

OWNERSHIP STRUCTURE CHANGES IN THE INSURANCE INDUSTRY: AN ANALYSIS OF DEMUTUALIZATION

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ABSTRACT

This article focuses on the demutualization process and investigates why certain mutuals undergo this organizational structure change. The primary motivation for conversion is access to capital. By statute, mutual firms are limited in their capital-raising activities while stock firms can attract funds through a variety of stock and debt offerings. By examining the financial characteristics of firms that demutualize, changes in business practices in the years surrounding conversion can be observed. Determinants of the conversion decision are explored through logistic regression. In the years before demutualization, converting property-liability mutuals exhibit significantly lower surplus-to-asset ratios. This capital constraint eases after demutualization. Converting life-health mutuals hold a significantly lower proportion of liquid assets; in addition, they have a higher proportion of separate accounts under management. This liquidity constraint and increased focus on a higher managerial discretion activity drive the demutualization decision. For both property-liability and life-health converting mutuals, support for the access to capital hypothesis is found.

INTRODUCTION

The insurance industry in the United States is currently experiencing a wave of organizational structure changes as many property-liability and life-health mutual companies are converting to stock charter, a process known as demutualization. Given that this is an industry where mutual firms and stock firms have coexisted for more than 100 years, these conversions are receiving much attention from insurance regulators, investors, and consumers. This research focuses on the demutualization process and by examining the business practices of these demutualizing insurers in the years surrounding conversion, investigates why they undergo this change.

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A mutual insurer is collectively owned by its policyholders; these ownership rights are accorded upon policy purchase and end with its termination. In a stock insurer, the customer function and the ownership function are performed by two distinct groups. Insurance regulation in almost all states allows a mutual insurer to convert to stock form; a key aspect of the process is determining the compensation that the mutual firm's policyholders receive for relinquishing their ownership.

Demutualization activity is occurring in insurance markets around the world. The largest life insurer in the United States, Prudential Life, successfully demutualized in December 2001; the second largest, MetLife, also converted in April 2000. The largest life insurers in Canada have demutualized, as have major firms in Japan, the United Kingdom, and South Africa (Swiss Re, 1999). These widespread changes suggest that the stock ownership form has become more attractive for many mutual insurers. It remains to be seen how these particular firms will be affected by operating under stock charter. In the United States, the heavy conversion activity in the past two decades allows investigation into the motivations for these structural changes, and the effects of conversion on business practices can be observed.

This article investigates the determinants of the conversion decision. As indicated by converting insurers in their public statements, the predominant motivation is access to capital (Bailey, 1995; Goldstein and Avril, 1998; Dauer, 1998). By statute, mutual insurers can only increase their capital base through either retained earnings or surplus notes, a form of highly subordinated debt security (Dumm and Hoyt, 1999), whereas stock firms can raise funds through a variety of stock and debt offerings. The characteristics of these demutualizing firms could indicate whether this capital need is motivated by insufficient surplus levels. Capital may also be desired for expansion into new opportunities after conversion. Another attractive aspect of stock charter is the creation of a tradable currency, which allows the financial market to reward efficient behavior and can enhance the effectiveness of incentive compensation plans for management. By analyzing the financial characteristics of converting mutuals, we can identify whether their performance improves, suggesting the motivations for and the effects of demutualization.

We examine 51 property-liability conversions that occurred during 1981–1999 and 21 life-health insurer conversions during the period 1988–1999, using logistic regression.¹ By comparing the financial characteristics of these converting insurers with insurers that remain mutual, we attempt to identify the factors that influence the demutualization decision. By examining the business practices of these converting firms and comparing them to stock insurers, we can investigate whether these firms begin operating like stock firms and require conversion to sustain that behavior. Prior demutualization studies suggest that property-liability conversion is motivated by growth potential, capital needs, and possible management self-interest (Cagle, Lippert, and Moore, 1996; Mayers and Smith, 2002). Evidence also has been presented that the need for capital and the opportunity to control free cash flow motivate life-health demutualizations (Cole, McNamara, and Wells, 1995; Carson, Forster, and McNamara, 1998).

¹ A shorter time period is used for the life-health conversions corresponding to the NAIC database available to the authors. The effects of this limitation are minimal, however, because there were only five life-health conversions from 1981 through 1987.

Our article extends the existing literature on insurance demutualizations by focusing on a more recent time period than prior demutualization studies. Our sample period is also shorter than the periods used in most prior studies of insurer conversion.² Focusing on a more recent time period enables us to determine whether the most recent wave of conversions was motivated by the same factors driving conversions in earlier decades, and focusing on a shorter time period allows for more homogeneity in the market conditions affecting insurers. These aspects of our sample are important because market conditions changed significantly for life insurers beginning in the late 1980s due to bank entry into the market for annuities and life insurance following changes in federal regulation regarding bank sales of these products (Carow, 2001). Mutual fund companies and retail brokers also began to compete more aggressively in the annuity market during the 1990s. The unprecedented wave of mergers and acquisitions in both segments of the insurance industry during the 1990s also differentiates the environment from the prevailing conditions in earlier decades. Our study also extends the prior literature in being the first study to consider both life and property-liability insurer conversions, thus permitting us to compare the factors driving conversion activities in the two industry segments using the same analytical framework.

The article proceeds as follow. First, the two main forms of conversion: full demutualization and mutual holding company (MHC) conversion are described. Then, we review the theories that help explain the long-lived coexistence of mutual and stock firms in the insurance industry. The intense interest in demutualization, however, suggests that the mutual form may hinder the objectives of certain firms; we describe industry conditions that may be affecting these firms, leading them to choose demutualization. Hypotheses on why mutual insurers convert are then developed and the empirical predictions leading from these hypotheses are presented. We then describe our data and present our analyses investigating why certain mutuals convert. Our conclusions then follow.

THE DEMUTUALIZATION PROCESS

Given the actuarial, accounting, and regulatory considerations involved, demutualization is a significant endeavor. A converting mutual must follow the demutualization statute of its state of domicile. The demutualization statutes in most states are comprehensive, with extensive rules affecting each phase of the conversion process. As more insurers express interest in conversion, states are updating their regulations. Before any formal plan of reorganization becomes effective, it must receive both regulatory and policyholder approval.

Mutual Insurer Conversion Options

The two main forms of conversion to stock charter are full demutualization and MHC conversion.³ Forty-four states and the District of Columbia (D.C.) allow full demutualization while 22 states and D.C. permit MHC conversion. The insurance code in

² The prior analyses of property-liability conversions covered the sample periods 1972–1988 (Cagle, Lippert, and Moore, 1996) and 1920–1990 (Mayers and Smith, 2002), whereas the prior studies of life insurer conversions covered the sample periods 1902–1989 (Cole, McNamara, and Wells, 1995) and 1902–1994 (Carson, Forster, and McNamara, 1998).

³ The other two conversion methods are merger with stock insurer and bulk reinsurance. See Mayers and Smith (1996) for a discussion of these two methods.

TABLE 1
Conversion Statutes by State

<i>Full demutualization and MHC conversion allowed</i>		
California	Louisiana	Oregon
D.C.	Massachusetts	Pennsylvania
Florida	Minnesota	Rhode Island
Idaho	Mississippi	South Carolina
Illinois	Missouri	Texas
Iowa	Nebraska	Vermont
Kansas	North Dakota	Wisconsin
Kentucky	Ohio	
<i>Only full demutualization allowed</i>		
Alabama	Maryland	South Dakota
Arizona	Michigan	Tennessee
Arkansas	Montana	Utah
Colorado	New Hampshire	Virginia
Delaware	New Jersey	Washington
Georgia	New Mexico	West Virginia
Indiana	New York	Wyoming
Maine	Oklahoma	
<i>No conversion statutes</i>		
Connecticut	Nevada	North Carolina
<i>Conversion prohibited</i>		
Alaska	Hawaii	

Source: NAIC *Compendium of State Laws on Insurance Topics* (1998) with authors' updates.

Connecticut, Nevada, and North Carolina does not address mutual-stock conversion. Alaska and Hawaii expressly prohibit conversion to stock charter. Table 1 lists the conversion statutes adopted by the different states. The methods of full demutualization and MHC conversion are described below.

Full Demutualization. In a full demutualization, a mutual insurer converts to a stock insurer, whereby policyholders relinquish their collective ownership of the firm. A stock holding company as well as a downstream stock insurance subsidiary are created. The holding company wholly owns the stock subsidiary, into which all of the former mutual's insurance obligations are transferred as a result of the demutualization. Having an intermediate stock holding company facilitates investment in and acquisition of both insurance and noninsurance subsidiaries.

Depending on the state, eligible policyholders may receive compensation for giving up their ownership rights in the form of shares in the newly created stock holding company, cash, and/or policy credits.⁴ The insurer's aggregate surplus is divided among these eligible policyholders as this amount represents their equity in the firm. The surplus allocation process is the lengthiest and most complex aspect of the demutualization process. The demutualization statutes in Illinois, Michigan,

⁴ Eligibility is determined according to the conversion statute.

Mississippi, and Pennsylvania require only that the policyholders be offered nontransferable subscription rights, whereby they are granted the right to purchase shares at the offering price.⁵ No other compensation is made to policyholders.⁶ Typically, the demutualization plan, which includes financial statements and details of the surplus allocation, stock offering, and management stock option program, must be approved by policyholders and insurance regulators before becoming effective. Additional capital can also be raised through an initial public offering, necessitating the appropriate filing with the Securities and Exchange Commission (SEC). These IPOs are typically executed soon after regulatory approval.

Mutual Holding Company Conversion. In this type of conversion, a MHC is created, which controls a downstream stock holding company, the direct parent of a newly formed stock insurer. All of the policyholders' ownership interests transfer to the MHC and their insurance contracts are assigned to the stock insurer. To raise capital, the MHC sells shares of stock in its stock holding company subsidiary to the public, but retains a majority of the voting rights.⁷ The MHC may also hold a majority financial stake in the stock holding company subsidiary. This protects the company from potential takeover. Policyholders could purchase shares if the insurer sponsors a subscription rights offering. Since the mutual insurer has not extinguished the membership rights of its policyholders, there is no compensation given to them, nor do they receive any proceeds from the sale of stock. Their rights to receive policyholder dividends, however, would continue. Since there is no allocation of surplus, the MHC conversion process takes only 6 months to 1 year whereas full demutualizations have taken an average of 2 years to complete. The corresponding time and cost savings make this option attractive to mutuals. In 1996, Iowa-domiciled American Mutual Life became the first mutual insurer to convert to a MHC, American Mutual Holding Co., the parent of AmerUs Life Holdings.

Mutual holding company (MHC) conversions have generated substantial controversy. Opponents of MHC conversions, including consumer groups and some regulators, argue that this method of reorganization is inequitable toward policyholders. They contend that the mutual insurer essentially has reorganized into a stock firm, similar to a full demutualization, but the policyholders are given no compensation for the loss of their ownership interest in the firm (Adkins, 1997; Schiff, 1998; Grannis, 1998). Thus, in contrast to full demutualizations, where compensation is distributed to policyholders, policyholders in MHC conversions are being cheated out of such a windfall, especially if management is awarded stock option plans.⁸ Schiff (1997) argues that if the newly created stock holding company expands into new insurance

⁵ Vader and Clark (1999) propose that demutualizing insurers offer transferable subscription rights. Policyholders choosing not to exercise such rights could sell them, receiving at least some cash compensation. A one-time market for these rights, ending when they expire, could be created.

⁶ Savings and loan association demutualizations, permitted since 1976, are also only required to use the subscription rights approach (Masulis, 1987).

⁷ A majority has been interpreted as either 50.1 percent or 51 percent.

⁸ Policyholder disgruntlement after a MHC conversion and its awarding of stock options to management led to a class action lawsuit being filed against National Life of Vermont in October 1999. This lawsuit charged that "directors and officers will profit from the issuance of valuable stock options at the expense of policyholders and that such officers' and directors'

and noninsurance activities, value created by these transactions would only accrue to shareholders, not to policyholders. Moreover, MHC conversions are said to create owner-manager incentive conflicts that did not exist prior to the conversion.

Proponents of MHC conversions, on the other hand, argue that policyholders who were customers at the time of the conversion retain their membership rights through the MHC and thus may receive increased policyholder dividends resulting from value-enhancing activities undertaken by the firm after conversion (Koeppel, 1998). In addition, proponents maintain that conversion is likely to strengthen the capital position of the firm and hence will benefit policyholders through increased guarantees that their contractual obligations will be met. Another touted advantage of MHC conversions lies in its control over when its IPO is issued. In a full demutualization, the financial market typically expects the IPO to be executed at the time of conversion, while an MHC can time its offering to occur during favorable market conditions. Finally, proponents argue that MHC conversions provide the firm with the benefits of the stock ownership form at a much lower cost than under a full conversion, while retaining the option to fully demutualize in the future.⁹

Conversion Plan

Once the mutual's board of directors adopts the initial decision to either convert to a MHC or fully demutualize, independent accounting, actuarial, and investment banking advisors are retained to begin the process. Regulators in the state of domicile and possibly other states that have an interest in a particular conversion also begin advising the mutual. The major tasks facing a converting insurer include surplus allocation, valuation, formal regulatory and policyholder approval, and stock offerings. Only insurers that are fully demutualizing and are required by law to compensate policyholders must undergo the surplus allocation process; in MHC conversions, since policyholder ownership rights are not extinguished, this surplus allocation is not performed. Another task in valuation could be the creation of a closed block. Owners of participating policies may fear that they face reduced dividends if management feels the pressure to return excess earnings to shareholders. To counteract that fear, some states require the converting insurer to set aside a closed block of assets to back the liabilities of these policies. The investment performance and benefit payouts are then tracked and reported in separate financial statements. As benefit and expense obligations are met and policies expire, the value of this closed block decreases until it reaches zero (Carroll and Duran, 1997).

After the plan of reorganization receives the approval of the insurer's board of directors, it must be submitted to regulators and policyholders. Each eligible policyholder receives the demutualization plan and a voting form, stating the specific compensation for relinquishing ownership rights. In some states, including California, a simple majority must be in favor of the conversion plan, whereas in other states, including New York and Michigan, two-thirds of the votes cast by policyholders must be in favor of the conversion plan. Several states require three-fourths of votes to be affirmative.

actions are in breach of the fiduciary duties they owe to policyholders." This class action lawsuit was dismissed in May 2001.

⁹ In September 2000, American Mutual Holding Co., created in 1996, completed its full demutualization; this is the first demutualization following a MHC conversion.

Regulators examine the demutualization plan in detail. All expenses incurred by regulators are borne by the converting insurer. It is determined whether the surplus allocation is “fair and equitable,” although the converting mutual typically works closely with regulators during the process to ensure this. Insurer valuations are also checked; and in many states, a mandatory public hearing is held where any interested party, particularly policyholders, can voice its opinions on the plan. Once policyholder and regulatory approval is granted, the demutualization plan becomes effective and the mutual converts to stock charter.

Public Stock Offering

In its certificate of incorporation, a converting mutual declares the total number of shares of common stock and preferred stock that it is authorized to issue. The stock consideration that policyholders receive for relinquishing their membership rights reduces the amount available for public sale. Only in the past decade have demutualizing insurers systematically executed initial public offerings (IPO) of stock. The insurer, with the aid of its investment banking advisors, must decide how many shares to offer in its IPO; the IPO price is typically 60–70% of the book value of equity.

A key difference between full demutualization and MHC conversion lies in the timing of a public offering. Typically, the stock market expects an IPO at the time of demutualization, regardless of current market conditions. In an MHC conversion, management decides if and when a public sale of stock will occur. To date, only one MHC, AmerUs Life Holdings, has issued an IPO. Table 2 lists the IPO sizes for recent demutualizations. Several of these demutualizations also included private placements of equity; Table 2 contains only the proceeds from the IPOs.

FINANCIAL FIRMS: ORGANIZATIONAL FORM AND STRUCTURAL CHANGES

Ownership structure and the various contracting relationships within have received much research attention. Understanding how managers, customers, and owners interact in a firm involves analyzing their motivations and incentives, which may vary according to organizational form (Jensen and Meckling, 1976). The resulting behavioral implications form the foundation of several theories that explain the coexistence of mutual insurers and stock insurers. The current interest in demutualization, though, indicates that certain mutual insurers desire the advantages from operating under a stock structure. In the discussion below, after reviewing the main coexistence theories, we discuss our hypotheses on why certain insurers are demutualizing. The empirical predictions leading from our hypotheses are then presented.

Mutuals and Stocks—Organizational Form

Within the insurance industry, the two main organizational structures are mutual and stock. A mutual insurer is collectively owned by its policyholders, whereas in a stock insurer two distinct groups perform the ownership and customer functions. Ownership rights in these two types of firms, however, are not necessarily equal. Although a mutual policyholder may participate in board of directors’ elections and receive surplus distributions, if specified in the company charter, these rights are nontransferable

TABLE 2
IPO Sizes in Recent Demutualizations

Insurer	Stock Holding Company	Date	IPO Size (\$ millions)
Prudential Life	Prudential Financial	12/01	3,025
Phoenix Home	The Phoenix Companies	6/01	854
Metropolitan Life	MetLife	4/00	2,880
John Hancock	John Hancock	1/00	1,734
MIIX Insurance	MIIX Group	7/99	41
NCRIC	NCRIC Group	7/99	10
Standard Insurance	StanCorp	4/99	331
MONY Life	MONY Group	11/98	283
Old Guard	Old Guard Group	2/97	39
Trigon Insurance	Trigon Healthcare	1/97	232
SCPIE Indemnity	SCPIE Holdings	1/97	37
AmerUs Life	AmerUs Life Holdings	1/97	77
Intermed Insurance	FPIC Insurance Group	8/96	34
Farm Family Casualty	Farm Family Holdings	7/96	40
Riscorp	RISCORP	2/96	190
Guarantee	Guarantee Life Companies	12/95	37
First Allmerica	Allmerica Financial	10/95	266
Equitable	The Equitable Companies	7/92	450
Mutual Assurance	Mutual Assurance	9/91	12
UNUM	UNUM Corporation	11/86	728

Source: Halverstadt (1998); Fox-Pitt Kelton (1998); authors' updates.

and illiquid.¹⁰ For most mutual companies where proxy voting is allowed, proxy forms are not automatically mailed to policyholders; rather, policyholders must contact the company to receive the voting forms. For some mutual insurers, policyholders may only vote if they attend the annual meeting, at their own expense. So by virtue of not attending the meeting, policyholders consent to having management vote their interests (Schiff, 1998; Hetherington, 1969). The continued coexistence of mutuals and stocks in the insurance industry suggests that each type operates and survives where it has a comparative advantage (Fama and Jensen, 1983).

Coexistence Theories

Within insurance companies, a major conflict arises between owners, who wish to maximize the market value of the firm's equity, and policyholders, who wish to minimize premiums and the risk of unpaid claims. Merging the two functions in the mutual ownership form ameliorates such friction. Another major conflict exists between

¹⁰ Historically, policyholder voting has been extremely low. Greene and Johnson (1980) survey about 60 of the largest life insurers on policyholder attendance at their annual meetings. At mutual life insurer meetings, a 0.001 percent to 0.2 percent policyholder attendance is reported. For stock life insurers, shareholder attendance ranges from 0.7 percent to 44.9 percent.

owners and managers; managers wish to maximize the utility they receive from compensation and perquisite consumption, to the possible detriment of owners. Owners in a stock firm can control managerial behavior more effectively through a number of market-based mechanisms that are not available in the mutual ownership form, including executive stock options, proxy fights, and the takeover market. Thus, the type of organizational structure that a firm adopts is likely to depend on whether the owner-policyholder or owner-manager conflict is more important. Accordingly, this organizational form choice affects the behavior of these firms, which the coexistence theories described below attempt to explain.

Under the *managerial discretion hypothesis* (Mayers and Smith, 1981, 1988), stock firms are hypothesized to perform better than mutuals in activities that require greater managerial decision making authority. Although this higher managerial discretion may allow managers to act opportunistically, the various monitoring mechanisms that shareholders can employ, and which mutual owners do not enjoy, help to control the costs of managerial opportunism. Stock insurers thus are hypothesized to specialize in activities that require greater discretion in underwriting and pricing, such as commercial lines of insurance, and/or to conduct operations over a wider geographical area.

Also focusing on lines of business, the *maturity hypothesis* argues that mutuals would be more prevalent in line with a longer expected duration, either in the contract period or settlement period. In long-term contractual arrangements, opportunities exist for owners and managers to extract value from policyholders by increasing the riskiness of firm assets, increasing leverage, or taking on more risky projects. These potential conflicts are mitigated through the mutual ownership form (Mayers and Smith, 1981; Hansmann, 1985; Pottier and Sommer, 1997).

Rather than maximize the value of a firm, managers may wish to maximize their own utility, through excessive perquisite consumption or inefficient activities, which Williamson (1963) denotes as expense preference behavior. According to the *expense preference hypothesis*, mutual managers are predicted to be less successful in minimizing costs than the managers of stock insurers, because of the more limited mechanisms for monitoring and controlling management behavior in the mutual ownership form (Boose, 1991; Kroll, Wright, and Theerathorn, 1993). Recognizing that the ownership structure itself can explain some of the cost differentials, Cummins, Weiss, and Zi (1999) propose their *efficiency hypothesis*. They argue that mutuals and stocks use different production technologies, those that are most efficient for that particular organizational structure.

Policyholders expect their contractual benefits when claims are made. Any residual value remaining after these fixed claims are indemnified accrues to the firm's owners. Mutual policyholders own both the fixed and residual claims so they do not benefit from riskier activities intended to increase the firm's residual value. Under the *informational hypothesis* (Smith and Stutzer, 1990, 1995), low risks are predicted to self-select into a mutual firm since they would be willing to share in its aggregate risk, whereas high risks are predicted to prefer stock insurers. By both paying dividends and levying assessments, a mutual firm can control the behavior of its insureds; participating policies can provide the insureds with incentives to take greater care. Stock firms can issue participating policies to resolve the conflict between shareholders and

policyholders, allowing both groups to share in the residual value of the firm (Garven and Pottier, 1995). However, in stock firms that issue participating life insurance policies, it is observed that managers expend lesser effort in activities since they would receive a lesser share of the wealth effects of their actions; this heightens the owner-manager conflict in stock insurers (Krishnaswami and Pottier, 2001). According to the *risk hypothesis*, the separability of fixed and residual claims in the stock ownership form could lead to stock insurers engaging in higher-risk activities than mutuals (Lamm-Tennant and Starks, 1993). The risk hypothesis also suggests that the increased ability and ease with which stock insurers can raise capital affect their operating behavior, allowing them to take more risk than comparable mutuals. They may partake in riskier investments, both in insured business and asset mix because capital markets can be accessed when investment or underwriting performance is unfavorable (Cummins and Danzon, 1997).¹¹ This differential ease of raising capital could also affect the level of capital on hand for insurers; Harrington and Niehaus (2002) observe that mutuals have a 10% higher capital-to-liabilities ratio than stocks.

Why Insurers Demutualize

Mutual-to-stock conversions have been occurring for many decades in both the life-health and property-liability industries. Driving life insurer demutualizations in the early part of the twentieth century were the need for capital and the desire to diversify (Hansmann, 1995). These reasons are still considered to be key motivators for undergoing the conversion to stock form. Although life-health demutualizations have occurred steadily over time until the 1980s, there have been a sizable number of property-liability conversions in the 1960s and since (Carson, Forster, and McNamara, 1998; Mayers and Smith, 2002).

In the past two decades, demutualization activity has been particularly heavy in both the life-health and property-liability fields. This may signify that the mutual form is increasingly hindering the objectives of certain firms. In the rest of the article demutualization refers to either full demutualization or MHC conversion. Examining conditions in the insurance industry as well as the financial services industry as a whole may suggest why mutual insurers convert. The observation that not all mutuals are either undergoing the conversion process or have already converted suggests that certain mutuals are more affected by industry conditions.

Under the managerial discretion hypothesis, different organizational structures operate where they have strategic advantages. In particular, firms may specialize in certain lines of business; however, over time, the characteristics of various lines of business change. In the past two decades, variable life and universal life insurance, for which premium and benefit cash flows are linked to future market returns, have gained tremendous popularity. The contractual complexities that have been introduced into

¹¹ Examples of stock insurer equity offerings after unfavorable shocks include the Farmers Group, which issued \$375 million of preferred stock in the third quarter of 1995 after experiencing severe losses from the Northridge earthquake (The Insurance Accountant, November 6, 1995). The Hartford Financial Services Group sold 7 million shares in October 2001 to replace an estimated \$450 million it lost in shareholder equity as a result of the World Trade Center attacks (Bestwire, October 18, 2001).

the traditionally lower risk line of business of life insurance have made contract design and investment management more challenging. The increased product complexity requires greater managerial control that is facilitated through the stock ownership form. Managers also need more discretion in competing in financial markets because they have to move quickly to outmaneuver banks and mutual funds that are also competing for savings dollars. Product innovation is also occurring at a rapid pace; thus access to capital is increasingly important as insurers seek to introduce new products and expand into nontraditional activities. They may also have positive net present value project opportunities in lines requiring more discretion.

Converting to the stock ownership form creates quantifiable ownership shares, tremendously useful for designing incentive compensation plans for managers. Stock firms can motivate performance of management through stock-option plans, tying future gains to future ownership, whereas managers of mutual firms typically only receive cash bonuses. Also, the stock market provides a more accurate gauge of firm performance than the accounting performance measures that mutuals use to compensate managers; the informational efficiency of the stock market may increase the effectiveness of incentive compensation programs. Using stock options as a motivational device has gained tremendous popularity in recent years, since managers bear some of the wealth effects of their actions. Their interests also become more aligned with those of the owners. Managers can be compensated for increased risk taking, since insurers have been increasingly offering asset management services, becoming more competitive with investment banks.

Mutual firms, given their lack of a tradable currency, are more constrained than stock insurers from participating in the heavy consolidation activity currently underway in the financial services industry. Mutuals must use cash rather than stock in merger and acquisition transactions. By converting to stock form, the converting mutual gains the ability to use its shares for mergers and acquisitions purposes (Tuohy, 1999). Although this does create the risk of takeover, being a well-capitalized, efficient firm reduces that probability (Cummins, Tennyson, and Weiss, 1999a). Stock insurers, given the greater flexibility offered by their ownership structure, can benefit from the Gramm-Leach-Bliley Act of 1999, which permits affiliation between insurers, banks, and securities firms; mutual insurers can also benefit from this Act if they have sufficient capital and cash on hand.

Stock firms also have tremendous flexibility in raising new capital, having access to both equity and debt markets. Mutuals typically must rely on retained earnings for future growth. If no profitable ventures exist, mutuals face the risk of being over-capitalized and using funds inefficiently (Cummins and Danzon, 1997). Mutual firms may also be more risk averse in their investment opportunities because acquiring additional capital is difficult. Stock firms can enjoy a more streamlined, efficient structure, raising funds when necessary (Babbal and Jones, 1988). In addition, the regulatory risk-based capital requirements currently imposed on insurers necessitate sufficient capital on hand, possibly putting mutuals at greater risk of incurring regulatory costs due to an adverse shock to capital.

The increased transparency of a stock firm's financial condition may generate more favorable borrowing terms. In addition to NAIC reporting requirements, stock insurers must file periodic reports with the Securities and Exchange Commission and be

subject to their examination. Having a continually reported metric such as a stock price allows for greater scrutiny from the financial market and the corresponding benefits from that. Stocks may be better able to recover from unexpected investment or underwriting losses due to their ability to raise new capital, giving them an advantage over mutuals in the high-volatility investment and underwriting operations. Insurance markets in countries around the world, such as China and India, are becoming deregulated and open to foreign participation. A stock ownership structure, its transparency, and corresponding capital access could be more advantageous for entry into new markets.

Mutual insurers could access capital markets through a downstream stock subsidiary; however, this may be ineffective. Insurance regulators, in addition to examining the parent company, may consider the financial condition of its subsidiaries, both insurance and noninsurance. This increased regulatory scrutiny may adversely affect the mutual's final rating. A stock insurer can form an upstream holding company, which typically occurs in a demutualization. A stock holding company is created, which in turn wholly owns a stock insurance subsidiary. The regulators' primary focus will be on the solvency of this subsidiary.

Mutual insurers are distinguished by their lack of policyholder/owner monitoring of their actions. Over time, this may lead to inefficient and opportunistic behavior by managers. The board of directors, in an effort to improve efficiency, may recognize that shareholder ownership and the market for corporate control overall are needed to motivate better managerial performance.

Hypotheses under Investigation

What induces certain mutuals to undergo the demutualization process, considering the high accounting, actuarial, and regulatory costs of conversion? Creating a new set of stakeholders, the shareholders, increases the monitoring faced by the firm's managers. The potential benefits of operating under a stock charter must outweigh these costs for the insurers that convert. Two hypotheses for the decision to demutualize are developed in this section. Examining changes in these firms' financial attributes in the years surrounding conversion may indicate determinants of the demutualization decision. Accordingly, empirical predictions leading from our hypotheses are presented.

Access to Capital Hypothesis. *Mutual insurers that require access to capital choose to demutualize.*

Demutualization provides a firm with the opportunity to alter its organizational structure; a key advantage of the change to stock charter is access to capital markets. As the risk hypothesis on coexistence states, the difference between stocks and mutuals in this aspect affects their operating behavior. For a mutual to convert, the need for both additional capital and ease of capital attraction must exist. Several reasons for this need are discussed below.

A converting mutual may need additional capital to sustain current growth rates. Correspondingly, as compared to other mutuals, we predict that in the years before demutualization, converting mutuals experience higher growth rates in direct

premiums written. This growth may be due to the converting mutual expanding into riskier lines of business, due to either competitive pressures or strategic choices. So, as compared to other mutuals, we predict that in the years before demutualization, converting mutuals are writing a higher proportion of riskier lines of business than nonconverters. This shift toward riskier business practices may also be revealed by examining the firm's loss ratio, a measure of underwriting results used in property-liability insurance. Lamm-Tennant and Starks (1993) observe that the loss ratios of property-liability stock firms exhibit higher variability than those of mutual firms, which can be explained by the greater complexities of the lines of business that stock insurers primarily engage in. If, as we predict, converting mutuals are moving away from traditional lines, their underwriting risk is expected to increase. Correspondingly, following Mayers and Smith (2002), we predict that the loss ratio of demutualizing property-liability mutuals exhibit higher volatility than that of firms that remain mutual. This expansion into different lines of business may also be detected by examining the firm's line of business Herfindahl index, a measure of concentration. We anticipate that the Herfindahl index for converting mutuals is lower than that of other mutuals, signifying more dispersion across different insurance lines.

Life-health insurers may offer investment management services in the form of separate accounts. Separate accounts exist for variable life and annuity products and for high net worth asset management. The assets in separate accounts cannot be touched by creditors of the insurer, as opposed to the exposure of the insurer's general account assets. State laws do not regulate the asset mix in separate accounts whereas general accounts face such restrictions; the lack of such restrictions allows for some funds to have an aggressive investment focus. Life insurers have developed separate account-based products that allow the policyholder to direct how their funds are invested; in turn, the policyholder bears the investment risk. In variable life insurance and annuities, policyholders specify how their policy values are invested, allocating such funds across a menu of investment options, where each option is its own separate account with a specific investment focus (Black and Skipper, 2000, pp. 101-102). The funds of different policyholders directed toward a specific separate account are pooled together, however each policyholder's share of that pool can be clearly determined. This is similar to how a 401(k) contract holder may choose his contribution allocation across the menu of mutual funds offered.

For these asset allocation products, even though the customer makes the investment decisions and bears the risk for the resulting cash value and death benefit, the insurer must still perform the underlying investment research and decision making to determine the assets that go into and remain in each separate account. Given the transparency of policy values in these contracts, policyholders can monitor their insurer's asset management on an ongoing basis; customers can also change their asset allocations continually. These products have experienced tremendous growth in the 1990s and life insurers must compete with mutual fund companies and banks in this arena. Such products require sophisticated information technology (IT) platforms to provide customers with services such as self-directed allocations (Hitt, 1997; Cohen, Crosson, and Sgarlata, 1999). Significant and sustainable investments in IT by life insurers help meet the challenge brought by mutual fund firms whose advanced technology and efficiency have improved over time (Tuohy, 1999). It also allows life insurers to be increasingly innovative with product complexities and design. Capital raised during

demutualization could allow for continual investment in the firm's IT infrastructure. Thus, we predict converting life mutuals have a significantly higher level of separate accounts under management in the years prior to demutualization.

Separate accounts may also be created for corporate and high net worth individual clients, both institutional and individual; clients may request separate accounts of a particular risk/reward profile. The manager must invest time and resources to continually determine the appropriate assets that fit this profile. These specialized products demand that the insurer possess the appropriate expertise on insurance, asset management, and tax implications (Santomero, 1999). The incentive compensation plans that can be created during demutualization provide motivation for continued participation in this higher managerial discretion activity. For this reason, we also expect that converting life mutuals have a larger proportion of separate accounts under management.

We also anticipate that the premium inflow for converting life mutuals' business will consist of a higher percentage of group insurance lines. As Pottier and Sommer (1997) argue, group lines of life-health business require significantly more managerial discretion than individual lines since group buyers have stronger negotiating power over contracts. In addition, the group insurance and annuity markets tend to be highly competitive, leading to low expense margins and profit loadings (Cummins, Tennyson, and Weiss, 1999b). Thus, converting to the mutual ownership form enables converting firms to adopt compensation plans that provide appropriate incentives for group market executives to innovate and control costs.

Reinsurance, in addition to its risk financing function, provides primary insurers with services, including advice on pricing and loss prevention. Since we anticipate that converting mutuals are expanding into riskier lines of business and experiencing higher growth rates, additional reinsurance both eases its financial constraints and provides these firms with services. As compared to nonconverting mutuals, we predict that in the years before demutualization, converting mutuals cede proportionately more reinsurance.

The desire for additional capital may be motivated by a mutual deeming that it is inadequately capitalized. With the heightened attention on risk-based capital and financial solvency in the past two decades, demutualization may be undertaken to avoid regulatory costs. Correspondingly, as compared to other mutuals in the years before demutualization, the surplus-to-asset ratio is expected to be lower for converting mutuals. Lower levels of net cash from operations during the preconversion period could also signify such capital constraints.

A converting mutual's capital constraint may also be evident from the size of its agents' balances asset account, which measures the amount of premiums that are due to be received by the insurer from its agents. Agents' balances are likely to be associated with cash management and/or liquidity problems, because agents' balances are difficult to convert into cash. Insurers still must meet any obligations arising from these policies in which the premiums have not yet reached the insurer, possibly creating a capital constraint. We expect that converting mutuals have proportionately higher ratios of agents' balances to premiums. A higher ratio could also relate to the insurer's financial strength, as agents tend to be reluctant to pay premium

balances to firms that are relatively weak financially.¹² As our above predictions describe, demutualization is motivated by capital needs and/or changing business focus. By examining the firms' operating performance, specifically their overall operating ratio and underwriting gains ratio, we can observe whether underwriting performance, in conjunction with expansion into different lines of business, influences conversion. It can also be examined whether poor operating performance necessitates the inflow of capital supplied by demutualization.

An insurer should be concerned with its asset portfolio liquidity, as this measures its ability to access funds quickly. In the insurance industry, the amount and timing of cash outflows can be unpredictable. Thus, to ensure solvency, insurers must maintain adequate amounts of relatively liquid assets to fund these obligations. As Santomero and Babbel (1997) suggest, a sudden demand for cash could lead the insurer to sell off illiquid assets at grossly reduced prices. Life-health insurers are particularly vulnerable because policy and investment contract surrenders and their corresponding cash-outs must be honored in accordance with contract provisions, which typically allow for a wide range of options that can facilitate disintermediation. Life-health insurers are also subject to liquidity risk to the extent that they hold privately placed bonds and mortgages. Demutualization may be initiated because the firm recognizes its relative illiquidity and wishes to add liquidity to its asset portfolio. Thus, we predict that, as compared to other mutuals, in the years before demutualization, converting life mutuals have a lower proportion of liquid assets in their portfolio.

The predictions discussed above identify reasons why converting firms need capital due to firm characteristics that exist prior to demutualization. However, it is also possible that some converting mutuals are not significantly different from other mutuals prior to demutualization. Rather, demutualization may be undertaken to implement strategies possible only with the additional access to capital provided by the stock ownership form. The set of predictions below identifies the expected characteristics of these converted mutuals in the years after demutualization. These characteristics reflect the firm's strategies for increasing its value, by taking advantage of the additional access to capital provided by the stock charter. This increased value translates to minimal price increases and correspondingly, policyholder satisfaction with the surplus allocation and the overall demutualization.

Capital constraints may prevent mutuals from expanding or altering their business mix toward riskier lines of business. These lines are considered riskier because of contractual complexities and the need for more intensive underwriting. With demutualization, these converted insurers acquire the ability to raise capital when necessary, to expand and to buffer adverse underwriting results that may result from changes in business mix. In addition, the shareholders of newly created stock firms will demand behavior consistent with maximizing firm value. Thus, we predict that after

¹² It should be recalled, however, that financial difficulties for firms in our sample did not become sufficiently severe to motivate regulators to require demutualization, because firms that demutualized due to regulatory action are excluded from the sample. Nevertheless, there is a reasonably wide range of financial condition that can be considered relatively weak compared to the majority of financially healthy firms but not sufficiently weak to attract severe regulatory intervention.

demutualization, converted mutuals will expand into riskier lines of business and/or experience higher premium growth rates in comparison with the years prior to demutualization. We anticipate that these activities will increase the riskiness of these firms. This predicted shift toward riskier business practices may also be revealed by examining the firm's loss ratio in the years after demutualization and comparing it with that of stock firms. If these converted mutuals are expanding into these different lines, we anticipate in the years after demutualization that the volatility of its loss ratio will resemble that of stocks and be greater than that of firms that remain mutual.

The additional capital acquired at the time of demutualization could reduce the firm's reliance on reinsurance since this type of risk transfer entails significant costs. In addition, after conversion, the firm can consistently retain more of its liabilities, raising capital when necessary. Thus, we predict that after demutualization, converted mutuals reduce their proportion of reinsurance ceded and experience an increase in their surplus-to-asset ratio.

Manager Incentivization Hypothesis. *Demutualization is initiated by managers and the board of directors primarily because of their desire for stock-based compensation.*

After demutualization, the firm can offer stock-based compensation to its managers and directors; the promise of stock options provides these decision makers with incentives to expend additional effort. Correspondingly, they would be rewarded for the increased managerial discretion activities that we predict these converted firms engage in (Clinton, 1992). We cannot directly test this hypothesis empirically, as almost all recent demutualizations have instituted incentive compensation plans. However, the lack of support for the hypothesis that insurers convert for access to capital would suggest that demutualization is mainly motivated by other factors such as a desire by management to create stock-based compensation programs. Through demutualization, management can "convert its de facto ownership into a tangible and marketable form" (Hetherington, 1969, p. 1095). Correspondingly, if increases in firm value are not realized, both shareholders and policyholders have reason for faulting these decision makers.

Prior Demutualization Studies

Empirical research on past demutualizations has focused on analyzing performance changes in the years surrounding conversion. Mayers and Smith (1996) focus on possible accounting manipulation by demutualizing property-liability insurers in the years immediately preceding conversion. Insurer surplus is distributed to compensate eligible policyholders for surrendering their ownership rights; management can strongly influence the surplus valuation process through their liability estimation. A strong motivation for overstating liabilities exists as any undervaluation of surplus could benefit managers if they become principal shareholders after demutualization. Mayers and Smith (1996) find a significant decrease in the ratio of surplus to assets in the years prior to conversion. Although this may be the result of management manipulation of accounting numbers, this could also indicate financial distress; the conversion decision could be taken to improve the insurer's financial condition.

Mayers and Smith (2002) observe that converted property-liability firms experience increases in direct premiums written after conversion, providing support for their growth hypothesis. Using probit analysis, the authors also find that lower surplus levels and greater loss ratio volatility significantly affect the probability of conversion. They find that the volatility of converting mutual firms resembles that of stock firms.

Cagle, Lippert, and Moore (1996) suggest that if the potential for efficiency gains motivates property-liability conversions, growth in surplus, total assets, operating income, and premiums should be observed after demutualization. Managers, through perquisite consumption, could also be expropriating both shareholder and policyholder wealth. This may be reflected in reduced surplus and operating income as well as increases in expense ratios. Thus, Cagle et al.'s efficiency hypothesis and expropriation hypothesis lead to opposite predictions for financial performance after demutualization; however, overall, both hypotheses have little consistent empirical support.

Examining life-health conversions, McNamara and Rhee (1992) find evidence supporting their efficiency hypothesis; sharp increases in surplus are experienced immediately after conversion. Carson, Forster, and McNamara (1998) use logit regression to identify determinants of life-health demutualizations. They observe that firms that eventually convert exhibit a significantly higher level of free cash flow to assets.

In our analysis, various financial indicators will be used to determine what influences the demutualization decision and how performance changes after conversion. By separately examining property-liability conversions and life-health conversions that occur during approximately the same period, we can identify the unique influences in each industry.

EMPIRICAL ANALYSIS

By examining the financial characteristics of firms that demutualize, we can identify changes in their business practices in the years surrounding conversion. Logit regression is used to identify determinants of the demutualization decision, thereby testing the predictions of the access to capital hypothesis.

Data

Property-liability demutualizations occurring during the period 1981-1999 are identified, using *Best's Insurance Reports—Property-Liability* (1998) and Mayers and Smith (1996) as primary sources of reference. Similarly, we identify life-health insurers that demutualized during the period 1988-1999 using *Best's Insurance Reports—Life-Health* (1998) and *Mutual Insurance Companies—A Vanishing Breed* (1998).¹³ *Best's Insurance Reports* include a short description of each firm's conversion. We include in our sample only conversions that are motivated primarily for business reasons; conversions imposed by regulators in response to deteriorating financial condition are excluded

¹³ A shorter time period is used for life-health demutualizations because the NAIC life-health database available to us goes back only to 1986 (unlike the property-liability database which we have from 1976 onward). Our variables can only be constructed using data from the NAIC tapes. There were no life-health conversions in the period 1981-1983, five in the period 1984-1986 and none in 1987. Thus only five possible conversions are excluded.

from the analysis. Only those healthy insurers that have 2 years of complete data prior to conversion are included.¹⁴

Matching samples of insurers are also obtained for statistical comparisons. For each converting property-liability firm, three insurers that remain under mutual charter are identified; matching is based on asset size and direct premiums written in year -1 , where the notation "year $-t$ " refers to the t th year prior to the year of conversion.¹⁵ For each converting life-health firm, two matching mutuals are identified, also based on asset size and direct premiums written in year -1 .¹⁶ It will also be investigated whether these converting mutuals are behaving like stocks in the years surrounding conversion. So, for each converting mutual, three stock insurers are identified; matching is based on asset size and direct premiums written in year 0. Matching based on that year's data allows for comparison based on the converted mutual's asset size after any immediate capital inflows from demutualization.

The number of property-liability and life-health conversions by year of conversion completion are shown in Tables 3 and 4, respectively.¹⁷ Fifty-one healthy demutualized property-liability insurers and 21 demutualized life insurers are identified. Thus, our control samples consist of 153 nonconverting property-liability mutuals and 42 nonconverting life-health mutuals. Given that there are only about 100 life-health mutuals, a sizeable percentage has converted in the past few years (McDonald, Saucer, and Winans, 1997). These particular insurers are also among the largest in asset size. Ten of the 21 converting life-health insurers converted to a MHC compared to only 3 of the 51 property-liability conversions.

Data are gathered for the 5 years prior to conversion, the conversion year, and 3 years after conversion, denoted years $-5, -4, -3, -2, -1, 0, +1, +2, +3$. All data are at the individual company level for the specific insurer that converted, regardless of whether the firm is part of a group.¹⁸ All data are obtained from the NAIC and A. M. Best

¹⁴ Using this criterion, 18 property-liability conversions and one life-health conversion are excluded from the analysis.

¹⁵ For each converting insurer, all nonconverting insurers are identified and their year -1 *Net Admitted Assets* and *Direct Premiums Written* measures are compiled. These insurers were divided into deciles based on asset size; the matching firms were identified from the corresponding decile of the converting insurer, choosing those that were closest in premium size. We feel that then the converting insurers and these matching insurers are on the same playing field in terms of size and premium activity, thus our analyses try to identify further what is different about these converting mutuals. Any insurer that eventually demutualizes during our sample period is excluded from being a matching firm.

¹⁶ Only two matching life-health mutuals are identified, due to the small number of operating life-health mutuals.

¹⁷ The converted property-liability and life-health mutuals are listed by name in Appendixes A and B, respectively.

¹⁸ Except for one case in our sample, the general model of demutualization is that one mutual company converts. This is either a free-standing company or a mutual that is the "lead company" in a group that also owns stock subsidiaries. In the latter case, the converted entity would continue to own the stock subsidiaries, so that no further conversions would be needed. This general model applies to multiple line as well as monoline groups in our sample. In recent conversions, a full demutualization of this company would lead to a stock

TABLE 3
Property-Liability Conversion Activity during 1981–1999

Year	Number of Conversions	Year	Number of Conversions
		1990	0
1981	1	1991	5
1982	2	1992	1
1983	1	1993	4
1984	1	1994	3
1985	3	1995	4
1986	4	1996	3
1987	3	1997	5
1988	2	1998	5
1989	0	1999	4
Total	17	Total	34

regulatory annual statement databases.¹⁹ Among the data obtained are asset portfolio composition, liabilities and premiums written in various lines of business, capital and surplus positions, underwriting income, and investment income. From these data, variables are constructed to examine the operating practices and performance of the insurers in the sample.

Tables 5 and 6 present the summary statistics for the variables that are included in the logit regressions; the variable values compared are for year -1 . For each variable, the number of firms compared is listed in the column, N .²⁰ In Table 5, it is shown that converting property-liability mutuals, on average, have significantly lower surplus-to-asset ratios than nonconverters, as expected. In addition, converting property-liability insurers have significantly lower ratios of net cash from operations to assets, lower ratios of underwriting gains to assets, and higher overall operating ratios than nonconverters. Table 6, which presents summary statistics for the life-health sample, shows

holding company being created that would then become the parent of that group. In an MHC conversion, this single mutual company would convert to an MHC, which would be the parent of the group. We have only one case in our sample in which several (but not all) mutual property-liability subsidiaries in a group converted. This case is Old Guard: Old Guard Mutual Insurance Co, Old Guard Mutual Fire Insurance Co, and Goschenhoppen-Home Mutual Insurance Co.

¹⁹ In a multiline insurer, the life-health and property-liability businesses are required to be written out of separate subsidiaries. In our analysis, it is the business type of the converting firm that is used for classification purposes. Thus, a converting life-health mutual that owns a property-liability stock subsidiary would be classified as life-health; similarly, a property-liability mutual that owns a life-health stock subsidiary would be listed as property-liability. There is only one case, the Old Guard case described above, in which multiple mutual members of a group converted; all of the insurers in this group are property-liability.

²⁰ In some cases, only a subset, albeit a large one, of the converting and matching mutuals is compared; this is due to both the availability of the variable and the existence of the firm in the database across calendar years.

TABLE 4
Life-Health Conversion Activity
During 1988–1999

Year	Number of Conversions
1988	1
1989	3
1990	0
1991	0
1992	1
1993	0
1994	1
1995	2
1996	1
1997	4
1998	7
1999	1
Total	21

that converting mutuals hold a significantly higher percentage of assets in separate accounts. Converting firms also have higher premium growth rates and percentages of premiums in group lines of insurance than nonconverters, but these differences are not statistically significant, in part due to the small numbers of life-health firms in the converting and matching categories.

Predicting Property-Liability Insurer Conversions

Managers of converting mutuals make the decision to demutualize, taking into account the insurer's financial characteristics in the few years prior to conversion. Given that up to 2 years may be needed to complete the conversion process, in our notation the official conversion decision is made in either year -2 or -1 . Indeed, in our sample, we observe lags of up to 2 years between the announcement dates and the formal conversion dates. The firm's behavior in years -5 , -4 , -3 , and -2 could suggest shifts in performance, which lead to the managers' decision to initiate demutualization in year -2 or -1 .

To test our theoretical predictions about the rationale for demutualization, we utilize logit regressions with a qualitative dependent variable equal to 1 in the conversion year for firms that demutualize and equal to 0 for firms in the matching nonconversion sample. The explanatory variables in the regression consist of financial ratios and other firm characteristics in the years prior to the year of conversion.

We estimate five separate regression models. The first model uses data from year -5 to determine whether our variables are predictors of demutualization in year 0. Then, we use -4 data, -3 data, -2 data, and finally, -1 data. Although the demutualization decision is probably made by the beginning of year -1 , we include this model for completeness and to track these financial measures across time. We expect that

TABLE 5

Summary Statistics on Converting and Matching Property-Liability Mutuals

Variables	Converting Insurers			Matching Insurers		
	N	Mean	Standard Error	N	Mean	Standard Error
Total assets (millions)	51	\$114.91	\$210.45	153	\$109.18	\$184.58
Direct premiums written (millions)	51	\$43.84	\$55.40	153	\$45.52	\$56.87
Surplus/assets	51	0.308***	0.160	153	0.399	0.175
Line-of-business Herfindahl, premiums	51	0.437	0.335	153	0.372	0.300
Agents balances/direct premiums written	51	0.056	0.074	153	0.048	0.074
Reinsurance ratio	51	0.319	0.284	153	0.259	0.172
Net cash from operations/assets	51	-0.011**	0.145	153	0.042	0.075
Combined ratio	51	1.371	0.880	153	1.065	0.152
Overall operating ratio	51	1.131*	0.869	153	0.894	0.223
Underwriting gains/assets	51	-0.088***	0.118	153	-0.035	0.057
Investment income/assets	51	0.070	0.039	153	0.062	0.021
Percent of premiums in long-tail lines	51	66.1%	26.1%	153	62.6%	24.3%
Percent change in premiums, -1 to 0	47	10.8%	87.8%	140	6.8%	24.2%

Note: Variable values are for year -1.

Reinsurance ratio = (Reinsurance ceded)/(Direct premiums written + Reinsurance assumed). *t*-tests are for differences between the mean values of each variable in the converting and matching insurer samples.

* Difference between converting and matching firm sample means significant at the 0.10 level.

** Difference between converting and matching firm sample means significant at the 0.05 level.

*** Difference between converting and matching firm sample means significant at the 0.01 level.

the financial characteristics in years -4 and -3 have the strongest influence on the conversion decision.

The ratio of surplus to assets is negative and statistically significant in all five regressions presented in Table 7, implying that firms with lower surplus-to-assets ratios are more likely to convert. Given that matching mutuals were chosen based on similar asset size, we see that these demutualizing insurers are, on average, capital constrained. The results with the surplus-to-assets ratio thus provide strong support for the access to capital hypothesis. Whereas lower surplus-to-assets ratios may suggest balance sheet manipulation for demutualization purposes, observing this difference in capitalization for the 5 years prior to conversion makes this less likely.

The ratio of agents' balances to direct premiums written is positive in all five equations and is statistically significant for years -3 and -1. Converting mutuals have higher ratios of this account receivable, indicating capital strains. Also supporting a financial strength interpretation, the underwriting gains-to-assets ratio has a negative

TABLE 6

Summary Statistics on Converting and Matching Life-Health Mutuals

Variables	Converting Insurers			Matching Insurers		
	<i>N</i>	Mean	Standard Error	<i>N</i>	Mean	Standard Error
Total assets (millions)	21	\$7,165.58	\$10,673.44	42	\$10,839.64	\$26,401.66
Direct premiums written (millions)	21	\$868.74	\$1,131.81	42	\$1,353.20	\$3,093.69
Surplus/assets	21	0.118	0.103	42	0.135	0.112
Separate accounts/assets	21	0.168*	0.181	42	0.065	0.094
Percent of premiums in group lines	21	36.2%	32.5%	42	27.8%	30.3%
Reinsurance ratio	21	0.149	0.140	42	0.119	0.112
Net cash from operations/assets	21	0.037	0.078	42	0.047	0.055
Liquid assets (1)/assets	20	0.660	0.157	40	0.731	0.146
Percent change in premiums, -1 to 0	20	8.0%	17.2%	39	4.4%	16.0%
Liquid assets (2)/assets	16	0.532	0.532	32	0.656	0.147
Risk-based capital ratio	16	5.509	1.669	32	6.014	1.863

Note: Variable values are for year -1.

Reinsurance ratio = (Reinsurance ceded)/(Direct premiums written + Reinsurance assumed).

Liquid assets (1) = NAIC Class 1 and Class 2 publicly traded and privately placed bonds + common and preferred stock + cash and short-term investments.

Liquid assets (2) = NAIC Class 1 and Class 2 publicly traded bonds + common and preferred stock + cash and short-term investments.

t-tests are for differences between the mean values of each variable in the converting and matching insurer samples.

* Difference between converting and matching firm sample means significant at the 0.10 level.

coefficient in all regressions except for $t = -2$, although none of the coefficients is statistically significant.

The line of business Herfindahl index is positive in all years and significant in year $t = -1$, suggesting that converting firms are not planning to expand into other lines of insurance. The ratio of net cash from operations is negative and significant in year $t = -1$, perhaps suggesting that converting firms seek to access capital markets to improve their cash flow positions or, more likely, given that only the -1 coefficient is significant, firms incur unusual cash expenditures as part of the conversion process.

It is also found that converting mutuals have higher premium growth rates from years -5 to -4 , -4 to -3 , and -3 to -2 , although these variables are not significant.

TABLE 7

Logistic Regression of the Determinants of Property-Liability Conversion

Variables	$t = -5$ Estimate (S.E.)	$t = -4$ Estimate (S.E.)	$t = -3$ Estimate (S.E.)	$t = -2$ Estimate (S.E.)	$t = -1$ Estimate (S.E.)
Intercept	1.513 (1.877)	2.066 (1.476)	1.099 (1.389)	-2.460 (1.724)	-0.773 (1.332)
Surplus _{<i>t</i>} / Assets _{<i>t</i>}	-4.183*** (1.503)	-4.674*** (1.552)	-4.076*** (1.380)	-3.557** (1.406)	-3.558** (1.528)
Percent change in premiums, t to $t+1$	0.623 (0.793)	1.227 (0.861)	0.372 (0.453)	-1.417 (0.906)	0.774 (0.791)
Line of business	0.916 (0.723)	0.648 (0.722)	0.892 (0.677)	1.163 (0.733)	2.514** (0.999)
Herfindahl index _{<i>t</i>}	0.695 (2.684)	2.334 (2.815)	5.022** (2.535)	3.670 (2.340)	5.531* (3.239)
Agents balances _{<i>t</i>} / Direct premiums written _{<i>t</i>}	-2.441*** (0.917)	-1.261 (0.908)	-1.289 (0.878)	-0.904 (0.911)	-1.242 (1.285)
% Long-tail lines premiums _{<i>t</i>}	1.321 (1.005)	0.443 (1.006)	0.431 (0.860)	1.271 (0.878)	0.173 (1.085)
Reinsurance ratio _{<i>t</i>}	2.744 (2.388)	-2.398 (2.142)	-0.584 (2.041)	0.611 (2.221)	-7.535** (3.009)
Net cash from Operations _{<i>t</i>} / Assets _{<i>t</i>}	-0.754 (1.641)	-1.522 (1.032)	-0.953 (1.027)	2.614 (1.649)	0.234 (0.832)
Overall operating ratio _{<i>t</i>}	-3.195 (4.467)	-1.129 (3.910)	-3.075 (3.636)	4.609 (4.646)	-5.229 (3.359)
Underwriting gains _{<i>t</i>} / Assets _{<i>t</i>}	-92.8197	-98.4650	-105.1750	-103.6511	-83.8837
Log-likelihood					
No. of					
Converting mutuals	45	48	51	51	47
Matching mutuals	136	146	153	153	140

Note: Standard errors are in parentheses.

Reinsurance ratio = (Reinsurance ceded) / (Direct premiums written + Reinsurance assumed).

** Significant at the 0.05 level.

*** Significant at the 0.01 level.

This provides weak support for a growth motive that would necessitate additional capital. It is hypothesized that access to capital is also desired to reduce reliance on reinsurance. As shown by the reinsurance ratio, the positive coefficient across all years suggests that the converting mutuals cede a higher proportion of their premiums to reinsurers, although this variable is never significant.

It is observed that between years -3 and -2 , the signs change for four explanatory variables—the premium growth rate (+ to -), net cash from operations (- to +), the overall operating ratio (- to +), and the underwriting gain-to-assets ratio (- to +). Although none of the coefficients in question is statistically significant, the directions of the sign changes (except perhaps for premium growth) would be consistent with behavioral shifts by management prior to the end of year -2 in an effort to improve the

firm's financial characteristics. These moves could make the firm look more attractive to regulators and investors.²¹

The predictions from the access to capital hypothesis, such as the surplus constraint, higher premium and asset growth, and shifts into riskier lines of business, are also significant predictors of insolvency (BarNiv and Hershbarger, 1990). If support were found for all these predictions, then these converters would have the characteristics of firms facing future financial distress. Evidence of just the surplus constraint is observed; this persistently lower surplus-to-assets ratio taken alone may be an indicator of insolvency. However, in conjunction with the insignificance of most of the other solvency-related variables, we argue that the results are more consistent with the converters being healthy firms that require access to capital but are sufficiently attractive to obtain regulatory approval and investor acceptance.²²

Predicting Life-Health Insurer Conversions

To determine the factors influencing life-health demutualization, we again estimate five separate logit regression models, using data from years -5 , -4 , -3 , -2 , and -1 , to predict conversion or nonconversion in year 0. Table 8 presents the logit results, estimated using the converting insurers and the matching nonconverters.

The results support the hypothesis that conversions are undertaken to gain access to additional liquid assets. The liquidity ratio, defined as the sum of NAIC Class 1 and Class 2 publicly traded and privately placed bonds, common and preferred stock, cash and short-term investments divided by assets, has a negative coefficient in all five regressions and is significant in the regressions for years $t = -4$ and $t = -3$.²³ The need for additional liquidity is especially important for life-health insurers, who face the risk of policy surrenders and fluctuating health care reimbursements. Rather than liquidate assets quickly at depressed prices, the ability to access capital when necessary is important.

The results also support the hypothesis that insurers operating in the separate accounts market choose demutualization to obtain additional resources in order to provide competitive services to the sophisticated buyers in this market. The ratio of separate accounts to total assets is consistently positive and is statistically significant in the

²¹ Although the stock market tends to view growth as favorable, unusual premium growth is viewed as a danger signal by regulators, possibly accounting for the sign change of the premium growth variable.

²² We also run separate regressions using just data from 1980s conversions and then data from 1990s conversions, again comparing the corresponding converting mutuals with their matching mutuals in the years before conversion. The results on which variables are significant predictors of conversion are similar to what we report here about the entire sample.

²³ Under the NAIC classification system, bonds are assigned to 1 of the 6 possible classes, where Class 1 denotes highest quality and Class 6 denotes lowest quality. We consider the insurer's concentration in Class 1 and Class 2 bonds; these high-quality, investment-grade bonds have greater ease of liquidation. This variable is first constructed for the year 1988; thus the four demutualizations in the 1980s are dropped from the regressions.

TABLE 8

Logistic Regression of the Determinants of Life-Health Conversion

Variables	$t = -5$ Estimate (S.E.)	$t = -4$ Estimate (S.E.)	$t = -3$ Estimate (S.E.)	$t = -2$ Estimate (S.E.)	$t = -1$ Estimate (S.E.)
Intercept	-0.301 (1.468)	3.622 (2.020)	2.606 (2.207)	1.972 (2.307)	0.478 (1.635)
Separate accounts _{<i>t</i>} / Assets _{<i>t</i>}	3.958 (3.451)	4.216 (3.712)	5.515 (4.071)	4.378* (2.607)	5.300** (2.501)
Liquid assets (1) _{<i>t</i>} / Assets _{<i>t</i>}	-1.449 (1.773)	-6.998** (2.927)	-8.344** (3.535)	-4.540 (3.267)	-3.726 (2.504)
Surplus _{<i>t</i>} / Assets _{<i>t</i>}	0.585 (4.081)	4.459 (4.677)	3.289 (4.119)	0.670 (4.443)	3.223 (3.778)
% Group insurance premiums _{<i>t</i>}	1.042 (1.070)	1.541 (1.176)	1.406 (1.194)	1.163 (1.129)	0.652 (1.071)
Reinsurance ratio _{<i>t</i>}	2.237 (3.218)	-0.496 (2.371)	1.688 (2.276)	-1.600 (2.747)	1.681 (2.938)
Net cash from operations _{<i>t</i>} / Assets _{<i>t</i>}	-4.812 (8.561)	-16.388 (10.048)	21.371* (11.091)	-2.534 (9.764)	-0.181 (5.024)
Log-likelihood	-28.0613	-25.5142	-24.8956	-27.9778	-32.5139
No. of					
Converting mutuals	17	17	17	17	20
Matching mutuals	32	34	34	34	40

Note: Standard errors are in parentheses.

Reinsurance ratio = (Reinsurance ceded) / (Direct premiums written + Reinsurance assumed).
Liquid Assets (1) = NAIC Class 1 and Class 2 publicly traded and privately placed bonds
+ common and preferred stock + cash and short-term investments.

* Significant at the 0.10 level.

** Significant at the 0.05 level.

regressions for years -2 and -1. Managers of firms with more separate account assets may initiate conversion for additional capital to invest in IT. In addition, the stock organizational form could allow for easier future capital infusions for this activity. Also, managers could receive the corresponding stock-based compensation for their higher efforts.

The variable percent group insurance denotes the proportion of premiums collected from group life, group annuities, and group accident and health. The positive coefficient across all years, although insignificant, is consistent with our prediction that firms with higher proportions of group business are more likely to convert in order to become more competitive in this market. As shown in the previous section, surplus/assets is a significant predictor of property-liability demutualization. It is found that converting life-health firms do not have a significantly lower level of surplus/assets in any of the 5 years prior to demutualization.

Reliance on reinsurance is measured by the ratio of reinsurance premiums ceded to direct premiums written plus reinsurance premiums assumed. The reinsurance

TABLE 9

Logistic Regression of the Determinants of Life-Health Conversion, Including Risk-Based Capital Ratios

Variables	$t = -3$		$t = -2$		$t = -1$	
	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)	Estimate (S.E.)
Intercept	-0.972 (2.066)	-1.276 (1.953)	1.127 (1.670)	1.034 (1.890)	1.227 (1.699)	-0.085 (1.630)
Separate accounts _{<i>t</i>} / Assets _{<i>t</i>}	6.010 (5.530)	10.876** (4.786)	4.327 (2.784)	5.897** (2.981)	3.821 (2.705)	5.566** (2.635)
Liquid assets (2) / Assets _{<i>t</i>}	-7.592* (4.436)		-3.544 (2.870)		-4.969* (2.955)	
Surplus _{<i>t</i>} / Assets _{<i>t</i>}	4.886 (6.556)	1.344 (4.176)	-0.960 (4.968)	-4.580 (4.459)	2.270 (4.480)	1.349 (3.784)
% Group insurance premiums _{<i>t</i>}	1.681 (1.695)	-0.033 (1.474)	1.614 (1.254)	2.240 (1.379)	1.021 (1.244)	1.253 (1.201)
Reinsurance ratio _{<i>t</i>}	1.117 (3.261)	-1.974 (2.857)	-3.286 (3.361)	-6.231 (3.947)	-0.327 (3.523)	-2.178 (3.512)
Net cash from operations _{<i>t</i>} / Assets _{<i>t</i>}	19.033 (14.905)	14.426 (13.845)	-1.366 (10.528)	-2.099 (12.141)	0.592 (5.903)	-0.266 (5.880)
Risk-based capital _{<i>t</i>} ratio		-0.153 (0.314)		-0.277 (0.269)		-0.202 (0.241)
Log-likelihood	-21.3804	-20.5949	-25.5932	-23.1546	-25.4980	-26.7050
No. of						
Converting mutuals	15	13	16	15	16	16
Matching mutuals	30	26	32	30	32	32

Note: Standard errors are in parentheses.

Reinsurance ratio = (Reinsurance ceded) / (Direct premiums written + Reinsurance assumed).

Liquid Assets (2) = NAIC Class 1 and Class 2 publicly traded bonds + common and preferred stock + cash and short-term investments.

** Significant at the 0.05 level.

ratio is not statistically significant, and its sign fluctuates over the five equations. Consequently, the results do not support the hypothesis that converting insurers tend to use more reinsurance than nonconverters. In year -3, the ratio of net cash from operations to assets has a significant positive coefficient, providing some evidence that cash flow is positively related to the probability of conversion. However, the evidence must be viewed as weak in view of the insignificant negative coefficients on this variable in the other equations.

Table 9 presents regressions using an alternative definition of the liquidity ratio, which modifies the bond portion of the formula used in Table 8 to include only the publicly traded Class 1 and 2 bonds, excluding the privately placed Class 1 and 2 bonds. This measure could more accurately represent an insurer's level of liquidity; however, it can only be constructed from our database only for the years 1991-1998. Correspondingly,

these logit results reflect conversions over this somewhat shorter sample period. The Table 9 regressions also add another variable, the risk-based capital ratio, available only after the adoption of the NAIC Risk-Based Capital system in 1993.²⁴ These two variables are highly positively correlated, so they are included in separate versions of the regressions.

The revised liquid assets variable is negative and significant in the regressions shown in Table 9, providing further evidence that liquidity is inversely related to the probability of conversion. Again, it is found that demutualizing life-health insurers does not exhibit lower levels of surplus/assets. Thus, lack of liquidity seems likely to increase the need for additional capital, triggering the mutual-stock conversion. Although the risk-based capital ratio is negatively related to the probability of conversion, this variable is not statistically significant, providing only weak evidence that insurers convert to the stock form of ownership to avoid regulatory costs. The results in Table 9 provide further evidence of a positive relationship between the proportion of separate account assets and the probability of conversion.

Overall, in the full sample and these limited samples, the need for liquidity and the emphasis on separate accounts management distinguish converting mutuals from other mutuals. The results thus suggest that demutualization is initiated to ease liquidity constraints and facilitate further expansion into higher managerial discretion activities. These converting life-health mutuals undergo conversion to gain desired capital.²⁵ Indeed, the converters hold a significantly higher proportion of separate accounts under management. Managers demonstrate the expertise required for asset management and client relations; they may desire appropriate stock-based compensation for further motivation.

Performance Changes after Property-Liability Demutualization

As shown above, those property-liability insurers that demutualize are capital-constrained, as measured by their surplus-to-assets ratio; access to capital is a significant motivator for conversion. Typically, at the time of demutualization, these firms receive an infusion of capital so we expect this constraint to be eased. However, with demutualization, these firms also acquire the organizational flexibility of stock charter operations and the corresponding confidence that funds can be raised at later times. To explore further whether access to capital motivates the demutualization decision, we compare the behavior of these property-liability insurers pre- and postconversion. Given that these firms are now operating under a stock form, we can examine whether they resemble, in their financial characteristics, existing stock firms.

²⁴ The risk-based capital ratio is the ratio of an insurer's actual capital to its NAIC risk-based capital. Ratios that are less than 2.0 trigger additional regulatory scrutiny.

²⁵ Several life-health demutualizing insurers in our sample, including MONY, Principal, and Pacific Mutual, issued surplus notes in the years before their respective conversions. Issuing surplus notes suggests that these firms are not relying on just retained earnings for their capital needs; they are actively seeking outside capital.

TABLE 10
Performance Changes after Property-Liability Conversion

Panel A: Paired difference between pre- and postconversion values for demutualized insurers
($N = 37$)

Variables	Mean Paired Difference	<i>t</i> -statistic
Surplus/assets	0.0556	2.6927***
Agents' balances/direct premiums written	0.0794	0.9704
Underwriting gains/assets	0.0161	0.9843
Combined ratio	-0.0065	-0.1239
Overall operating ratio	0.0065	0.1295
Proportion of premiums in long-tail lines	0.0136	0.4391

Panel B: Paired difference between adjusted pre- and postconversion values for demutualized insurers ($N = 37$)

Variables	Mean Paired Difference	<i>t</i> -statistic
Surplus/assets	0.0604	2.5931***
Agents' balances/direct premiums written	0.0888	1.0929
Underwriting gains/assets	0.0136	0.7594
Combined ratio	0.0186	0.3511
Overall operating ratio	-0.0092	-0.1086
Proportion of premiums in long-tail lines	-0.0038	-0.1255

Note: Panel A: For each variable i and firm j ,

paired difference $_{ij}$ = postconversion value $_{ij}$ - preconversion value $_{ij}$,

where

postconversion value $_{ij}$ = average value of firm j 's variable i across years +1, +2, +3;

preconversion value $_{ij}$ = average value of firm j 's variable i across years -3, -2, -1.

Panel B: For each variable i and firm j ,

paired difference $_{ij}$ = adjusted postconversion value $_{ij}$ - adjusted preconversion value $_{ij}$,

where

adjusted postconversion value $_i$ = postconversion value $_i$ - average postconversion value $_i$ for firm j 's matching mutuals;

adjusted preconversion value $_{ij}$ = preconversion value $_{ij}$ - average preconversion value $_i$ for firm j 's matching mutuals.

The *t*-statistic measures whether the mean paired difference for variable i is significantly different from zero.

*** Significant at the 0.01 level.

The postconversion performance of converting life-health insurers is not examined due to the small sample, since 12 of the 21 life-health conversions in this analysis occurred during 1997-1999.

We focus on the 37 property-liability firms that demutualized during 1981-1996, to allow for sufficient postconversion data. For the analysis presented in Table 10, each firm's preconversion period is defined as the 3-year period prior to demutualization and the postconversion period is the 3 years after demutualization. For each variable under consideration, we construct its preconversion value by averaging, for each firm, its value across years -3, -2, -1; the corresponding postconversion value for

this variable is its average across years +1, +2, +3, data permitting.²⁶ By comparing the pre- and postconversion values for each variable using a test of paired differences, we examine whether there have been significant improvements in performance. This may suggest that demutualization was beneficial for these insurers. It is possible, though, that any observed improvements using this comparison could just reflect economic conditions affecting the entire insurance industry. Thus, we also construct adjusted pre- and postconversion values for these variables, whereby we control for these industry conditions.²⁷ Adjustments are made using the sample of matching mutuals that was included in the logit regressions. We again perform a test of paired differences, using these adjusted values for each variable. Table 10 reports changes in the financial characteristics of these converted property-liability mutuals.

These insurers experience a highly significant increase in their surplus-to-assets ratios. This surplus increase is also observed on a control sample-adjusted basis. This provides strong evidence that access to capital motivates conversion. Capital acquired at the time of demutualization strengthens the firm, creating the potential for expansion into various activities.

Examining several accounting measures, it is found that converted mutuals experience an increase in their underwriting gains ratio, although this change is not significant. On an unadjusted basis, these firms improve their combined ratios, which is the ratio of losses incurred and expenses to premiums. However, on a control-sample-adjusted basis, a slight increase in combined ratio is observed; these changes are not significant, suggesting that these fluctuations reflect conditions in the rest of the insurance industry. The decrease in the adjusted overall operating ratio suggests an improvement in performance for the converted mutuals, although this result is not statistically significant.²⁸ Finally, there is a slight increase in the ratio of agents' balances to direct premiums written (DPW) following conversion, indicating that conversion

²⁶ For example, a firm's preconversion and postconversion surplus/assets values are calculated as follows:

Preconversion Surplus/Assets

$$= \frac{(\text{Surplus}_{-3}/\text{Assets}_{-3} + \text{Surplus}_{-2}/\text{Assets}_{-2} + \text{Surplus}_{-1}/\text{Assets}_{-1})}{3}$$

Postconversion Surplus/Assets

$$= \frac{(\text{Surplus}_{+1}/\text{Assets}_{+1} + \text{Surplus}_{+2}/\text{Assets}_{+2} + \text{Surplus}_{+3}/\text{Assets}_{+3})}{3}$$

Then, the paired difference for this firm is obtained by subtracting the preconversion surplus/assets value from the postconversion surplus/assets value. A test of paired differences would measure whether the mean paired difference is significantly different from zero.

²⁷ To obtain an insurer's adjusted preconversion value for surplus/assets, the preconversion value of surplus/assets for each of that firm's three matching mutuals is first calculated. The average of these three values is then subtracted from the firm's preconversion surplus/assets to create the adjusted preconversion value for surplus/assets. The methodology for the adjusted postconversion value is similar.

²⁸ The overall operating ratio, which incorporates both the underwriting and the investment performance of the firm, is equal to the overall operating ratio minus the ratio of net investment income to premiums.

apparently does not improve the success of these firms in managing their receivables from agents.

We explore whether these demutualized insurers undertake strategic changes in the years after conversion; the results are generally not statistically significant and hence are not reported in a table. We notice that in the years after conversion, these demutualized insurers experience lower premium growth rates, although this change is insignificant. Although the additional surplus acquired increases the converted insurer's capacity, these firms, on average, do not use this capital for growth in the initial years. A possible rationale could be that these insurers require time to adjust to the stock form of organization and do not want to engage in rapid growth, which could lead to financial distress. Indeed, their average cash flow from operations does not change significantly after demutualization. A slight, but insignificant, increase in the proportion of premiums written in long-tail lines is observed. In the initial years after conversion, these demutualized insurers are not heavily engaged in expanding into these higher managerial discretion lines of business. Rather, they may be adjusting to the stock form and bringing the firm to a desired level of operations before making major strategic moves.

To further examine whether these converted property-liability mutuals exhibit riskier business practices in the years surrounding conversion, we compare their financial characteristics with that of matching stock firms. Table 11 presents summary statistics for these converted and the matching stocks, comparing their year +1 data. It is observed that these demutualized firms have significantly lower levels of surplus to assets than stock firms. The capital inflows from demutualization do not bring these firms up to the level of stock firms; however, as Table 10 reports, there is significant capital increase inflow after demutualization that should help ease constraints. The underwriting performance for these stock firms is significantly better than that for converted mutuals in the year of conversion.

Following Mayers and Smith (2002), the riskiness for these firms is measured by the standard deviation of the loss ratio. This measure is computed for both the

TABLE 11

Summary Statistics on Converted Property-Liability Mutuals and Matching Stocks

Variables	Converted Mutuals			Matching Stocks		
	N	Mean	Standard Error	N	Mean	Standard Error
Total assets (millions)	37	\$83.45	\$111.37	111	\$84.13	\$111.58
Surplus/assets	37	0.372**	0.022	111	0.443	0.023
Percent change in assets, 0 to +1	37	9.2%	3.4%	111	15.3%	3.8%
Percent change in premiums, 0 to +1	37	12.3%	9.5%	111	20.9%	12.6%
Underwriting gains/assets	37	-0.057**	0.014	111	-0.039	0.007
Investment income/assets	37	0.055	0.004	111	0.062	0.002

Note: Data are for conversions during the period 1981–1996. Variable values are for year 0.

** Difference between converting and matching firm sample means significant at 0.05 level.

TABLE 12

Riskiness across Converted Property-Liability Mutuals, Matching Mutuals and Matching Stocks

	Converted Insurers	Matching Mutuals	<i>p</i> -value	Matching Stocks	<i>p</i> -value
Volatilities: Average across firms during years -5 to -1	0.1191	0.0798	0.0133		
No. of firms	37	110			
Volatilities: Average across firms during years +1 to +3	0.0867	0.0856	0.9419	0.2016	0.0745
No. of firms	35	103		97	

Note: Riskiness is measured by loss ratio volatility, where Loss ratio = (Losses incurred + Loss adjustment expenses incurred)/Premiums earned. The standard deviation of each firm's loss ratio during the periods listed above is computed, and averages of the standard deviations are shown in the table. The *p*-values shown result from a comparison of means *t*-test.

preconversion and postconversion periods. In Table 12, it is observed that in the years before demutualization, converting mutuals have a significantly higher loss ratio volatility than nonconverting mutuals.

This may signify that either the business focus of these firms is changing or that unstable underwriting performance motivates the push toward demutualization. In the postconversion period, the riskiness of these converted mutuals and matching mutuals is not significantly different from each other, signifying possible conservatism or steady underwriting results after conversion. Mayers and Smith (2002) observe that demutualizing firms exhibit significantly higher volatility than matching mutuals both pre- and postconversion. In addition, in the years after demutualization, the volatility of their converted firms and matching stocks is similar. We observe that the demutualized firms in our sample have a significantly lower level of volatility than that of their matching stock firms postconversion. This finding, in conjunction with the results reported in Table 10 that show no significant postconversion increase in premium growth or shift toward riskier lines of business, suggests that these firms choose to undergo demutualization to ease capital constraints rather than to change their business focus. Of course, this analysis considers just the first 3 years after conversion. Easing of capital constraints could eventually lead these firms to expand into new activities in later years.

CONCLUSIONS

As evidenced by the mutuals currently in various stages of conversion, the interest in demutualization continues. The heavy demutualization activity in the past two decades supports the contention that the mutual organizational form hinders certain firms. However, the continued existence of mutual insurers and their staunch public support of mutuality suggest that converting firms grow in a characteristically different manner.

Demutualizing insurers state that conversion is undertaken to gain access to capital. As shown in this research, indeed, demutualizing property-liability insurers have

significantly lower surplus-to-assets ratios in the years before conversion. This may be the accumulated result of poor underwriting performance and/or steady growth in liabilities. Although the possibility of reserve manipulation by management also exists, the strong significance of the surplus-to-assets variable up to 5 years prior to conversion casts considerable doubt on the reserve manipulation rationale. This surplus constraint eases after demutualization. The life-health mutuals that eventually convert are adequately capitalized but have relatively lower liquidity than nonconverting life-health firms. The additional capital gained through demutualization eases the liquidity constraint for the converting life-health firms. With respect to operating performance and business focus, converting mutuals are similar to other mutuals, for both insurance industry sectors, except that converting life-health firms appear to be more active in the separate accounts market than nonconverters. Thus, the converting firms form a unique subset of mutuals that require additional capital to sustain their current activities.

Regulators, when monitoring the financial performance of insurers, may determine that certain mutuals, while financially solvent, have inadequate capitalization or liquidity constraints, as compared to other mutuals of similar size. A proactive approach would be to suggest to these firms that they could benefit from undergoing demutualization. In the absence of instituting regulation allowing mutuals additional capital access capabilities, encouraging demutualization could prevent possible future financial distress.

With this wave of demutualizations and its heavy press coverage, some consumers may have only recently learned about the difference between a mutual insurer and a stock insurer. The main objective of a mutual insurer has always been to provide long-term value for its policyholder-owners. Those insurers that have chosen to remain mutual have declared that this remains their focus. These firms may be experiencing additional monitoring from their policyholders, particularly those individuals who are newly aware of their ownership rights. In addition, they may be facing increased competition from this growing number of stock insurers. Firms that choose to demutualize in the years to come may face a more informed and vocal ownership group than existed in the past.

Several of the insurers that have converted recently have faced some level of backlash from disgruntled policyholders. In addition to the suit filed against National Life of Vermont, mentioned previously, class action suits have also been filed against Metlife, MONY, and John Hancock, charging either that surplus allocations were inadequate or that management and the board of directors failed in their fiduciary duty to policyholders.²⁹ Similar to National Life, these particular lawsuits have been dismissed.

Future research on demutualization will focus on continuing to track the operating performance and business focus of converted insurers, in particular the large number of firms that have converted in the past few years.

²⁹ Tierney et al. v. John Hancock Mutual Life Insurance Company, 2000; Tancredi et al. v. Metropolitan Life Insurance Company, 2001; Chatlos et al. v. MONY Life Insurance Company, 2002.

APPENDIX A**Demutualized Property-Liability Insurers**

Property-Liability Mutual	Conversion Year
Beacon Mutual Indemnity Co.	1981
Milbank Mutual Insurance Co.	1982
Mutual Insurance Co. of Grand Rapids	1982
Worcester Mutual Insurance Co.	1983
Unigard Mutual Insurance Co.	1984
Addison Farmers' Mutual Insurance Co.	1985
California Mutual Insurance Co.	1985
Exchange Mutual Insurance Co.	1985
Atlas Mutual Insurance Co.	1986
Implement Dealers Mutual Insurance Co.	1986
Lumbermens Mutual Insurance Co.	1986
Shelby Mutual Insurance Co.	1986
Bankers Mutual Insurance Co. of MD	1987
Canners Exchange Subscribers	1987
Millers National Insurance Co.	1987
Empire Mutual Insurance Co.	1988
Minnesota Medical Insurance Exchange	1988
American Mutual Fire Insurance Co.	1991
Health Care Insurance Exchange	1991
Mutual Assurance	1991
Progressive Mutual Insurance Co.	1991
Safety Mutual Casualty Co.	1991
AAOMS Mutual Insurance Co, RRG	1992
Minnesota Mutual Fire & Casualty Co.	1993
Pioneer Mutual Insurance Co.	1993
Prairie State Farmers Insurance Association	1993
Union Automobile Indemnity Association	1993
Delaware Mutual Insurance Co.	1994
Georgia Mutual Insurance Co.	1994
Union Mutual Insurance Co. of Providence	1994
Interstate Bankers Mutual Casualty Co.	1995
Mutual Fire Insurance Co. of Saco, ME	1995
NY Merchant Bakers Mutual Fire Insurance Co.	1995
RCA Mutual Insurance Co.	1995
Farm Family Mutual Insurance Co.	1996
Preferred Physicians Mutual RRG	1996
Yorktowne Insurance Co.	1996
Goschenhopp-Home Mutual Insurance Co.	1997
National Chiropractic Mutual Insurance Co.	1997
Old Guard Mutual Fire Insurance Co.	1997
Old Guard Mutual Insurance Co.	1997
Patrons Oxford Mutual Insurance Co.	1997
Allegheny Mutual Casualty Co.	1998
FCCI Mutual Insurance Co.	1998
National Capital Reciprocal Insurance Co.	1998
Pioneer Mutual Insurance Co.	1998
Southern Michigan Mutual Insurance Co.	1998
Medical Inter-Insurance Exchange	1999
MI Educational Employees Mutual Insurance Co.	1999
Millers Mutual Fire Insurance Co.	1999
Penn Millers Mutual Insurance Co.	1999

APPENDIX B

Demutualized Life-Health Insurers

Life-Health Mutual	Conversion Year
Grinnell Mutual Life Insurance Co.	1988
Northwestern National Mutual Life Insurance Co.	1989
Maccabees Life Insurance Co.	1989
Rushmore Mutual Life Insurance Co.	1989
Equitable Life Assurance Society of US	1992
Midland Mutual Life Insurance Co.	1994
Guarantee Mutual Life Insurance Co.	1995
State Mutual Life Assurance Co of America	1995
American Mutual Life Insurance Co.	1996
Acacia Mutual Life Insurance Co.	1997
Blue Cross/Blue Shield of VA	1997
General American Life Insurance Co.	1997
Pacific Mutual Life Insurance Co.	1997
Ameritas Life Insurance Co.	1998
Minnesota Mutual Life Insurance Co.	1998
Mutual Life Insurance Co. of NY	1998
National Life Insurance Co.	1998
Ohio National Life Insurance Co.	1998
Principal Mutual Life Insurance Co.	1998
Security Benefit Life Insurance Co.	1998
Standard Insurance Co.	1999

REFERENCES

- Adkins, J. B., 1997, The Policyholder Perspective on Mutual Holding Company Conversions, *Journal of Insurance Regulation*, 16: 5-15.
- Babbel, D. F., and R. B. Jones, 1988, Not Whether, But When, *Best's Review—Life/Health*, January: 54-60.
- Bailey, S., 1995, Advocates Hit Insurer's Plan to Demutualize, *The Boston Globe*, March 2, 33.
- BarNiv, R., and R. A. Hershbarger, 1990, Classifying Financial Distress in the Life Insurance Industry, *Journal of Risk and Insurance*, 57: 110-136.
- Black, K., and H. D. Skipper, 2000, *Life & Health Insurance* (Upper Saddle River: Prentice Hall).
- Boose, M. A., 1990, Agency Theory and Alternative Prediction for Life Insurers: An Empirical Test, *Journal of Risk and Insurance*, 57: 499-518.
- Cagle, J. A. B., R. L. Lippert, and W. T. Moore, 1996, Demutualization in the Property-Liability Insurance Industry, *Journal of Insurance Regulation*, 14: 343-369.
- Carroll, C., and J. P. Duran, 1997, Closed Blocks and Mutual Company Conversions, *The Financial Reporter*, June, 3-6.
- Carow, K. A., 2001, The Wealth Effects of Allowing Bank Entry Into the Insurance Industry, *Journal of Risk and Insurance*, 68: 129-150.

- Carson, J. M., M. D. Forster, and M. J. McNamara, 1998, Changes in Ownership Structure: Theory and Evidence from Life Insurer Demutualizations, *Journal of Insurance Issues*, 21:1-22.
- Clinton, E. X., 1992, The Rights of Policyholders in an Insurance Demutualization, *Drake Law Review*, 41: 657-704.
- Cohen, M. A., C. J. Crosson, and L. A. Sgarlata, 1999, Globalization Transforms the Industry, *Best's Review—Life/Health*, September: 61-68.
- Cohen, M. A., L. G. Mayewski, and M. L. Albanese, 1998, End of An Era?, *Best's Review—Property/Casualty*, August: 75-82.
- Cole, C. S., M. J. McNamara, and B. P. Wells, 1995, Demutualizations and Free Cash Flow, *Journal of Insurance Issues*, 18: 37-56.
- Cummins, J. D., and P. M. Danzon, 1997, Price Shocks and Capital Flows in Liability Insurance, *Journal of Financial Intermediation*, 6: 3-38.
- Cummins, J. D., S. Tennyson, and M. A. Weiss, 1999a, Consolidation and Efficiency in the U.S. Life Insurance Industry, *Journal of Banking and Finance*, 23: 325-357.
- Cummins, J. D., S. Tennyson, and M. A. Weiss, 1999b, Life Insurer Mergers and Acquisitions, in: J. D. Cummins and A. M. Santomero, eds., *Changes in the Life Insurance Industry: Efficiency, Technology, and Risk Management* (Norwell, MA: Kluwer).
- Cummins, J. D., M. A. Weiss, and H. Zi, 1999, Organizational Form and Efficiency: An Analysis of Stock and Mutual Property-Liability Insurers, *Management Science*, 45: 1254-1269.
- Dauer, A. C., 1998, MONY Pleads Case for Going Public, *Journal of Commerce*, October 26, 8A.
- Dumm, R. E., and R. E. Hoyt, 1999, Surplus Note Utilization by Life Insurers: Empirical Evidence, *Journal of Insurance Regulation*, 17: 348-378.
- Fama, E., and M. Jensen, 1983, Agency Problems and Residual Claims, *Journal of Law and Economics*, 26: 327-349.
- Fox-Pitt, K., 1998, Mutual Insurance Companies, in *Corporate Finance Outlook* (New York, NY).
- Garven, J. R., and S. W. Pottier, 1995, Incentive Contracting and the Role of Participation Rights in Stock Insurers, *Journal of Risk and Insurance*, 62: 253-270.
- Goldstein, J., and T. Avril, 1998, Prudential Plans Conversion to Publicly Traded Company, *The Philadelphia Inquirer*, February 13.
- Greene, M. R., and R. E. Johnson, 1980, Stocks vs. Mutuals: Who Controls? *Journal of Risk and Insurance*, 47: 165-174.
- Halverstadt, D. L., 1998, Demutualization—An Ongoing Trend and One with Mixed Implications for Surplus Note Holders (New York: Goldman Sachs Fixed Income Research).
- Hansmann, H., 1985, The Organization of Insurance Companies: Mutual Versus Stock, *Journal of Law, Economics and Organization*, 1: 125-153.
- Hartford Pulls Back from International Reinsurance, Sells Stock, *BestWire*, October 18, 2001.

- Harrington, S. E., and G. Niehaus, 2002, Capital Structure Decisions in the Insurance Industry: Stocks versus Mutuals, *Journal of Financial Services Research*, 21(1-2): 145-163.
- Hetherington, J. A. C., 1969, Fact vs. Fiction: Who Owns Mutual Life Insurance Companies, *Wisconsin Law Review*, 4: 1068-1103.
- Hitt, L. M., 1999, The Impact of Information Technology Practices on the Performance of Life Insurance Companies, in: J. D. Cummins and A. M. Santomero, eds., *Changes in the Life Insurance Industry: Efficiency, Technology, and Risk Management* (Norwell, MA: Kluwer).
- Insurers Tap Wall Street for \$4 Billion, *The Insurance Accountant*, November 6, 1995, 1.
- Jensen, M., and W. Meckling, 1976, Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics*, 3: 305-360.
- Koeppel, J. A., 1998, Refuting the Myths about Mutual Holding Companies, *Best's Review—Life/Health*, February: 52-53.
- Krishnaswami, S., and S. Pottier, 2001, Agency Theory and Participating Policy Usage Evidence from Stock Life Insurers, *Journal of Risk and Insurance*, 68: 659-684.
- Kroll, M. P., P. Wright, and P. Theerathorn, 1993, Whose Interests Do Hired Top Managers Pursue? An Examination of Select Mutual and Stock Life Insurers, *Journal of Business Research*, 26: 133-148.
- Lamm-Tenant, J., and L. Starks, 1993, Stock versus Mutual Ownership Structures: The Risk Implications, *Journal of Business*, 66: 29-46.
- Lee, S., D. Mayers, and C. Smith, 1997, Guaranty Funds and Risk-Taking—Evidence from the Insurance Industry, *Journal of Financial Economics*, 44: 3-24.
- Masulis, R. W., 1987, Changes in Ownership Structure: Conversion of Mutual Savings and Loans to Stock Charter, *Journal of Financial Economics*, 18: 29-59.
- Mayers, D., and C. Smith, 1981, Contractual Provisions. Organizational Structure and Conflict Control in Insurance Markets, *Journal of Business*, 54: 407-434.
- Mayers, D., and C. Smith, 1988, Ownership Structure across Lines of Property-Casualty Insurance, *Journal of Law and Economics*, 31: 351-378.
- Mayers, D., and C. Smith, 1996, Incentives for Accounting Information Production: Property-Casualty Insurer Stock-Charter Conversion, Working paper, University of Rochester.
- Mayers, D., and C. Smith, 2002, Ownership Structure and Control: Property-Casualty Insurer Conversion to Stock Charter, *Journal of Financial Services Research*, 21(1-2): 117-144.
- McNamara, M., and S. G. Rhee, 1992, Ownership Structure and Performance: The Demutualization of Life Insurers, *Journal of Risk and Insurance*, 59: 221-238.
- McDonald, L., C. Saucer, and C. Winans, 1997, Taking Stock, *Best's Review—Property/Liability*, December: 76-80.
- National Association of Insurance Commissioners, 1998, Demutualization of Insurance Companies, in *NAIC Compendium of State Laws on Insurance Topics*, CS-20 (Kansas City, MO).

- Pottier, S., and D. Sommer, 1997, Agency Theory and Life Insurer Ownership Structure, *Journal of Risk and Insurance*, 64: 529-543.
- Report by the Assembly Standing Committee on Insurance: The Feeling's Not Mutual.* By A. B. Grannis, chairman. Albany: New York State Assembly, 1998.
- Santomero, A. M., 1999, Life Insurance: The State of the Industry, in J. D. Cummins and A. M. Santomero, eds., *Changes in the Life Insurance Industry: Efficiency, Technology, and Risk Management* (Norwell, MA: Kluwer).
- Santomero, A. M., and D. F. Babbel, 1997, Financial Risk Management by Insurers: An Analysis of the Process, *Journal of Risk and Insurance*, 64: 231-270.
- Schiff, D., 1998, The Big Fix: Mutual Insurance Holding Companies, *Schiff's Insurance Observer*, February, 8-11.
- Smith, B. D., and M. Stutzer, 1990, Adverse Selection, Aggregate Uncertainty, and the Role for Mutual Insurance Contracts, *Journal of Business*, 63: 493-510.
- Smith, B. D., and M. Stutzer, 1995, A Theory of Mutual Formation and Moral Hazard with Evidence from the History of the Insurance Industry, *Review of Financial Studies*, 8: 545-577.
- Swiss Re, 1999, Are Mutual Insurers An Endangered Species, *Sigma*, no. 4.
- Tuohy, M., 1999, Challenges and Issues for Growth in the Life Insurance Industry, in: J. D. Cummins and A. M. Santomero, eds., *Changes in the Life Insurance Industry: Efficiency, Technology, and Risk Management* (Norwell, MA: Kluwer).
- Vader, R. A., and A. M. Clark, 1999, Compensating Policyholders, *Best's Review—Life/Health*, May: 62-63.
- Williamson, O. E., 1963, Managerial Discretion and Business Behavior, *American Economic Review*, 53: 1032-1057.

