Dividend Decisions in the Property & Liability Insurance Industry: Mutual versus Stock Companies

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This version: 13 May 2008

Accepted by *Review of Quantitative Finance and Accounting*

*Correspondence author. We thank Cheng-Few Lee (editor-in-chief) and an anonymous referee for helpful suggestions. Comments from Arthur Hau, Stan Hoi, William Shafer, Minming Wen and participants at the Seoul annual meeting of Asia Pacific Risk and Insurance Association (APRIA) are also appreciated. However, the usual disclaimer applies. Zou acknowledges the financial support from the Research and Postgraduate Studies Panel (RPSP) of Lingnan University.

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Abstract

This article examines the effect of organizational forms on corporate dividend decisions by exploring the differences in dividend payout ratios between mutual and stock property-liability (P-L) insurers in the U.S. Our large sample evidence suggests: a) mutual insurers tend to have a lower dividend payout ratio than stock insurers and the observed difference is about 4 percentage points, holding other factors constant; b) mutual insurers tend to adjust dividend payout ratios toward their long-run target levels more slowly than stock firms. These results are consistent with the capital constraints and/or greater agency costs of equity in mutual insurers.

JEL classification: G22 G32 G35

Keywords: Dividend decisions; Property-liability insurance; Mutual and stock insurers; Capital structure; Capital constraints; Agency theory

Electronic copy available at: http://ssrn.com/abstract=1652167

1 Introduction

Explaining dividend payout patterns has long been an interesting research issue in finance literature. This is because dividend policy not only represents an important signal about a firm's future growth opportunities and profitability (e.g., see Lintner 1956; John and Williams 1985), but also concerns agency problems between stockholders and managers, stockholders and debtholders (e.g., see La Porta et al. 2000). Froot et al. (1993) further argue that dividend policy plays a direct role in coordinating firms' financing and investment decisions. Some recent dividend studies (e.g., Dewenter and Warther 1998; La Porta et al. 2000; Short et al. 2002) have focused on how ownership and governance structures affect corporate dividend policies.

In this study, we explore the effect of organizational forms on corporate dividend decisions – a topic not hitherto been investigated in the literature. Specifically, we compare the dividend payouts of mutual and stock property-liability (P-L) insurers in the United States (U.S.) (hereafter as "mutuals" and "stocks", respectively). The U.S. insurance industry serves as an interesting setting within which to investigate dividend decisions of firms of different organizational forms, since a large number of stock firms (that are owned by stockholders) and mutual firms (that are owned by policyholders) coexist in this industry (Morse 2000). Mutuals differ from stocks in their ability to deal with agency problems and to raise external capital. Specifically, by merging the owner and policyholder functions, mutuals are efficient in mitigating the owner-policyholder incentive conflicts whereas stocks have advantages in controlling the owner-manager agency problems (Mayers and Smith 1981). Compared with stocks, mutuals have no access to stock markets and therefore have a weaker ability to raise capital (Cummins and Doherty 2002; Harrington and Niehaus 2002). As we will explain later, these two differences have implications for dividend policies of mutuals and stock firms. Focusing on a single industry in which all sample firms are subject to relatively homogenous growth opportunities also helps minimize the confounding effects of inter-industry heterogeneity on dividend decisions.

Insurance companies may pay dividends to both owners and policyholders. Therefore, in mutuals, dividends paid to owners are also dividends to policyholders. In contrast, owners (i.e., stockholders) and policyholders of stocks are separate parties. Stocks may issue participating policies to allow policyholders to share insurers' profits via the payment of policyholder dividends, which to some extent help mitigate the incentive conflicts between stockholders and policyholders (e.g., see Garven and Pottier 1995). However, Garven and Pottier (1995) report that the use of participating policies (and thereby the issue of policyholder dividends) is generally limited and less common for stock P-L insurers compared with stock life insurers.

Several early studies have investigated the dividend decisions in the U.S. life insurance industry. For example, Formisano (1978) models the aggregate dividend payouts (i.e., including dividends to both stockholders and policyholders) of mutual and stock life insurers. His results suggest that dividend decisions of both mutual and stock life insurers tend to follow a "sticky" pattern that reflects their long-term operating results rather than annual fluctuations in earnings. Harrington (1981) examines the impact of group affiliation on stockholder dividend payouts of subsidiary stock life insurers and finds that life insurers significantly increase stockholder dividends after becoming affiliated with a group. He suggests that ownership structure and capital constraints are potentially important factors affecting insurers' dividend decisions. Using a sample of U.S. mutual life insurers, Scordis and Pritchett (1998) show that dividend decisions of mutual life insurers are motivated by a desire to reduce the agency costs arising from managers' discretionary use of free cash flow. However, with few exceptions (e.g., Lee and Forbes 1980; 1982), dividend decisions of P-L insurers have not been rigorously investigated, particularly from the perspective of organizational forms.[1]

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[1] Lee and Forbes (1980) examine some 30 U.S. P-L stock insurers and find that dividend payout ratios and share prices are closely related. Lee and Forbes (1982) show that the dividend payout ratios of 61 U.S. P-L stock insurers are affected by the previous payouts and ownership structure characterized by widely-held versus group-affiliated insurers. Akhigbe et al. (1993) employ an event study methodology in testing the signaling effect of dividend changes. They observe a more significant market reaction to the dividend changes in P-L insurers than in life insurers. They ascribe such a difference in the market reaction to the volatile nature of property and liability business as opposed to the relatively stable life insurance business.

The significant differences between life and P-L insurance warrant a separate examination of the dividend decisions of P-L insurers (Lee and Forbes 1982; Krishnaswami and Pottier 2001). For example, compared with long-term and mortality table-based life insurance, P-L insurance is generally short-term, more volatile and less predictable (e.g., due to the occurrence of catastrophic losses) (Achleitner et al. 2002). Such differences imply that P-L insurers generally have more volatile underwriting capacity and are more likely to face capital constraints than life insurers. This feature makes capital structure and dividend decisions particularly important to the safe operation of P-L insurers (Lee and Forbes 1982). Cummins and Nini (2002) note that there have been significant increases in capital ratios in the U.S. P-L insurance industry since the 1990s. Presumably, there are also significant changes in the dividend policies in the P-L insurance industry. Therefore, there is a need for an updated study of dividend decisions in the U.S. P-L insurance industry.

Our study is also motivated by an attempt to fill a perceived gap in the growing body of literature on organizational differences between mutual and stock insurance companies. Prior studies have focused on examining the differences in ownership structure (e.g., Fields and Trtiroglu 1991; Mayers and Smith 1981), risk profiles (e.g., Lamm-Tennant and Starks 1993), and operational efficiency/financial performance (e.g., Armitage and Kirk 1994) of mutuals and stocks. However, potential differences in corporate financial decisions (e.g., capital structure and dividend payouts) have generally been neglected. A recent study by Harrington and Niehaus (2002) compares the capital structures of mutual and stock P-L insurers. They contend that, as mutual P-L insurers generally face more capital constraints (e.g., due to the limited access to capital markets and thereby a high cost of raising external capital), they should have higher target capital ratios and should adjust toward their targets more slowly than stock P-L insurers. Their findings provide support for these predictions. Anecdotal evidence suggests the importance of dividend policies in the financing decisions of P-L insurers. Lee and Forbes (1982, p. 277) contend that the adjustment of dividends is the most convenient way for P-L insurers to adjust toward their target level of capital. In another study, Cummins and Danzon (1997) report that the amount of external equity capital raised by

P-L insurers is negatively related to retained earnings, suggesting that P-L insurers consider dividend payouts and retained earnings first before resorting to external financing. Given the close link between P-L insurers' dividend and capital structure decisions, our study thus adds to the very limited literature on the differences in the financial decisions of different types of insurers (Harrington and Niehaus 2002, p. 160).

Our primary purpose is to investigate the difference in dividend payout ratios between mutuals and stocks. In explaining the possible difference, two strands of theoretical arguments – the capital-constraint hypothesis and the agency-based arguments – are germane. The capital-constraint hypothesis argues that since mutuals have no access to stock markets and face greater capital constraints, they are likely to pay a lower rate of dividends than stocks in order to hoard capital, other things being equal.

In contrast, agency theory does not have a clear prediction about the difference in dividend payouts between mutuals and stocks. On one hand, mutuals' advantages in controlling owner-policyholder conflicts result in reduced marginal benefit from holding capital in mutuals (Cummins and Nini 2002). This implies that unlike stocks that need to keep an adequate level of capital in order to attract and assure policyholders, mutuals can afford to pay more dividends. On the other hand, mutuals' disadvantages in mitigating owner-manager incentive conflicts imply that mutual managers have more opportunities to divert free cash flow to perquisite consumption and so the agency costs of equity in mutuals are likely to be higher than in stocks, other things being equal. Scordis and Pritchett (1998) argue, and find support for the argument (using a sample of mutual life insurers), that in order to relieve the concerns of policyholders, managers of mutuals may practice a more liberal dividend payout policy than stocks. While this is possible, many prior studies (e.g., Wells et al. 1995) also report that the poor control mechanisms present in mutuals (e.g., the lack of market for corporate control and stock options as managerial incentive compensation) often result in little pressure being exerted on managers to distribute profits.

Second, we also examine the difference in the speed of adjustment toward their target dividend payout ratios between mutual and stock insurers. Because of the lack of stock market pressure and greater capital constraints, mutuals are likely to adjust their dividend payout ratios toward the long-run target levels more slowly than stocks, other things being equal. This means that the dividend payouts of mutuals may deviate from their long-run targets more frequently than stock firms.

Our results from a large sample of unaffiliated U.S. P-L insurers suggest that mutuals' dividend payout ratio is on average about 4 percentage points lower than the total dividend payout ratio of stock insurers. In addition, both stock and mutual insurers' dividend payouts appear to be "sticky", however, mutuals tend to adjust toward their target dividend payout ratios more slowly than do stock insurers. These results, robust to different proxies of dividend payouts, are consistent with the capital constraints and/or greater agency costs of equity in mutual insurers.

One contribution of the current study to the dividend literature is that we show that different organizational forms (mutuals versus stocks) can help shape different corporate dividend policies. Our study also provides an extension to prior studies investigating the differences between mutuals and stocks. For example, our results can help explain the observed higher target capital ratios in mutual insurers reported in Harrginton and Niehaus (2002).

The rest of this article is organized as follows. Section 2 analyzes the role of dividend policies in P-L insurers' financing decisions and develops our hypotheses. In Section 3 we motivate some key determinants of dividend payouts. Section 4 describes our data and methodology. Section 5 reports the empirical findings and Section 6 concludes the article.

2 Hypotheses Development

2.1 The Role of Dividend Decisions in P-L Insurers' Financing Decisions

Earnings retention and dividend policy are likely to play an important role in P-L insurers' financing decisions. First, because there is significant information asymmetry between company managers and outside investors about the quality of the company, external financing is costly (e.g., see Myers 1984; Myers and Majluf 1984). The P-L insurance industry tends to have a volatile operating performance and is prone to catastrophic events. Therefore, P-L insurance managers are likely to have private knowledge of their exposures, future claims and the adequacy of loss reserves that is not easily possessed by external investors and policyholders (Chamberlain and Tennyson 1998; Cummins and Doherty 2002). Akhigbe et al. (1993) also note that information asymmetry between insurance firms and their investors or policyholders can be aggravated by insurers' flexibility in booking underwriting profits and setting loss reserves, which potentially reduces the reliability of insurers' financial statements.[2] The problem of information asymmetry is even more severe for mutual insurers and thinly traded stock insurers (Chamberlain and Tennyson 1998). Therefore, external equity is more costly than retained earnings and insurance companies have a preference for internally generated capital (Gron 1994).

Second, Chamberlain and Tennyson (1998) report that the regulation of capital ratios in the P-L insurance industry limits insurers' use of risky debt that may have a lower cost than external equity. Harrington and Niehaus (2002) also note that current regulations require a prior approval of interest/principal payments and the use of surplus notes.[3] This means insurers (particularly mutuals) may have limited access to debt financing.

Indeed, consistent with the above view that earnings retention (e.g., via practicing a conservative dividend policy) is important on the financing pecking order of P-L insurers, Lee and Forbes (1982) report that during 1950s – 1970s, issuing new equities was not an important source of incremental capital in stock P-L insurance companies. Cummins and Nini (2002) note that the contribution to capital growth by retained

[2] Akhigbe et al. (1993) argue that because the financial statements of insurers are not a reliable signaling mechanism, investors may have to rely heavily on other signals (e.g., changes in dividend policy). This forces many firms to minimize unnecessary changes in the dividend policy in order to avoid undesirable market consequences. Akhigbe et al. (1993) therefore argue that adjusting insurers' dividends may create an effective signal and they document a positive and significant market reaction to a sample of listed insurers' announcements of dividend increases.

[3] Insurers may also increase liabilities by taking on more businesses. However, regulation requires that the amount of insurance premiums that an insurer can write is up to certain times of its capital. For example, the famous Kenney rule argues that the ratio of premiums to capital for a P-L insurer should not exceed 2. In recent years, there is a declining trend in Kenney ratio in the U.S. P-L industry probably reflecting that insurers leave more financial slack for catastrophes (Cummins and Doherty 2002). Indeed, Smith (2001) reports that over the period 1994-1999, the industry average for U.S. P-L insurers was in the range of 0.84-1.3.

earnings was more than twice the amount of capital raised from external sources in the U.S. P-L industry in the 1990s.[4]

2.2 Dividend Payouts: Mutuals vs. Stocks

In the following, we discuss the implications of the capital-constraint hypothesis and the agency-based arguments for the dividend payouts of mutuals and stock insurers.

The capital-constraint hypothesis states that since mutuals have no access to stock markets, they have a weaker ability to raise external capital and thereby are subject to more capital constraints than stocks (Cummins and Doherty 2002; Harrington and Niehaus 2002; Mayers and Smith 2002). Mutuals integrate owners with policyholders; however, the contributions of policyholders (in the form of insurance premiums) are treated as liabilities rather than equity before they are earned on accrual basis in both mutual and stock insurers. Because mutuals have no access to stock markets, they have to rely on retained earnings to build up their equity. Consequently, compared with stocks, mutuals should find it more difficult and costly to raise capital (particularly after a major underwriting loss). Analyzing 98 cases of demutualization, Mayers and Smith (2002) report that many mutuals typically experienced a high sales growth rate and low equity in the years prior to conversion. This suggests that relaxing binding capital constraints and thereby reducing opportunity costs associated with forgone investments is one of the important motivations for demutualization. Harrington and Niehaus (2002) find that, on average, mutual P-L insurers' capital to liabilities ratio is about 10% higher than that of stock P-L insurers. Therefore, the capital-constraint hypothesis implies that, other things being equal, mutuals should have a lower dividend payout ratio than stocks.

Two kinds of agency-based arguments are relevant to the dividend payouts of mutuals and stocks. First, mutuals have advantages over stocks in controlling owner-policyholder incentive conflicts. Cummins and Nini (2002) argue that the elimination of

[4] When capital is inadequate relative to liabilities, P-L insurers can also choose to scale down their liability side (i.e., taking on less business) in addition to raising capital externally. However, this is an inflexible and potentially costly solution given its adverse impacts on customers (e.g., see Lee and Forbes 1982). Harrington and Niehaus (2002) also contend that there is no reason to expect the costs associated with adjusting the liability side to vary between mutual and stock P-L insurers.

owner-policyholder incentive conflicts could result in reduced marginal benefit from holding capital in mutuals. This implies that unlike stocks that need to keep an adequate level of capital in order to attract and assure policyholders, mutuals can afford to pay more dividends.[5]

Second, compared with stocks, mutuals are poorer in controlling owner-manager incentive conflicts because they cannot utilize share ownership and/or stock options to motivate managers and there is not a market for corporate control that can exert pressure on managers (Mayers and Smith 1981). In addition, the highly disparate policyholder-ownership groups in mutuals face greater difficulties in effectively monitoring managerial activities (Morse 2000). Therefore, mutual managers have more opportunities to pursue personal interests by diverting free cash flow into perquisite consumption than their stock counterparts (Mayers and Smith 1981). In principle, rational policyholders may choose to surrender their policies if they think such owner-manager agency costs outweigh the benefits of mitigated owner-policyholder incentive conflicts. Recognizing this, managers of mutual insurers may voluntarily issue (policyholder) dividends and thereby reduce the free cash flow at their disposal. Consistent with this view, Scordis and Pritchett (1998) find that mutual life insurers with a larger free cash flow choose to pay more dividends in order to reduce the agency costs arising from managers' discretionary use of free cash flow. Myers and Pritchett (1983) document that policyholders tend to realize higher long-run returns (in the form of dividends received) from purchasing participating (life) insurance policies from mutuals than buying non-participating insurance policies and invest the savings in premiums from stock insurers. On the other hand, there is ample evidence suggesting that policyholders' monitoring of managers in mutual insurers is often ineffective.[6] For example, Wells et al. (1995) report that mutual life insurers have a larger free cash flow than stock life insurers, other things being equal. This suggests that managers in mutual insurers could choose to pay less dividends than in stock insurers so that they have more free cash flow at their disposal.

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[5] However, insurance regulation may help alleviate policyholders' concern about the potential opportunistic behaviors of stock insurers' managers and stockholders.

[6] See Wells et al. (1995) for a review of the relevant evidence.

Therefore, agency theory does not provide an unambiguous prediction regarding the difference in dividend payouts between mutuals and stocks. Also, it is important to note that the capital-constraint hypothesis and the agency-based arguments are not non-mutually exclusive. As such, we do not make an ex-ante prediction on the possible difference in dividend payouts but leave it to be answered by the empirical investigation.

3 Variables

3.1 Main Variables

In order to test whether mutuals have a lower dividend payout ratio than stocks, we regress two dividend payout ratios on an organizational form dummy (*MUTUAL*, 1 for mutuals and 0 for stocks), while controlling for other relevant factors (see Section 3.2). As in Johnson (1995) and La Porta et al. (2000), both dividend payout ratios ($DIV_{1/2}$) are measured by the actual amount of dividends scaled by the net earnings before dividends.[7] Our primary dividend payout proxy DIV_1 is computed by using total dividends, i.e., aggregating dividends to both stockholders and policyholders in stock insurers. This aggregation approach is also adopted in Formisano (1978) and Lee and Forbes (1982). Notably, Lee and Forbes (1982, p.285) conclude that P-L stock insurers seem to make their earnings payout decisions on the basis of total policyholder and stockholder dividends rather than considering these dividends separately. On the other hand, Garven and Pottier (1995) note that the use of participating policies (and thereby the issue of policyholder dividends) is generally limited for P-L stock insurers compared with stock life insurers. Therefore, we only use dividends to owners in computing DIV_2 as an alternative proxy for dividend payout ratio. Our results are robust to both proxies.

3.2 Other Determinants of Dividend Payouts as Control Variables

We control for several factors that may have important influences on insurers' dividend decisions and their motivations are briefly explained as follows.

[7] Other proxies like dividends per share are not available for mutuals.

Prior Dividend Payouts. Prior studies on industrial firms (e.g., Lintner 1956) and insurers (e.g., Formisano 1978; Lee and Forbes 1982) suggest that dividend payout ratios tend to be "sticky", i.e., companies tend to have a long-run target dividend payout ratio and the adjustment to the target may not be completed in one period. We include the one-period lag of dividend payout ratios ($LAGDIV_{1/2}$) in the dividend payout model. A positive and statistically significant estimate on the coefficient of this variable for mutuals and stock companies would be consistent with the view that the dividend payouts of P-L insurers tend to follow a "sticky" pattern and have a long-run target ratio. The coefficient on the one-period lag of the dividend payout ratios also can be interpreted under a partial adjustment framework where the adjustment of dividend payout ratios to long-run target levels may not be completed in one accounting period. This partial adjustment model has been extensively used in prior studies (e.g., Cummins and Sommer 1996; Harrington and Niehaus 2002). Specifically, the speed of partial adjustment is equal to (1 – the estimated coefficient of $LAGDIV_{1/2}$).

Firm Size. Firm size (*SIZE*) (measured by the logarithm of total admitted assets at the beginning of the period[8]) is included to control for differences in growth opportunities and the ability to raise capital among firms of different sizes. Large firms are normally mature organizations with less growth opportunities (Linter 1956). Additionally, large firms often face less information asymmetry between managers and investors (e.g., because of more analyst followings) and hence it is less expensive for them to raise capital than small companies (e.g., Smith 1977). Such reasoning thus suggests that large insurers are likely to have a higher dividend payout ratio than small insurers.

Leverage. A highly levered insurer may find it more difficult and costly to raise additional (debt and/or equity) capital than an insurer with low leverage given the fomer's expected higher possibility of insolvency (Jensen et al. 1992). As a result, insurers with high leverage may have to rely more on internal financing and thereby result in a lower dividend payout ratio. However, the linkage between leverage and dividends can run the other way – for example, a low dividend payout will lower the debt to equity ratio

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[8] The beginning-of-period total assets figure is used to mitigate the possible endogeneity between the dividend payouts and contemporaneous total assets.

(Johnson 1995). In order to control for the influence of leverage over dividend decisions, we use a measure of before-dividend leverage (*LEV*) (measured as the ratio of total liabilities to total assets in the year beginning) in the analysis and predict a negative sign on its coefficient.

Growth Opportunities. Lintner (1956) and Froot et al. (1993) suggest that firms facing more growth opportunities need more capital for investment in positive net present value projects (e.g., an attractive takeover) and hence are less likely to pay a high level of dividends than other firms. Myers and Majluf (1984) contend that a firm with more growth opportunities may find it more costly to raise external capital than a firm with limited growth opportunities, as the former typically faces more information asymmetry about the quality of new projects between outside investors and managers than the latter. Therefore, we expect a negative relation between a firm's growth opportunities and dividend payout ratio. As in Colquitt, Sommer and Godwin (1999), accounting–based annual growth rate in net premium written is used to measure a firm's growth opportunities (*GROW*). This is because there are no market-based growth proxies for mutual companies. However, it is important to note that such a measure can be noisy given its ex-post nature (Pilotte 1992). Additionally, a firm's growth opportunities can be partly captured by its size and profitability. For example, large and established firms are often mature entities with less growth opportunities (Lintner 1956); in contrast, currently profitable firms are likely to have more future growth opportunities than loss-making firms (Hardwick and Adams 2002).

Profitability. Insurers' dividend decisions are also likely to be affected by profitability. A highly profitable company is likely to issue more dividends than a less profitable company, all else equal. Following Hardwick and Adams (2002), we control for the effects of both the current and past profitability (i.e., *PROF* and *LAGPROF*). As in Todd and McEnally (1974), *PROF* is measured by net income before dividends and tax in year t divided by total assets of year $t-1$ (similar to "return on assets").

Free Cash Flow. In Section 2.2, we discussed the implications of differences in agency costs between stocks and mutuals. However, agency costs associated with free cash flow may also vary from firm to firm of the same organizational form (Scordis and

Pritchett 1998). A firm with a large free cash flow faces greater agency costs between managers and owners, which can be lowered by paying more dividends. On the other hand, free cash flow may simply serve as a pool of internal capital, as a result, a firm with a large free cash flow may afford to pay more dividends.[9] We therefore explicitly include a measure of free cash flow in order to control for these possibilities and predict it has a positive effect on dividend payouts.[10] Previous studies (e.g., Scordis and Pritchett 1998) use an *after-dividend* measure of free cash flow (*FCF*) (i.e., pre-tax operating and investment income + new capital paid in – income taxes - dividends). In the current study, we use a *before-dividend* measure of free cash flow by adding back dividends (scaled by total assets). This is important as using an *after-dividend* measure to examine the dividend decision may induce a contaminating effect on the relation between the dividend payouts and free cash flow.

Earnings Volatility. Insurers with a more volatile earnings stream are likely to use more retained earnings as capital in order to absorb any future higher-than-expected underwriting losses and/or investment shocks. It is also favorable for such insurers to maintain a conservative dividend payout in the first place, as such prudence can help lower the chance that they may be forced to lower dividend payouts subsequently in the event of unfavorable operating experiences and/or new investment needs. This is necessary because the changes in dividend payouts may be perceived by the market as important signals and may induce strong reactions (e.g., see Akhigbe et al. 1993). Following Bradley et al. (1984) and Scordis and Pritchett (1998), earnings volatility (*EARISK*) is measured by the standard deviation of the first difference in net earnings before dividends over the previous five years scaled by the average book value of total assets in the same period. For example, the earnings volatility of 1994 is calculated using

[9] Because of this, free cash flow is at most a noisy proxy for testing the owner-manager incentive conflict argument in relation to dividend payouts and managerial perquisite consumption.

[10] Stock insurers may face another type of agency costs in relation to excessive free cash flow – the costs arising from the incentive conflicts between stockholders and policyholders. Krishnaswami and Pottier (2001) argue that stock life insurers can mitigate the stockholder-policyholder conflicts by issuing more participating policies, where policyholders have the right to share insurers' residual claims. The implication is that stock P-L insurers can also increase policyholder dividends (e.g., by issuing more new participating policies and/or increasing the dividend payouts of existing participating policies) to reduce such agency costs in relation to free cash flow. Therefore, for both mutual and stock insurers, a large aggregate dividend payout can be used to reduce agency costs associated with excessive free cash flow.

the earnings of 1989-1993. Bradley et al. (1984) report that this version of earnings volatility is superior to other measures – for example, a simple standard deviation of annual net earnings.

By-line business income. Given that underwriting risk varies according to different business lines, we also include by-line business income as additional control variables on the effect of business risk on dividend policy. We follow the prior literature (e.g., Barrese et al. 1995; Regan and Tzeng 1999) and divide P-L insurance businesses into personal auto physical damage and liability insurance (*AUTO*), homeowners insurance (*HOMEOWN*), fire (*FIRE*), commercial multiperils (*COMPER*), inland marine (*INLANDM*), ocean marine (*OCEAN*), allied lines (*ALLIED*) and workers' compensation (*WORKER*). The rest of lines are categorized as "others" and this category is omitted from the regression model to avoid collinearity. We provide no ex-ante prediction on the direction of the impact of each by-line business income variable on dividend payouts.

4 Data and Methodology

4.1 Data

We start our sample construction with all P-L insurers filing annual regulatory statements with the National Association of Insurance Commissioners (NAIC) for the period 1994 to 2000, which represents the longest period for which data were available to us when the study was carried out. Limiting our sample to this period also enables us to have a more robust test of the possible difference in dividend payouts between mutual and stock insurers because of two reasons. First, starting from 1994 is necessary as in 1994, the risk-based capital (RBC) system was implemented and it may cause structural changes in insurers' capital and dividend decisions.[11] Second, the terrorist attacks on September 11, 2001 caused U.S. insurers to pay billions of dollars in damages and may confound the comparison of dividend payout policies before and after 2001. We do not investigate the

[11] In our analysis, only one variable needs figures on total assets and net earnings going back to 1989 (i.e., the volatility of earnings for 1994); however, we believe this should not be a serious concern as insurers' total assets and earnings are unlikely to be greatly affected by the introduction of the RBC system.

impacts of this catastrophic loss event on insurers' dividend payout policies in the current study, but leave it as an interesting topic for future research.

One potential difficulty with comparing the dividend payout of mutual and stock insurers is that the result can be confounded by the group status of insurers. Dividend decisions of firms belonging to groups tend to be more complicated than unaffiliated firms. For example, affiliated insurers are exposed to less capital constraints because of the possible funding help from their parent company when needed (Harrington 1981). Lee and Forbes (1982) further note that an affiliated insurer's dividend decision might be dictated by its parent company and the parent company may wish to declare dividends in order to reduce the perceived excess surplus in the subsidiary. However, the NAIC data do not differentiate dividends paid to intra-group firms (and the direction of the payment) from dividends paid to outside investors. As such, we cannot conduct our analysis on the group basis. In the current study, we limit our sample to unaffiliated mutual and stock insurers in order to have a cleaner test of our hypotheses.[12] A similar approach is also taken in Mayers and Smith (1990) where they examine the determinants of the reinsurance use by P-L insurers. We also require a sample firm to be either a stock or a mutual firm throughout the sample period in order to avoid confounding effects of organizational changes on dividend payouts.[13] Reciprocals and Lloyds Syndicates are excluded as they are deemed to be outside the scope of the current study. Our selection criteria resulted in an unbalanced sample of 2,976 firms/years, representing 490 firms. Of which, 1,414 observations are for mutual firms and 1,562 observations are for stock insurers. The unbalanced sample arises as we allow firms to enter or exit our sample (e.g., because of mergers and acquisitions and/or business failures) in order to avoid the survivorship bias and have a robust test of our hypotheses.

4.2 Model

[12] In an early version of the current paper, we use 9,142 firms/years that include both unaffiliated and group-affiliated P-L insurers as our sample and we include a group status as a control variable in our model, we obtained similar results to the results from using unaffiliated insurers.

[13] The effect of organizational form conversions on dividend payouts is an interesting topic for future study.

Given that dividend payout ratios are censored at zero, we adopt a Tobit regression model to examine whether there is a difference in the dividend payouts between mutuals and stocks, while controlling for other relevant factors. Dividend payout ratios become negative if a firm incurred a loss in the current year. This creates a discontinuity in the measures since the loss-making firm pays out cash but has a payout ratio less than that of a firm paying no dividends. To avoid such a bias, as in Johnson (1995), observations with negative dividend payout ratios are excluded; this treatment leaves out 107 observations. Specifically, the basic model to be estimated is as follows:

$$DIV_{1/2} = f\,(MUTUAL,\ Control\ variables\ ) + v \qquad [1]$$

Where, $v \sim N(0, \sigma^2)$. All the other variables are defined in Sections 2 and 3.

5 Results

5.1 Descriptive Statistics and Correlation Analysis

Table 1 presents the descriptive statistics of variables by organizational forms. Comparing means and medians, $DIV_{1/2}$ and $LAGDIV_{1/2}$ tend to be influenced by some high values. To avoid the undesirable influences by extreme values, we trim $DIV_{1/2}$ and $LAGDIV_{1/2}$ at their 99th percentile in the following correlation and regression analyses. Table 1 also shows that in our sample, about 37.5% of stock insurers issued dividends as opposed to 11.5% for mutual firms paying dividends. Therefore, stock firms in the sample appear to issue dividends more frequently than do mutuals. Also, the mean dividend payout ratio is about 5.5% for mutuals as opposed to over 35% for stocks. These results are consistent with the view that mutual firms need to retain more earnings as capital due to their greater capital constraints than stock insurers and/or because the agency costs of equity in mutual insurers are higher than in stock insurers.

Table 1 also provides an opportunity to evaluate some existing arguments regarding the differences in operating characteristics between mutual and stock insurers. The risk-profile hypothesis (e.g., see Lamm-Tennant and Starks 1993; Morse 2000), which predicts that mutual insurers are less risky than stock insurers, is supported by comparing the mean/median of *LEV* and *EARISK* between mutuals and stocks. In contrast to the finding of Wells et al. (1995) that document a larger (absolute amount of) free cash flow in mutual life insurers than stock life insurers, stock P-L insurers in our sample appear to have a higher free-cash-flow to assets ratio than mutuals. Additionally, consistent with the findings of Harrington and Niehaus (2002), stock P-L insurers tend to be larger and more profitable than their mutual counterparts. The lower leverage ratio in mutuals in our sample is also consistent with the reported higher capital ratio in mutuals by Harrington and Niehaus (2002), which may be a result of a lower dividend payout ratio in mutuals than stocks.

The managerial discretion hypothesis advanced by Mayers and Smith (1981) states that to compensate for the limited control that mutuals exercise over management, mutuals will tend to operate in business lines that involve limited managerial discretion (e.g., auto, fire and homeowner insurance); while stock firms should concentrate more on lines (e.g., workers compensation, marine insurance and commercial multi-perils) that require more managerial discretion. These arguments obtain some support from our sample data, but it is not immediately clear why mutuals wrote more commercial insurance than stock insurers. Moreover, no significant difference in the growth rate of net premiums written is found between mutuals and stocks.

Garven and Pottier (1995) note that the use of participating policies (and thereby the issue of policyholder dividends) is generally limited for P-L stock insurers. This view is also confirmed by our data. For example, (according to unreported statistics,) the mean stockholder dividend payout is 12.43 million dollars per stock firm/year, whereas that of policyholder dividends is only 1.48 million dollars per stock firm/year. Therefore, not surprisingly, the mean of DIV_1 and DIV_2 are quite close.

[Insert Table 1 here]

Table 2 presents the Pearson correlation coefficients between variables. Because there are some very large values in the dividend payout ratios, the results are based on a sample after trimming observations at the 99th percentiles of dividend payout ratios. Table 2 reveals a negative and statistically significant association between dividend payout ratios (DIV_1 and DIV_2) and *MUTUAL*, implying that mutual firms have a lower dividend payout ratio than stocks. As expected, dividend payout ratios are found to be positively correlated with *LAGDIV*, *SIZE*, *PROF*, *LAGPROF* and *FCF*, but negatively related to *EARISK*. This suggests that dividend payout ratios in the U.S. P-L insurers are "sticky". In addition, large, profitable insurers and/or firms with a large free cash flow appear to issue more dividends than others; in contrast, insurers with greater earnings risk tend to be more cautious in issuing dividends than others. Also note that our two proxies of dividend payouts are highly correlated (0.91). This confirms that the policyholder dividends paid by stock insurers are limited.

The correlation coefficients between the independent variables are generally moderate (up to 0.53). We also compute variance inflation factors (VIFs) for each independent variable that appears in the regression models; the calculated VIFs are all less than 2. Therefore, there is no evidence of multicollinearity.

[Insert Table 2 here]

5.2 Multivariate Results

5.2.1 Dividend Payout Ratios: Mutuals vs. Stocks

We estimate both pooled and year-by-year Tobit models to test our hypotheses.[14] We also include year dummies in the pooled analysis in order to control for time-varying factors that are common to all insurance firms (e.g., insurance underwriting cycles). We report standard errors clustered at firm level that are robust to unknown hetroskedasticity and within-firm serial correlation in the pooled analysis given that our sample is a panel data set (see Greene 1999).

We trim the sample at the 99th percentile of the two dividend payout ratios (and their lags) (about 1.83 and 1.84, respectively) in order to help readers better evaluate the sensitivity of our results.[15] This treatment leaves out 56 and 48 observations in the two models reported, respectively.

[14] A Tobit model with fixed-effects cannot be used because of the multicollinearity between the key variable of interest - *MUTUAL* and fixed-effects. We also tried a Tobit model with random-effects; however it could not converge due to the insufficient intra-company variations in firm-specific error terms. This suggests that a Tobit model with random-effects is not appropriate for our data as the assumption of treating firm-specific error terms as random does not seem to be met (see Greene 1999).

[15] Including these observations generally produced similar results except that in some years, the coefficients on *MUTUAL* LAGDIV* in Table 4 can be over 1 (see Section 5.2.2).

[Insert Table 3 here]

Table 3 reports the results from using *DIV_1*. The coefficient of *MUTUAL* is found to be consistently negative and statistically significant (except in year 2000), suggesting that after controlling for other factors, mutual companies have a lower dividend payout ratio than stock companies. The coefficient of *MUTUAL* ranges from -0.015 to -0.042, suggesting that mutuals tend to pay a dividend payout ratio about 2~4 percentage points lower than stock firms, holding other factors constant. If using the results from the pooled analysis, the difference is about 4 percentage points. These results reflect the capital constraints and/or the greater agency costs of equity in mutuals.

Additionally, the coefficient of *$LAGDIV_1$* is positive and statistically significant in all the models, thus confirming the "stickiness" of dividend payouts in P-L insurers. On the results of the other control variables, it appears that as expected, larger firms, firms with a lower earnings volatility and/or higher prior profitability generally have a higher dividend payout ratio than other firms. The results from the pooled analysis on *LEV*, *PROF* and *FCF* are consistent with our expectations - that is, insurers with lower leverage, being more profitable, and/or have a larger before-dividend free cash flow tend to have a higher dividend payout ratio. The results of these variables are, however, mixed in the year-by-year analysis. Finally, while the impact of growth opportunities (*GROW*) on dividend payouts is generally negative, it is only significant in some years. It is plausible that annual growth in net premiums written is a "noisy" proxy given its ex-post nature (Pilotte 1992). Alternatively, as explained in Section 3.2, a firm's growth opportunities may have been partially captured by its size and profitability.

On the effect of by-line business income variables on dividend payouts, it seems that insurers with more premium income derived from homeowner and fire insurance tend to have a lower dividend payout ratio. However, there is not a reliable and evident pattern on the effect of other business income variables on dividend payouts, which may reflect the stochastic nature of P-L insurance businesses.

5.2.2 Partial Adjustment Speed of Dividend Payouts: Mutuals vs. Stocks

Since we find that the dividend payouts of both mutuals and stocks tend to be "sticky", it would be interesting to explore the potential difference in the speed of adjustment to their long-run target dividend payout ratios between mutuals and stocks. Examining this issue is also necessary as Harrington and Niehaus (2002) show that the capital level of mutual insurers tends to rely more on income and therefore the capital ratio adjusts more slowly to long-run targets than do stocks. We expect mutual firms to adjust toward their long-run target dividend payout ratios more slowly than do stock insurers for the following reasons.

First, the dividend policy of many stock insurers is to maintain a steady growth of dividends that constitute an important part of the total return to investors. The pressure to achieve this aim is particularly high when a stock insurer is publicly listed. Akhige et al. (1993) show that stock prices of listed insurers are sensitive to dividend changes. Therefore, when dividend payout ratios deviate from their long-run target levels, stock insurers should have strong incentives to quickly restore them to their long-run target levels in order to avoid undesirable adverse market reaction (that can be induced by frequently subsequent changes in dividend payout ratios). In case of favorable financial performance, stocks should have incentives to reflect such performance in their dividend payouts (though the magnitude of the increment in dividend payouts might be modest). The benefit of doing so is that it can help boost the confidence of both existing and prospective investors. Indeed, because of their better access to equity and debt markets, stocks should be more capable of making dividend adjustment to target payout ratios than mutuals.

By contrast, limited by their weak ability to raise external capital, mutuals are likely to have enhanced incentives to retain earnings as capital in good times in anticipation of future capital shocks. This suggests that the dividend payouts of mutuals should be less reflective of their favorable financial performance than those of stocks. Indeed, at least historically, mutuals are formed by policyholders whose primary objective is to ensure secure and adequate insurance coverage rather than to maximize investment returns (Morse 2000).[16] The lower market pressure (e.g., due to the lack of market-traded company stocks) facing mutual insurance managers may further decrease their incentives to adjust dividend payouts back to the long-run target levels in a timely manner in the event of an unexpected deviation. Therefore, we hypothesize that mutual insurers are likely to adjust their dividend payouts toward long-run targets more slowly than stocks, other things being equal.

As a demonstration, suppose the current dividend payout ratio of a mutual P-L insurer is below its long-run target level. After a favorable operational experience, the mutual insurer may be reluctant to significantly increase its dividend payout ratio due to its need to retain more earnings as capital in good times. Therefore, the deviation is expected to persist for some time. In case of an unfavorable operational experience, the mutual insurer may be unlikely to increase its dividend payout ratio due to financial constraints and so the deviation will continue.[17]

In order to test whether a mutual P-L insurer is likely to adjust the dividend payout ratio toward its long-run target level more slowly than a P-L stock insurer, we include an interaction term *MUTUAL×LAGDIV* to capture the potential differences in the partial adjustment speed of dividend payout ratios between mutuals and stocks. Since the partial adjustment speed is equal to (1 – the estimated coefficient of *LAGDIV*), we expect *MUTUAL×LAGDIV* to have a positive sign. The regression results are reported in Table 4.

[Insert Table 4 here]

Consistent with our expectation, the coefficient on *MUTUAL×LAGDIV* is positive and statistically significant in all models. More specifically, the partial adjustment speed for stock firms is between 0.841 (= 1 – 0.159, in year 1996) and 0.922 (= 1– 0.078, in

[16] Myers and Pritchett (1983) argue that in addition to being a way of refunding premium overcharges, dividends issued by mutual insurers also include a profit sharing element.

[17] One may argue that if the current dividend payout ratio is over its long-run target level, a mutual P-L insurer may have incentives to quickly lower its dividend payout ratio to the target level. If this happens, mutual P-L insurers may at least have an equally quick speed of adjustment to their long-run target levels as stock P-L insurers. While this is possible, it is unlikely for mutual insurers to frequently pay dividends higher than their long-run target levels due to their greater capital constraints and higher financing costs. Overall, the effect of the slow adjustment that arises when mutual insurers have a lower-than-target dividend payout ratio is likely to dominate.

year 1999); the adjustment speed for mutuals is in the range of 0.727 (= 1 – 0.104 – 0.169, in year 2000) to 0.854 (= 1 – 0.085 – 0.061, in year 1994). While such a difference is statistically significant, it seems that both stock and mutual insurers normally only take a relatively short time period (less than 2 years) to complete the adjustment toward their target ratios. There are no major changes in the results of other variables except that the relation between *HOMEOWN* and dividend payouts becomes weaker after controlling for *MUTUAL×LAGDIV*.

5.3 Robustness Checks

We perform several tests as robustness checks of our findings.

First, we include an interaction term *MUTUAL×FCF* in the models of Table 3 and 4 in order to see whether the relation between free cash flow and dividend payouts varies between stock and mutual firms. However, in unreported results, the coefficient of this interaction term is never significant, with the results on *FCF* and other variables unaffected. Therefore, we do not find evidence that the relation between free cash flow and dividend payouts varies between stock and mutual firms. As the coefficient of *FCF* (a noisy proxy for testing the owner-manager incentive conflicts) is only positive and significant in 3 out of the 8 regressions in Tables 3 & 4 and in 1 out of 8 models in Table 5, we cannot rule out the possibility that the lower dividend payout ratio observed in mutuals may be due to their acuter owner-manager agency problems. Indeed, this possibility is also recognized in Harrington and Niehaus (2002, p.148) when they find that mutuals tend to have a higher capital level than stock firms.

Second, as another way to deal with extreme values in dividend payouts, we trim the sample by excluding observations with dividend payout ratios (and their lags) over 1 from the analysis. This ends up with a sample with 2,744 and 2,768 observations, respectively. A repeated analysis corresponding to Table 3 and 4 generates similar results and so they are not reported for brevity.

Third, we use an alternative measure of dividend payouts DIV_2 that is computed using only dividends to owners. The results reported in Table 5 are largely comparable to the results from using DIV_1. Therefore, our finding on the higher dividend payout ratio in stock firms is not driven by the inclusion of policyholder dividends in DIV_1 in stock insurers.

Finally, in an early version of the paper, we include both group affiliated and unaffiliated insurers and a group affiliation dummy in the analysis. Using the sample of 9,142 observations, we find similar results.

6 Conclusion

Mutual and stock forms of organization are the two predominant corporate forms in the U.S. P-L insurance industry and there is a growing body of literature investigating the differences in firm characteristics between mutual and stock insurers. In particular, Harrington and Niehaus (2002) find that mutual P-L insurers tend to have a higher target capital ratio and appear to adjust toward their target capital ratio more slowly than stock P-L insurers. Our study extends this literature by comparing the dividend payouts of mutual and stock P-L insurers. Our study also fits in the literature on the impact of ownership structure on corporate dividend policies.

There are two non-mutually exclusive theoretical arguments that could explain the dividend payouts of mutual and stock P-L insurers. The capital-constraint hypothesis posits that due to their higher costs in raising external capital, mutuals practice a lower dividend payout ratio than stocks in order to hoard capital in anticipation of future capital shocks. Agency theory, however, provides ambiguous predictions: a) by eliminating the owner-policyholder incentive conflicts, mutuals can pay more dividends because of the reduced marginal benefit from holding capital in mutuals; and b) because mutuals do not have enough management-control mechanisms (e.g., the market for corporate control and using stocks as incentive-based compensation), the pressure for managers to distribute profit and thereby dividends is low.

Using a large sample of unaffiliated U.S. P-L insurance firms, we find that: a) mutual insurers consistently exhibit a lower dividend payout ratio than stock insurers and the difference is about 4 percentage points; b) both stock and mutual insurers' dividend payouts appear to be "sticky", however, mutuals tend to adjust toward their target dividend payout ratios more slowly than do stock insurers. These results provide more support for the capital-constraint hypothesis and/or the higher agency costs of equity in mutual insurers.

Since Harrginton and Niehaus (2002) find that mutual insurers appear to have a higher target capital level than stock insurers, our results suggest that one reason for the observed higher capital level in mutuals is the lower dividend payout ratio. Therefore, organizational differences in mutual and stock insurance firms do help shape different corporate financial decisions (e.g., dividend policies). Our results also show that mutual P-L insurers at least are less competitive than stock insurers on dividend payouts to owners. Therefore, it would be interesting for future research to further explore the aspects in which mutuals may excel and continue to survive as a corporate form. It is also interesting to examine the dividend payouts of mutual versus stock firms in the banking industry. Finally, using a short time-series (seven years) is a limitation of our study and future studies should use more recent data to assess the tenor of our results.

References

Achleitner PM, Biebel JH, Wichels D (2002) Does WTC matter for the investment policy of P/C insurance companies? Geneva Pap Risk Ins Theory 27:275-282

Akhigbe A, Borde SF, Madura J (1993) Dividend policy and signaling by insurance companies. J Risk Ins 60:413-428

Armitage S, Kirk P (1994) The performance of proprietary compared with mutual life offices. Service Industries J 14:238-261

Barrese J, Doerpinghaus HI, Nelson JM (1995) Do independent agent insurers provide superior service? the insurance marketing puzzle. J Risk Ins 62:297-308

Bradley M, Jarrell JA, Kim EH (1984) On the existence of an optimal capital structure: theory and evidence. J Finance 39:857-878

Chamberlain SL, Tennyson S (1998) Capital shocks and merger activity in the property-liability insurance industry. J Risk Ins 65:563-595

Colquitt LL, Sommer DW, Godwin NH (1999) Determinants of cash holdings by property-liability insurers. J Risk Ins 66:401-415

Cummins JD, Doherty NA (2002) Capitalization of the property-liability insurance industry: overview. J Finan Services Res 21:5-14

Cummins JD, Nini GP (2002) Optimal capital utilization by financial firms: evidence from the property-liability insurance industry. J Finan Services Res 21:15-53

Cummins JD, Danzon PM (1997) Price, financial quality, and capital flows in insurance markets. J Finan Intermediation 6:3-38

Cummins JD, Sommer DW (1996) Capital and risk in property-liability insurance markets. J Banking Finance 20:1069-1092

Dewenter KL, Warther VA (1998) Dividends, asymmetric information, and agency conflicts: evidence from a comparison of the dividend policies of Japanese and U.S. firms. J Finance 53:879-904

Fields JA, Tirtiroglu D (1991) Agency-theory implications for the insurance industry: a review of the theoretical and empirical research. Quart J Bus Econ 30:40-61

Formisano RA (1978) Dividend decisions and the structure of the life insurance industry. J Bus Res 6:329-344

Froot KA, Scharfstein DS, Stein JC (1993) Risk management: coordinating corporate investment and financing policies. J Finance 48:1629-1658

Garven JR, Pottier SW (1995) Incentive contracting and the role of participation rights in stock insurers. J Risk Ins 62:253-270

Greene WH (1999) Econometric analysis. Englewood Cliffs, New Jersey

Gron A (1994) Capacity constraints and cycles in property-casualty insurance markets. Rand J Econ 25:110-127

Hardwick P, Adams M (2002) Firm size and growth in the United Kingdom life insurance industry. J Risk Ins 69:577-593

Harrington SE (1981) Stock life insurer shareholder dividend policy and holding company affiliation. J Risk Ins 48:550-576

Harrington SE, Niehaus G (2002) Capital structure decisions in the insurance industry: stocks versus mutuals. J Finan Services Res 21:145-163

Jensen GR, Solberg DP, Zorn TS (1992) Simultaneous determination of insider ownership, debt, and dividend policies. J Finan Quant Anal 27:247-263

John K, Williams J (1985) Dividends, dilution, and taxes: a signaling equilibrium. J. Finance 40:1053-1070

Johnson SA (1995) Dividend payout and the valuation effects of bond announcements. J Finan Quant Anal 30:407-423

Krishnaswami S, Pottier S (2001) Agency theory and participating policy usage evidence from stock life insurers. J Risk Ins 68:659-683

La Porta RL, Lopez-de-Silanes F, Shleifer A, Vishny RW (2000) Agency problems and dividend policies around the world. J Finance 55:1-33

Lamm-Tennant J, Starks LT (1993) Stock versus mutual ownership structures: the risk implications. J Bus 66:29-46

Lee CF, Forbes SW (1980) Dividend policy, equity value, and cost of capital estimates for the property and liability insurance industry. J Risk Ins 47:205-222

Lee CF, Forbes SW (1982) Income measures, ownership, capacity ratios and the dividend decision of the non-life insurance industry: Some empirical evidence. J Risk Ins 49:269-289

Lintner J (1956) Distribution of incomes of corporations among dividends, retained earnings, and taxes. Amer Econ Rev 46: 97-113

Mayers D, Smith CW (1981) Contractual provisions, organizational structure, and conflict control in insurance markets. J Bus 54: 407-434

Mayers D, Smith CW (1990) On the corporate demand for insurance: evidence from the reinsurance market. J Bus 63:19-40

Mayers D, Smith CW (2002) Ownership structure and control: property-casualty insurer conversion to stock charter. J Finan Services Res 21:117-144

Morse LB (2000) The optimal ownership of insurance companies. Working Paper (North Carolina A&T State University)

Myers SC (1984) The capital structure puzzle. J Finance 39:575-592

Myers SC, Majluf NS (1984) Corporate financing and investment decisions when firms have information that investors do not have. J Finan Econ 13:187-221

Myers PS, Pritchett ST (1983) Rate of return on differential premiums for selected participating life insurance contracts. J Risk Ins 50:569-586

Pilotte E (1992) Growth opportunities and the stock price response to new financing. J Bus 65:371-394

Regan L, Tzeng LY (1999) Organizational form in the property-liability insurance industry. J Risk Ins 66:253-273

Scordis NA, Pritchett ST (1998) Policyholder dividend policy and the costs of managerial discretion. J Risk Ins 65:319-330

Short H, Zhang H, Keasey K (2002) The link between dividend policy and institutional ownership. J Corp Finan 8:105-122

Smith BD (2001) A financial analysis of the property and casualty insurance industry 1970-1999. *CPCU Journal* 54:134-148

Smith CW (1977) Alternative methods for raising capital: rights versus underwritten offerings. J Finan Econ 5:273-307

Todd JD, McEnally RW (1974) Profitability and risk in the title insurance industry - the Texas experience. J Risk Ins 41:415-434

Wells BP, Cox LA, Gaver KM (1995) Free cash flow in the life insurance industry. J Risk Ins 62:50-66

<u>Table 1</u>: Summary Descriptive Statistics

Panel A

	Mutuals (1385)			**Stocks (1484)**			**Difference**	
Variables	**Mean**	**Std. Dev.**	**Median**	**Mean**	**Std. Dev.**	**Median**	**t-stat**	**Wilcoxon z-stat**
DIV_1	0.056	0.275	0.000	0.393	6.615	0.000	-1.96 [b]	-15.9 [c]
$LAGDIV_1$	0.051	0.263	0.000	0.378	6.601	0.000	-1.91 [a]	-16.1 [c]
DIV_2	0.056	0.275	0.000	0.358	6.608	0.000	-1.76 [a]	-13.0 [c]
$LAGDIV_2$	0.050	0.262	0.000	0.346	6.594	0.000	-1.73 [a]	-13.2 [c]
SIZE	7.018	0.766	7.036	7.343	0.665	7.301	-12.1 [c]	-11.1 [c]
LEV	0.434	0.239	0.484	0.537	0.212	0.595	-12.1 [c]	-11.9 [c]
GROW	0.137	2.070	0.042	0.184	1.337	0.046	-0.74	-1.13
PROF	0.036	0.067	0.037	0.068	0.272	0.053	-4.35 [c]	-9.36 [c]
LAGPROF	0.037	0.066	0.037	0.070	0.272	0.056	-4.65 [c]	-10.5 [c]
FCF	0.035	0.063	0.033	0.062	0.092	0.049	-9.39 [c]	-11.4 [c]
EARISK	0.058	0.045	0.047	0.062	0.062	0.044	-2.25 [b]	1.46
AUTO	0.128	0.245	0.000	0.225	0.358	0.000	-8.54 [c]	-9.08 [c]
HOMEOWN	0.232	0.240	0.171	0.033	0.114	0.000	28.0 [c]	27.4 [c]
FIRE	0.199	0.275	0.074	0.025	0.092	0.000	22.4 [c]	30.2 [c]
COMPER	0.093	0.183	0.000	0.071	0.185	0.000	3.19 [c]	10.2 [c]
INLANDM	0.017	0.067	0.013	0.022	0.104	0.000	-1.51	12.9 [c]
OCEAN	0.055	0.071	0.000	0.013	0.099	0.000	-2.44 [b]	-7.81 [c]
ALLIED	0.069	0.141	0.020	0.014	0.077	0.000	12.8 [c]	27.9 [c]
WORKER	0.026	0.129	0.000	0.090	0.246	0.000	-8.75 [c]	-7.24 [c]

Panel B

Type of Insurers	**Number of Observations**	**Number of observations paying dividends**	**Percentages of observations paying dividends**
Mutuals	1385	159	11.48%
Stocks	1484	557	37.53%

1. The total number of observations is 2869 and it is based on observations after the exclusion of negative dividend payout ratios (including their lags) that arise due to operating losses. 107 observations were lost due to this exclusion.

2. DIV_1 = the aggregate of policyholder and owner dividends ÷ the current net earnings before dividends. $LAGDIV_1$ = one-year lag of DIV_1. DIV_2 = owner dividends ÷ the current net earnings before dividends. $LAGDIV_2$ = one-year lag of DIV_2. *MUTUAL*: 1 = mutual and 0 = stock firms. *SIZE* = logarithm of total (admitted) assets at the year beginning. *LEV* = the ratio of total liabilities to the book value of total assets at the year beginning. *GROW* = annual growth in net premium written. *PROF* = profitability, measured by the net income before dividends and tax in year *t* ÷ the total assets of year *t-1*. *LAGPROF* = one-year lag of *PROF*. *FCF* = annual before-dividend free cash flow ÷ the book value of total assets. *EARISK* = earnings volatility over the previous five years, computed in the manner of Bradley et al. (1984). *AUTO*, *HOMEOWN*, *FIRE*, *COMPER*, *INLANDM*, *OCEAN*, *ALLIED* and *WORKER* represents the proportion of earned premium income from personal auto physical damage and liability insurance, homeowners insurance, fire insurance, commercial multi-perils, inland marine, ocean marine, allied lines, and workers' compensation, respectively.

3. a,b,c = statistically significant at the 10%, 5% and 1% level (two-tailed).

Table 2: Correlation Coefficient Matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DIV_1	(1)	-													
$LAGDIV_1$	(2)	0.54[c]	-												
DIV_2	(3)	0.91[c]	0.48[c]	-											
$LAGDIV_2$	(4)	0.49[c]	0.92[c]	0.54[c]	-										
MUTUAL	(5)	-0.21[c]	-0.20[c]	-0.16[c]	-0.16[c]	-									
SIZE	(6)	0.24[c]	0.21[c]	0.19[c]	0.17[c]	-0.22[c]	-								
LEV	(7)	0.02	0.02	0.02	0.02	-0.23[c]	0.53[c]	-							
GROW	(8)	-0.01	-0.01	-0.01	-0.01	-0.02	-0.04[b]	-0.04[b]	-						
PROF	(9)	0.07[c]	0.07[c]	0.06[c]	0.06[c]	-0.08[c]	-0.01	-0.03[a]	0.01	-					
LAGPROF	(10)	0.08[c]	0.07[c]	0.08[c]	0.06[c]	-0.08[c]	0.05[c]	-0.07[c]	0.19[c]	0.13[c]	-				
FCF	(11)	0.13[c]	0.14[c]	0.12[c]	0.13[c]	-0.17[c]	0.01	-0.05[c]	0.04[b]	0.31[c]	0.17[c]	-			
EARISK	(12)	-0.09[c]	-0.10[c]	-0.08[c]	-0.09[c]	-0.04[b]	-0.25[c]	-0.02	0.01	0.12[c]	0.10[c]	0.16[c]	-		
AUTO	(13)	-0.05[c]	-0.05[c]	-0.02	-0.04[b]	-0.16[c]	0.11[c]	0.25[c]	-0.03[a]	-0.06[c]	-0.05[c]	-0.08[c]	0.04[b]	-	
HOMEOWN	(14)	-0.20[c]	-0.20[c]	-0.18[c]	-0.18[c]	0.47[c]	-0.09[c]	-0.14[c]	-0.02	-0.05[c]	-0.07[c]	-0.16[c]	-0.01	-0.16[c]	-
FIRE	(15)	-0.15[c]	-0.12[c]	-0.14[c]	-0.11[c]	0.40[c]	-0.50[c]	-0.51[c]	0.06[c]	-0.02	-0.02	-0.07[c]	0.04[b]	-0.25[c]	0.05[c]
COMPER	(16)	-0.01	-0.03[a]	0.02	-0.01	0.06[c]	0.07[c]	0.10[c]	-0.01	-0.02	-0.02	-0.04[b]	-0.05[c]	-0.16[c]	0.05[c]
INLANDM	(17)	0.01	0.01	0.02	0.03[a]	-0.02	-0.02	-0.04[b]	0.01	0.01	0.01	0.02	-0.02	-0.07[c]	0.01
OCEAN	(18)	0.03[a]	0.03[a]	0.04[b]	0.05[c]	-0.05[c]	0.02	-0.01	-0.01	0.09[c]	0.08[c]	0.14[c]	0.08[c]	-0.05[c]	-0.06[c]
ALLIED	(19)	0.01	0.02	0.02	0.03[a]	0.24[c]	-0.22[c]	-0.32[c]	-0.02	0.02	0.02	-0.01	0.10[c]	-0.17[c]	0.01
WORKER	(20)	0.09[c]	0.09[c]	0.05[c]	0.05[c]	-0.16[c]	0.17[c]	0.22[c]	-0.01	0.01	0.02	-0.01	-0.04[b]	-0.14[c]	-0.16[c]

		(15)	(16)	(17)	(18)	(19)
COMPER	(16)	-0.11[c]	-			
INLANDM	(17)	-0.02	-0.02	-		
OCEAN	(18)	-0.05[c]	-0.04[b]	-0.01	-	
ALLIED	(19)	0.32[c]	-0.10[c]	-0.02	-0.02	-
WORKER	(20)	-0.13[c]	-0.05[c]	-0.03[a]	-0.02	-0.09[c]

1. As there are some very high values in the dividend payout ratios, the results are based on a sample after excluding observations with payout ratios over their 99% percentiles.

2. DIV_1 = the aggregate of policyholder and owner dividends ÷ the current net earnings before dividends. $LAGDIV_1$ = one-year lag of DIV_1. DIV_2 = owner dividends ÷ the current net earnings before dividends. $LAGDIV_2$ = one-year lag of DIV_2. *MUTUAL*: 1 = mutual and 0 = stock firms. *SIZE* = logarithm of total (admitted) assets at the year beginning. *LEV* = the ratio of total liabilities to the book value of total assets at the year beginning. *GROW* = annual growth in net premium written. *PROF* = profitability,

measured by the net income before dividends and tax in year *t* ÷ the total assets of year *t-1*. *LAGPROF* = one-year lag of *PROF*. *FCF* = annual before-dividend free cash flow ÷ the book value of total assets. *EARISK* = earnings volatility over the previous five years, computed in the manner of Bradley et al. (1984). *AUTO, HOMEOWN*, *FIRE*, *COMPER*, *INLANDM*, *OCEAN*, *ALLIED* and *WORKER* represents the proportion of earned premium income from personal auto physical damage and liability insurance, homeowners insurance, fire insurance, commercial multi-perils, inland marine, ocean marine, allied lines, and workers' compensation, respectively.
2 [a, b, c]: statistically significant at 10%, 5% and 1% (two-tailed), respectively.

Table 3: Multivariate Results of Tobit Analysis (Dependent Variable = DIV_1)

		Pooled	1994	1995	1996	1997	1998	1999	2000
Constant	?	-0.312[c]	-0.121[c]	-0.284[c]	-0.161[c]	-0.234[c]	-0.250[c]	-0.258[c]	-0.457[c]
		(0.038)	(0.037)	(0.056)	(0.058)	(0.072)	(0.060)	(0.086)	(0.088)
MUTUAL	?	-0.037[c]	-0.015[b]	-0.039[c]	-0.030[b]	-0.042[c]	-0.018[b]	-0.036[b]	-0.015
		(0.009)	(0.007)	(0.010)	(0.012)	(0.015)	(0.009)	(0.016)	(0.014)
$LAGDIV_1$	+	0.148[c]	0.106[c]	0.160[c]	0.174[c]	0.095[c]	0.088[c]	0.121[c]	0.143[c]
		(0.017)	(0.023)	(0.028)	(0.028)	(0.023)	(0.021)	(0.028)	(0.029)
SIZE	+	0.041[c]	0.014[c]	0.032[c]	0.021[c]	0.027[c]	0.032[c]	0.031[c]	0.055[c]
		(0.005)	(0.005)	(0.007)	(0.008)	(0.010)	(0.008)	(0.012)	(0.012)
LEV	-	-0.068[c]	-0.027[b]	-0.010	-0.043[a]	-0.004	-0.034[a]	-0.021	-0.068[b]
		(0.018)	(0.016)	(0.021)	(0.028)	(0.034)	(0.020)	(0.039)	(0.038)
GROW	-	-0.008	-0.012[b]	0.009[b]	0.004	-0.027[b]	-0.023[b]	-0.001	-0.012
		(0.008)	(0.007)	(0.004)	(0.008)	(0.016)	(0.011)	(0.021)	(0.010)
PROF	+	0.020[a]	-0.023	0.012	-0.007	0.132[a]	0.123[a]	-0.005	0.382[c]
		(0.013)	(0.063)	(0.082)	(0.067)	(0.084)	(0.085)	(0.021)	(0.130)
LAGPROF	+	0.032[a]	0.139[c]	0.164[c]	0.377[c]	0.233[c]	0.020	0.324[c]	0.013
		(0.021)	(0.048)	(0.063)	(0.093)	(0.088)	(0.066)	(0.116)	(0.026)
FCF	+	0.118[b]	0.182[b]	0.037	-0.095[a]	-0.023	0.120[a]	0.135	-0.074
		(0.054)	(0.091)	(0.082)	(0.054)	(0.081)	(0.081)	(0.118)	(0.133)
EARISK	-	-0.211[c]	-0.284[c]	-0.238[b]	-0.212[b]	-0.477[c]	-0.216[c]	-0.368[c]	-0.097
		(0.067)	(0.081)	(0.108)	(0.109)	(0.154)	(0.085)	(0.150)	(0.132)
AUTO	?	-0.012	-0.004	-0.007	-0.043[b]	-0.009	-0.002	-0.020	0.024
		(0.011)	(0.014)	(0.013)	(0.017)	(0.019)	(0.012)	(0.023)	(0.021)
HOMEOWN	?	-0.095[c]	-0.044[a]	0.014	-0.090[c]	-0.059	-0.045[a]	-0.182[c]	-0.120[c]
		(0.032)	(0.024)	(0.025)	(0.034)	(0.038)	(0.024)	(0.053)	(0.042)
FIRE	?	-0.037	-0.057[b]	0.064[b]	-0.089[b]	-0.003	-0.007	-0.094[b]	0.022
		(0.028)	(0.024)	(0.027)	(0.035)	(0.040)	(0.024)	(0.044)	(0.038)
COMPER	?	0.020	0.024	0.001	-0.007	0.003	0.007	0.048	0.062[b]
		(0.015)	(0.015)	(0.021)	(0.024)	(0.029)	(0.017)	(0.031)	(0.031)
INLANDM	?	0.014	-0.049	0.105[c]	0.050	-0.022	-0.069	-0.048	0.003
		(0.012)	(0.036)	(0.038)	(0.037)	(0.044)	(0.078)	(0.081)	(0.070)
OCEAN	?	-0.037	-0.017	-0.010	-0.137[b]	-0.078	-0.051	-0.191[b]	-0.158
		(0.031)	(0.035)	(0.044)	(0.064)	(0.072)	(0.044)	(0.097)	(0.090)
ALLIED	?	0.031	0.110[c]	-0.060	-0.007	0.011	0.046	0.067	0.023
		(0.032)	(0.029)	(0.039)	(0.039)	(0.049)	(0.030)	(0.052)	(0.049)
WORKER	?	0.014	0.014	-0.008	-0.030	0.029	0.005	0.010	0.026
		(0.013)	(0.011)	(0.017)	(0.022)	(0.024)	(0.016)	(0.031)	(0.030)
Year dummies	?	*Yes*	*no*	*No*	*no*	*no*	*no*	*no*	*no*
Obs		2813	445	444	419	403	380	363	359

1. DIV_1 = the aggregate of policyholder and owner dividends ÷ the current net earnings before dividends. $LAGDIV_1$ = one-year lag of DIV_1. *MUTUAL*: 1 = mutual and 0 = stock firms. *SIZE* = logarithm of total (admitted) assets at the year beginning. *LEV* = the ratio of total liabilities to the book value of total assets at the year beginning. *GROW* = annual growth in net premium written. *PROF* = profitability, measured by the net income before dividends and tax in year t ÷ the total assets of year $t-1$. *LAGPROF* = one-year lag of *PROF*. *FCF* = annual before-dividend free cash flow ÷ the book value of total assets. *EARISK* = earnings volatility over the previous five years, computed in the manner of Bradley et al. (1984). *AUTO*, *HOMEOWN*, *FIRE*, *COMPER*, *INLANDM*, *OCEAN*, *ALLIED* and *WORKER* represents the proportion of earned premium income from personal auto physical damage and liability insurance, homeowners insurance, fire insurance, commercial multi-perils, inland marine, ocean marine, allied lines, and workers' compensation, respectively.

2. [a, b, c]: statistically significant at 10%, 5% and 1%, respectively. One-tailed p-values are reported when the sign of a uni-directional variable's coefficient is as expected; otherwise, two-tailed p-values are used. Numbers reported in the parentheses are standard errors. Marginal effects are reported as estimates of coefficients. The pooled analysis reports standard errors clustered at firm level that are robust to unknown heteroskedasticity and within-firm serial correlation. The sample included in the regression has been trimmed at the 99th percentile of DIV_1 and $LAGDIV_1$.

Table 4: Partial Adjustment Speed of Dividend Payouts: Mutuals vs. Stocks (Tobit Model)

Dependent Var. = DIV_1		Pooled	1994	1995	1996	1997	1998	1999	2000
Constant	?	-0.285^{c}	-0.110^{c}	-0.271^{c}	-0.150^{c}	-0.181^{c}	-0.217^{c}	-0.222^{c}	-0.394^{c}
		(0.035)	(0.035)	(0.056)	(0.058)	(0.065)	(0.055)	(0.083)	(0.082)
MUTUAL	?	-0.057^{c}	-0.027^{c}	-0.045^{c}	-0.040^{c}	-0.067^{c}	-0.035^{c}	-0.068^{c}	-0.050^{c}
		(0.011)	(0.009)	(0.011)	(0.014)	(0.017)	(0.011)	(0.020)	(0.016)
$LAGDIV_1$	+	0.115^{c}	0.085^{c}	0.140^{c}	0.159^{c}	0.066^{c}	0.066^{c}	0.078^{c}	0.104^{c}
		(0.017)	(0.021)	(0.030)	(0.028)	(0.021)	(0.018)	(0.028)	(0.026)
SIZE	+	0.038^{c}	0.013^{c}	0.032^{c}	0.020^{c}	0.021^{c}	0.028^{c}	0.027^{c}	0.048^{c}
		(0.005)	(0.005)	(0.007)	(0.008)	(0.009)	(0.008)	(0.012)	(0.011)
LEV	-	-0.064^{c}	-0.026^{b}	-0.011	-0.041^{a}	-0.012	-0.034^{a}	-0.020	-0.056^{a}
		(0.017)	(0.015)	(0.020)	(0.027)	(0.031)	(0.020)	(0.037)	(0.034)
GROW	-	-0.007	-0.011^{b}	0.008^{b}	0.004	-0.028^{b}	-0.017^{a}	-0.006	-0.008
		(0.007)	(0.006)	(0.004)	(0.009)	(0.016)	(0.011)	(0.021)	(0.009)
PROF	+	0.018^{a}	-0.015	0.024	-0.016	0.127^{a}	0.112^{a}	-0.006	0.364^{c}
		(0.012)	(0.061)	(0.079)	(0.065)	(0.078)	(0.081)	(0.020)	(0.122)
LAGPROF	+	0.030^{a}	0.131^{c}	0.166^{c}	0.369^{c}	0.200^{c}	0.033	0.333^{c}	0.006
		(0.020)	(0.046)	(0.062)	(0.093)	(0.080)	(0.063)	(0.112)	(0.023)
FCF	+	0.107^{b}	0.159^{b}	0.030	-0.092^{a}	-0.009	0.106^{a}	0.107	-0.094
		(0.049)	(0.087)	(0.079)	(0.053)	(0.072)	(0.077)	(0.114)	(0.128)
EARISK	-	-0.204^{c}	-0.278^{c}	-0.230^{b}	-0.215^{b}	-0.422^{c}	-0.222^{c}	-0.368^{c}	-0.103
		(0.061)	(0.080)	(0.104)	(0.108)	(0.141)	(0.083)	(0.144)	(0.118)
AUTO	?	-0.012	-0.006	-0.007	-0.043^{b}	-0.006	-0.001	-0.019	0.029
		(0.011)	(0.013)	(0.013)	(0.017)	(0.017)	(0.011)	(0.022)	(0.019)
HOMEOWN	?	-0.068^{b}	-0.030	0.019	-0.079^{b}	-0.025	-0.026	-0.128^{b}	-0.072^{a}
		(0.028)	(0.023)	(0.025)	(0.034)	(0.036)	(0.023)	(0.052)	(0.038)
FIRE	?	-0.013	-0.045^{a}	0.069^{b}	-0.078^{b}	0.021	0.012	-0.061	0.052
		(0.027)	(0.023)	(0.027)	(0.036)	(0.037)	(0.024)	(0.043)	(0.035)
COMPER	?	0.026^{a}	0.027^{a}	0.005	-0.004	0.009	0.016	0.054^{a}	0.072^{b}
		(0.014)	(0.014)	(0.020)	(0.024)	(0.026)	(0.016)	(0.030)	(0.029)
INLANDM	?	0.017	-0.045	0.099^{c}	0.051	-0.015	-0.058	-0.041	0.001
		(0.012)	(0.034)	(0.037)	(0.037)	(0.040)	(0.069)	(0.078)	(0.062)
OCEAN	?	-0.027	-0.013	-0.004	-0.128^{b}	-0.073	-0.042	-0.166^{a}	-0.129
		(0.033)	(0.032)	(0.043)	(0.063)	(0.065)	(0.041)	(0.091)	(0.079)
ALLIED	?	0.007	0.100^{c}	-0.084^{a}	-0.017	-0.022	0.027	0.064	0.013
		(0.028)	(0.027)	(0.044)	(0.040)	(0.044)	(0.029)	(0.050)	(0.045)
WORKER	?	0.011	0.013	-0.008	-0.033	0.030	0.007	0.006	0.020
		(0.010)	(0.011)	(0.016)	(0.021)	(0.021)	(0.015)	(0.029)	(0.027)
$MUTUAL \times LAGDIV_1$	+	0.118^{c}	0.061^{c}	0.037^{a}	0.057^{a}	0.160^{c}	0.110^{c}	0.168^{c}	0.169^{c}
		(0.030)	(0.025)	(0.029)	(0.039)	(0.049)	(0.035)	(0.057)	(0.049)
Year dummies	?	*yes*	*no*	*no*	*no*	*no*	*no*	*no*	*no*
Obs		2813	445	444	419	403	380	363	359

1. DIV_1 = the aggregate of policyholder and owner dividends ÷ the current net earnings before dividends. $LAGDIV_1$ = one-year lag of DIV_1. *MUTUAL*: 1 = mutual and 0 = stock firms. *SIZE* = logarithm of total (admitted) assets at the year beginning. *LEV* = the ratio of total liabilities to the book value of total assets at the year beginning. *GROW* = annual growth in net premium written. *PROF* = profitability, measured by the net income before dividends and tax in year t ÷ the total assets of year t-1. *LAGPROF* = one-year lag of *PROF*. *FCF* = annual before-dividend free cash flow ÷ the book value of total assets. *EARISK* = earnings volatility over the previous five years, computed in the manner of Bradley et al. (1984). *AUTO*, *HOMEOWN*, *FIRE*, *COMPER*, *INLANDM*, *OCEAN*, *ALLIED* and *WORKER* represents the proportion of earned premium income from personal auto physical damage and liability insurance, homeowners insurance, fire insurance, commercial multi-perils, inland marine, ocean marine, allied lines, and workers' compensation, respectively.

2. $^{a, b, c}$: statistically significant at 10%, 5% and 1%, respectively. One-tailed p-values are reported when the sign of a uni-directional variable's coefficient is as expected; otherwise, two-tailed p-values are used. Numbers reported in the parentheses are standard errors. Marginal effects are reported as estimates of coefficients. The pooled analysis

reports standard errors clustered at firm level that are robust to unknown heteroskedasticity and within-firm serial correlation. The sample included in the regression has been trimmed at the 99th percentile of DIV_1 and $LAGDIV_1$.

Table 5: Robustness Checks (Tobit Analysis, Dependent Variable = DIV_2)

		Pooled	1994	1995	1996	1997	1998	1999	2000
Constant	?	-0.246^{c}	-0.101^{c}	-0.209^{c}	-0.144^{c}	-0.133^{b}	-0.186^{b}	-0.154^{b}	-0.303^{c}
		(0.038)	(0.037)	(0.048)	(0.048)	(0.062)	(0.053)	(0.074)	(0.073)
MUTUAL	?	-0.044^{c}	-0.020^{b}	-0.028^{c}	-0.029^{c}	-0.070^{c}	-0.033^{c}	-0.052^{c}	-0.040^{c}
		(0.010)	(0.009)	(0.009)	(0.011)	(0.017)	(0.011)	(0.017)	(0.015)
$LAGDIV_2$	+	0.123^{c}	0.095^{c}	0.142^{c}	0.170^{c}	0.075^{c}	0.062^{c}	0.095^{c}	0.092^{c}
		(0.012)	(0.023)	(0.029)	(0.028)	(0.022)	(0.018)	(0.030)	(0.026)
SIZE	+	0.030^{c}	0.011^{b}	0.023^{c}	0.016^{c}	0.013^{a}	0.022^{c}	0.015^{a}	0.032^{c}
		(0.005)	(0.005)	(0.006)	(0.007)	(0.008)	(0.007)	(0.010)	(0.009)
LEV	-	-0.049^{c}	-0.024^{a}	-0.006	-0.013	0.001	-0.023	-0.013	-0.029
		(0.018)	(0.015)	(0.018)	(0.023)	(0.030)	(0.020)	(0.034)	(0.032)
GROW	-	-0.005	-0.009^{a}	0.009^{c}	0.003	-0.030^{b}	-0.012	0.002	-0.006
		(0.007)	(0.006)	(0.003)	(0.006)	(0.016)	(0.011)	(0.018)	(0.008)
PROF	+	0.015^{a}	0.007	0.007	-0.014	0.091^{a}	0.134^{a}	-0.005	0.359^{c}
		(0.010)	(0.069)	(0.070)	(0.058)	(0.070)	(0.083)	(0.017)	(0.122)
LAGPROF	+	0.023^{a}	0.105^{b}	0.141^{c}	0.264^{c}	0.192^{c}	0.001	0.263^{c}	0.003
		(0.017)	(0.047)	(0.056)	(0.075)	(0.076)	(0.063)	(0.099)	(0.022)
FCF	+	0.075^{b}	0.081	0.008	-0.090^{b}	-0.026	0.076	0.103	-0.117
		(0.043)	(0.099)	(0.070)	(0.044)	(0.069)	(0.077)	(0.104)	(0.133)
EARISK	-	-0.145^{c}	-0.225^{c}	-0.205^{b}	-0.138^{a}	-0.384^{c}	-0.215^{c}	-0.261^{b}	-0.087
		(0.060)	(0.080)	(0.093)	(0.089)	(0.134)	(0.084)	(0.136)	(0.108)
AUTO	?	-0.001	0.002	-0.002	-0.030^{b}	0.001	0.004	0.004	0.043^{b}
		(0.010)	(0.014)	(0.010)	(0.014)	(0.016)	(0.010)	(0.019)	(0.018)
HOMEOWN	?	-0.055^{b}	-0.029	0.014	-0.057^{b}	-0.003	-0.018	-0.105^{b}	-0.046
		(0.027)	(0.023)	(0.021)	(0.028)	(0.034)	(0.022)	(0.046)	(0.035)
FIRE	?	-0.003	-0.041^{a}	0.043^{a}	-0.026	0.029	0.016	-0.039	0.056^{a}
		(0.026)	(0.023)	(0.024)	(0.028)	(0.035)	(0.024)	(0.040)	(0.033)
COMPER	?	0.031^{b}	0.018	0.003	0.008	0.019	0.022	0.069^{b}	0.081^{c}
		(0.014)	(0.015)	(0.018)	(0.020)	(0.025)	(0.016)	(0.028)	(0.027)
INLANDM	?	0.025^{b}	-0.033	0.069^{b}	0.059^{a}	-0.003	-0.040	-0.014	0.022
		(0.010)	(0.033)	(0.031)	(0.030)	(0.038)	(0.062)	(0.069)	(0.056)
OCEAN	?	-0.011	-0.003	-0.003	-0.104^{a}	-0.045	-0.019	-0.131	-0.102
		(0.029)	(0.032)	(0.037)	(0.053)	(0.060)	(0.039)	(0.082)	(0.072)
ALLIED	?	0.010	0.090^{c}	-0.087^{b}	-0.017	0.014	0.036	0.061	0.026
		(0.023)	(0.026)	(0.040)	(0.033)	(0.042)	(0.029)	(0.045)	(0.042)
WORKER	?	-0.004	-0.002	-0.024	-0.042^{b}	0.026	-0.005	0.002	0.014
		(0.012)	(0.013)	(0.016)	(0.020)	(0.021)	(0.016)	(0.028)	(0.027)
$MUTUAL \times LAGDIV_2$	+	0.103^{c}	0.062^{c}	0.014	0.024	0.193^{c}	0.120^{c}	0.150^{c}	0.169^{c}
		(0.029)	(0.027)	(0.026)	(0.032)	(0.054)	(0.038)	(0.055)	(0.049)
Year dummies	?	*yes*	*no*	*no*	*no*	*no*	*no*	*no*	*no*
Obs		2821	445	444	419	405	381	365	362

1. *DIV_2* = owner dividends ÷ the current net earnings before dividends. *$LAGDIV_2$* = one-year lag of *DIV_2*. *MUTUAL*: 1 = mutual and 0 = stock firms. *SIZE* = logarithm of total (admitted) assets at the year beginning. *LEV* = the ratio of total liabilities to the book value of total assets at the year beginning. *GROW* = annual growth in net premium written. *PROF* = profitability, measured by the net income before dividends and tax in year *t* ÷ the total assets of year *t-1*. *LAGPROF* = one-year lag of *PROF*. *FCF* = annual before-dividend free cash flow ÷ the book value of total assets. *EARISK* = earnings volatility over the previous five years, computed in the manner of Bradley et al. (1984). *AUTO*, *HOMEOWN*, *FIRE*, *COMPER*, *INLANDM*, *OCEAN*, *ALLIED* and *WORKER* represents the proportion of earned premium income from personal auto physical damage and liability insurance, homeowners insurance, fire insurance, commercial multi-perils, inland marine, ocean marine, allied lines, and workers' compensation, respectively.

2. $^{a, b, c}$: statistically significant at 10%, 5% and 1%, respectively. One-tailed p-values are reported when the sign of a uni-directional variable's coefficient is as expected; otherwise, two-tailed p-values are used. Numbers reported in the parentheses are standard errors. Marginal effects are reported as estimates of coefficients. The pooled analysis

reports standard errors clustered at firm level that are robust to unknown heteroskedasticity and within-firm serial correlation. The sample included in the regression has been trimmed at the 99th percentile of DIV_2 and $LAGDIV_2$.