseudo- R^2	0.669	0.677	0.674	0.808	0.662
Correctly Classified					
Remutuals (13 total)	9	9	8	6	9
HCmutuals (12 total)	7	4	6	5	6
Demutuals (16 total)	9	11	11	12	11
All (41 total)	25	24	25	23	26

Table 8: **Capital Raising Techniques**

This table depicts capital raising methods employed by the 41 sample firms during 1993-2002. Remutuals remain mutuals during the sample period. HC-mutuals convert to mutual holding companies. Demutuals fully demutualize.

Panel A. Surplus Notes			
<u>Firm Type</u>	<u>No. Issues</u>	<u>No. Issues</u>	
Mutuals	24		
Remutuals		4	
HCmutuals pre conversion		9	
Demutuals pre conversion		11	
Mutual Holding Companies:	2		
HCmutuals post conversion		2	
Stock firms	0		
Demutuals post conversion		0	
All Sample Firms	26	26	
Panel B. Use of Participating Policies: Averages			
	<u>1993</u>	<u>2002</u>	<u>Change</u>
Remutuals	0.91	0.97	+0.06
HCmutuals	0.92	0.65	-0.32
Demutuals	0.82	0.17	-0.65
Panel C. Use of Participating Policies: Frequencies			
	<u>Decreased</u>	<u>Increased</u>	<u>Total</u>
Remutuals	1	12	13
HCmutuals	5	7	12
Demutuals	15	1	16
Panel D. Mutual Holding Companies			
Issued Debt from Holding Co.	7 of 15 (some temporary)		

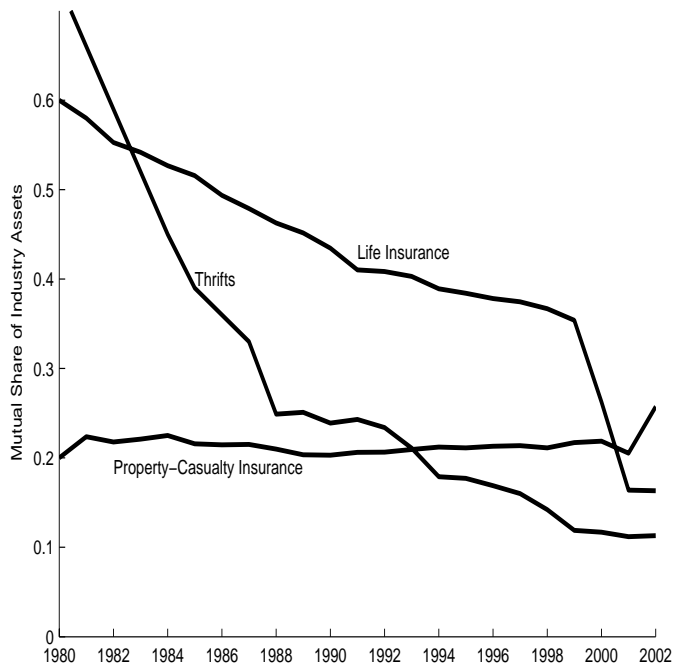


Figure 1: Mutual Market Share in the Financial Sector.

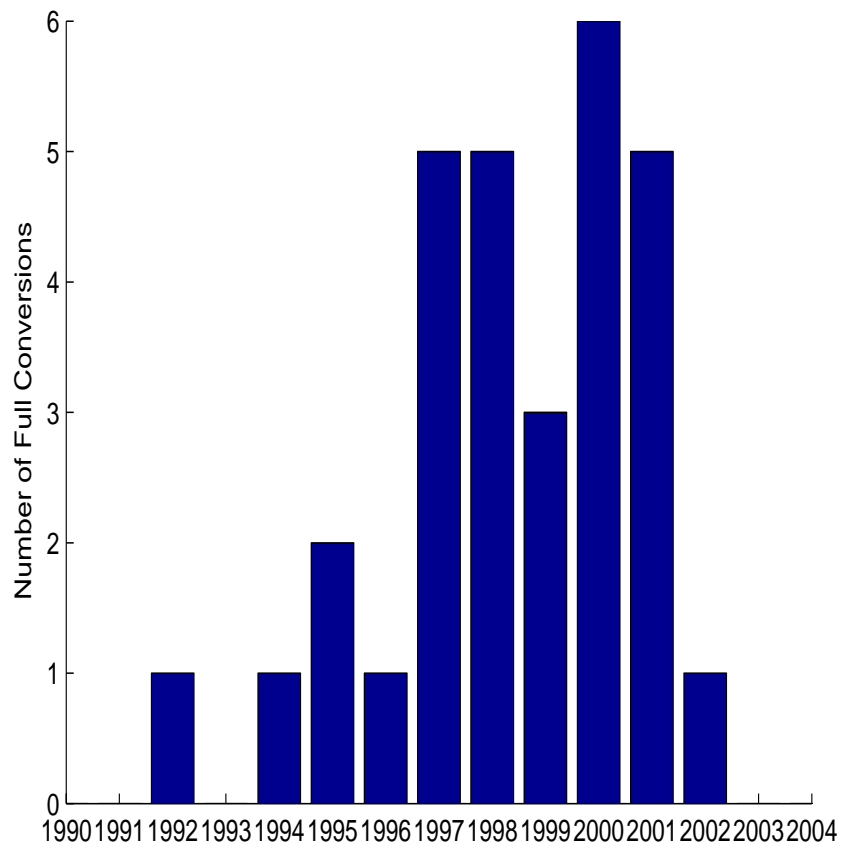


Figure 2: **Recent Life Insurer Demutualizations**

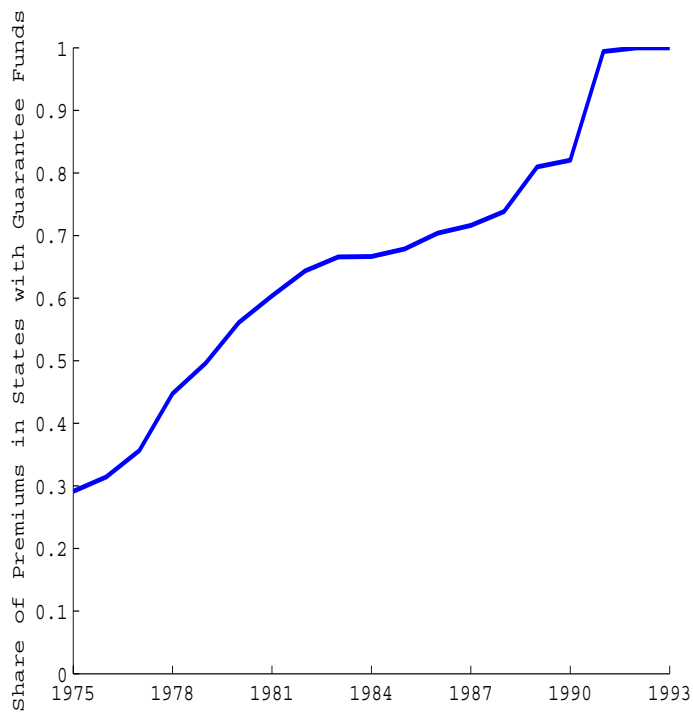


Figure 3: **Growth of Life Insurance Guaranty Funds**

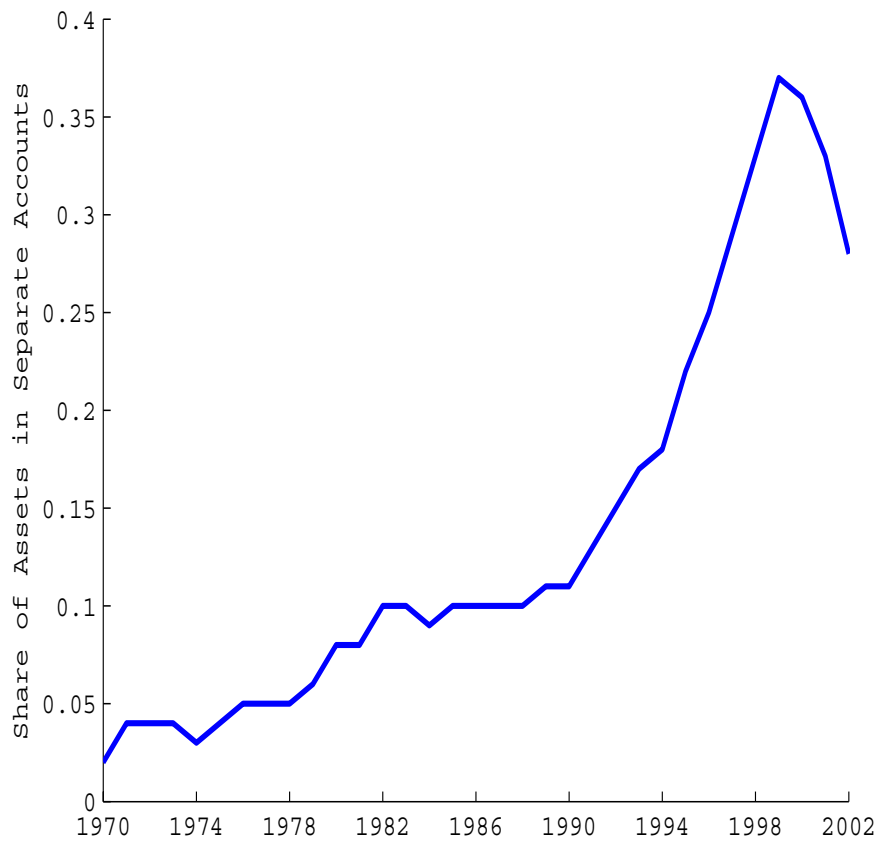


Figure 4: **Separate Account Growth in the Life Insurance Industry**

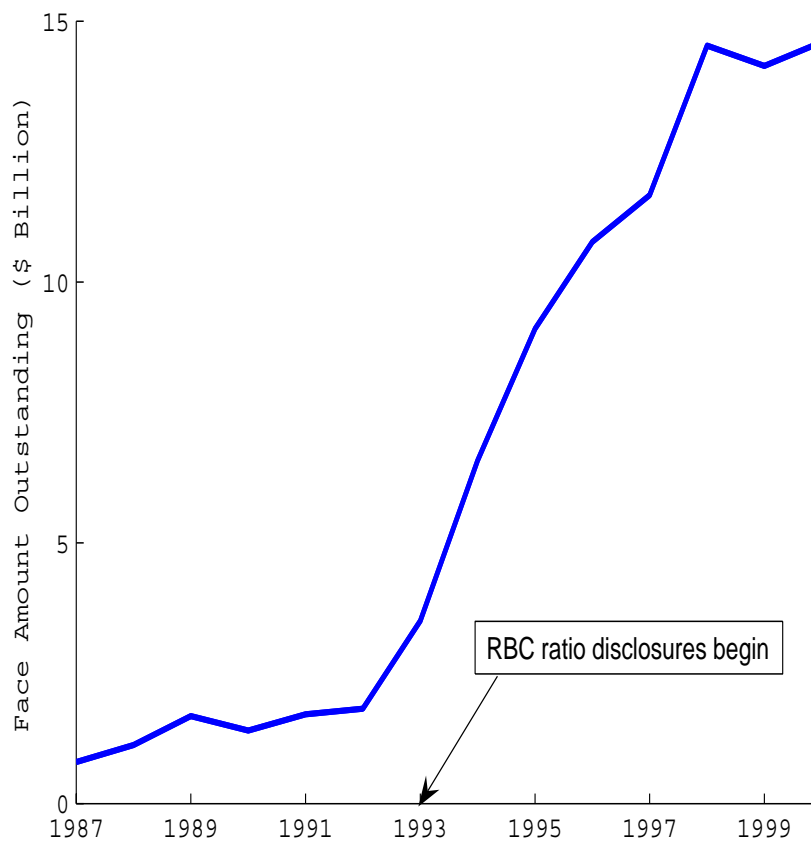


Figure 5: Use of Surplus Notes by Life Insurers

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