



Decision Support

Stock vs. mutual insurers: Who should and who does charge more?

Alexander Braun^{a,*}, Hato Schmeiser^a, Przemysław Rymaszewski^b^a Institute of Insurance Economics, Tannenstrasse 19, 9000 St. Gallen, Switzerland^b Zurich Insurance Group Ltd, P.O. Box, 8022 Zurich, Switzerland

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ABSTRACT

We contribute to the literature by developing a normative theory of the relationship between stock and mutual insurers based on a contingent claims framework. To consistently price policies provided by firms in these two legal forms of organization, we extend the work of Doherty and Garven (1986) to the mutual case, thus ensuring that the formulae for the stock insurer are nested in our more general model. This set-up allows us to separately consider the ownership and policyholder stakes included in the mutual insurance premium and explicitly takes into account the right to charge additional premiums in times of financial distress, restrictions on the ability of members to realize the value of their equity stake, as well as relevant market frictions. A numerical implementation of our model shows that, for the premiums of stock and mutual insurers to be equal, the latter would need to hold comparatively less equity capital. We then evaluate panel data for the German motor liability insurance sector and demonstrate that observed premiums are not consistent with our normative findings. The combination of theory and empirical evidence suggests that policies offered by stock insurers are overpriced relative to policies of mutuals. Consequently, we suspect considerable wealth transfers between the stakeholder groups.

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1. Introduction

Private insurance firms in many countries can be organized either as mutuals or corporations (stock insurance companies). Similar to the policyholders of a stock insurer, those of a mutual are obliged to pay the insurance premium, which, in turn, entitles them to an indemnity payment contingent on the occurrence of a loss. Apart from that, however, several important differences between these two legal forms of organization exist. First of all, in contrast to stock insurers, mutuals are in fact owned by their policyholders. By paying the respective premium, the buyer of a mutual policy becomes a so-called member, which is economically equivalent to simultaneously acquiring a policyholder and an equityholder stake in the firm. As a result, those insured by a mutual are usually granted direct or indirect participation in the administrative bodies and should thus be able to exert influence on business decisions. To establish a similar position, policyholders of stock insurance companies would additionally need to acquire ownership rights by purchasing the company's common stock. Unlike the shareholders of a stock insurer, however, members of a mutual cannot simply sell their equity stake. This is due to the fact that, in practice, it is not explicitly differentiated from the policyholder stake and a secondary market for such ownership claims

does not exist. Hence, the only ways to fully realize the value of the equity are liquidation or demutualization of the company, which would need to be enacted collectively by a majority of the members.¹ A further difference to stock insurers is the occasional premium refund that mutual members can expect if the company is profitable. Finally, stock insurance companies cannot draw on their policyholders to recover financial deficits, whereas the membership in a mutual insurer might be associated with the obligation to make additional premium payments contingent on the firm being in financial distress, also termed “member assessment”.² Since the legal form determines these rights and obligations associated with the purchase of an insurance contract, it should *ceteris paribus* result in different prices for policies, covering identical claims.

In this paper, we contribute to the literature by developing a normative theory of the relationship between stock and mutual insurance premiums based on a contingent claims framework. To consistently

¹ In the course of a demutualization, the insurer changes its legal form and is transformed into a stock company.

² According to industry professionals, there are quite a few example cases in which mutuals actually had to draw on this option. In the years 2005 and 2008, the Bermuda-based company Oil Insurance Limited struggled with significant hurricane losses that ultimately resulted in a member assessment to speed up recovery. Furthermore, anecdotal evidence indicates that Mutuelle Assurance des Instituteurs (MAIF) and various other French mutuals needed to make premium calls due to exceptionally high claims costs in the wake of cyclone Lothar in 1999.

* Corresponding author. Tel.: +41 71 224 36 53.

E-mail address: alexander.braun@unisg.ch (A. Braun).

price policies provided by these two types of organizations, we extend the work of [Doherty and Garven \(1986\)](#) to the mutual case, thus ensuring that the formulae for the stock insurer are nested in our more general model. This set-up allows us to separately consider the ownership and policyholder stakes included in the mutual insurance premium, taking into account the restricted ability of members to extract the value of their equity stake as well as the mutuals' right to charge additional premiums, which, in the following, will be called "recovery option". In addition, we explicitly incorporate relevant market frictions. By means of our model, we are able to derive certain conditions under which the premiums of stock and mutual insurance companies should be equal. In order to examine whether observed market prices are consistent with the normative results, in a last step, we run an analysis of panel data for the German motor liability insurance sector and provide empirical evidence for the impact of the organizational form on premium size. Finally, integrating our theoretical and empirical findings, we discuss selected economic implications for the stakeholders.

The remainder of this paper is organized as follows. In [Section 2](#), we provide an overview of previous literature on issues surrounding stock and mutual insurance companies and point out the gap that we would like to address with our contribution. Our model framework is then developed in [Section 3](#), beginning with the simple and well-established case of the stock insurance company in a perfect market. Subsequently, we introduce frictions and consider a mutual insurer with recovery option and partial participation in future equity payoffs. Furthermore, [Section 4](#) comprises a numerical analysis that illustrates the interaction of the main model components and allows us to derive normative results. [Section 5](#) is the empirical part, in which we apply panel data methodology to a sample from the German motor liability insurance sector. Finally, in [Section 6](#), we discuss selected economic implications of our findings, and in [Section 7](#), we state our conclusion.

2. Literature review

The literature comparing stock and mutual insurance companies has predominantly dealt with agency issues of the organizational form. Extending the fundamental work of [Jensen and Meckling \(1976\)](#), [Mayers and Smith \(1981, 1988, 1994\)](#) develop a theory of insurance contracting. On the one hand, asymmetric information and the call-option-like payoff profile associated with the equity position in a stock insurer imply that the shareholders will want to prompt the company's management to pursue riskier strategies. This, however, is detrimental to the position of the policyholders.³ Since owners and policyholders within a mutual insurance company coincide, agency costs due to this owner–policyholder conflict can be avoided (see [Garven, 1987](#)). On the other hand, through their organizational bodies and direct market discipline, stock insurers provide more efficient sanction mechanisms to tackle the so-called owner–manager conflict that results from diverging interests between shareholders and company executives. Hence, the choice of legal form must somehow depend on the trade-off between frictional costs arising from these agency problems. Ultimately, stock firms should dominate activities that involve significant managerial discretion, whereas mutuals should prevail in long-term lines of business that are usually encumbered with a more significant owner–policyholder conflict potential, such as the life insurance sector (see, e.g., [Hansmann, 1985; Mayers & Smith, 1988](#)).

The previously discussed agency-theoretic considerations are supported by a number of empirical articles. Through a survey on policyholder awareness of the rights resulting from their insurance contracts, [Greene and Johnson \(1980\)](#) illustrate the greater potential for

the owner–manager conflict associated with mutuals. Compared to the holders of publicly traded shares, members of the considered mutual insurers were less aware of their voting rights and appeared to exercise less control. [Lamm-Tennant and Starks \(1993\)](#) provide evidence for the owner–policyholder conflict by showing that stock insurers are generally riskier than mutual insurance companies. This is coherent with the results of [Lee, Mayers, and Smith \(1997\)](#), who analyze both legal forms in the context of insurance guarantee funds. In addition, [Wells, Cox, and Gaver \(1995\)](#) find that, in contrast to managers of stock insurance companies, those of mutuals have a higher free cash flow at their disposal, implying a greater opportunity to waste cash on unprofitable investments. The managerial discretion theory is also supported by the study of [Pottier and Sommer \(1997\)](#). Based on testable hypotheses for both principal–agent conflicts, they reveal systematic differences in the business activities of stock and mutual firms from the life insurance industry. Further support for the owner–manager conflict is presented by [Mayers and Smith \(2005\)](#), who highlight that mutual company charters are more likely to contain provisions which limit the range of operating policies of the firm. [Zou, Yang, Wang, and Zhu \(2009\)](#) observe that, probably owing to their inferior management control mechanisms, mutuals tend to pay significantly lower dividends than stock insurers. Moreover, employing data from the property-liability insurance sector, [He and Sommer \(2010\)](#) as well as [Cole, He, McCullough, and Sommer \(2011\)](#) empirically test how the separation of ownership and control impacts insurers' board composition and risk taking behavior, respectively. They document a larger fraction of outside directors in the board of mutuals and a higher level of risk in stock insurers. Both aspects are attributed to agency conflicts. A similar study by [Ho, Lai, and Lee \(2013\)](#) confirms that mutual insurers take on less underwriting and investment risk. Finally, indicating a greater engagement of stock insurers in unrelated line-of-business diversification, the work of [Berry-Stölzle, Liebenberg, Ruhland, and Sommer \(2012\)](#) is also in line with the managerial discretion hypothesis.

Another major strand of literature deals with changes in the legal form. [Fletcher \(1966\)](#) as well as [Mayers and Smith \(1986\)](#) focus on the mutualization of life insurance companies. Yet, much more research has been conducted on the demutualization process. A survey by [Fitzgerald \(1973\)](#) reveals economic pressure as a main reason for the conversion of small property-liability insurers into stock companies. Furthermore, [Carson, Forster, and McNamara \(1998\)](#) find the size of the available free cash flow to be significantly related to the probability of demutualization. In contrast to that, [Viswanathan and Cummins \(2003\)](#) suggest that improvements in the access to capital are a major driver for the abandoning of the mutual form. Evidence for a significant underpricing of initial public offerings following demutualizations is provided by [Viswanathan \(2006\)](#) as well as [Lai, McNamara, and Yu \(2008\)](#). [Zanjani \(2007\)](#) analyzes macroeconomic and regulatory conditions under which mutual insurance companies have been established in order to explain the evolution of the whole U.S. life insurance industry toward the stock insurer form. Similarly, [Erhemjamts and Leverty \(2010\)](#) as well as [Erhemjamts and Phillips \(2012\)](#) examine U.S. life insurers and argue that their incentive to demutualize differs by the type of conversion. Companies that fully demutualize seem to be driven by the desire to increase operational efficiency as well as the improved access to external capital, whereas partial demutualizations, involving mutual holding companies, are mainly conducted to achieve tax savings.

Extant research has also focused on differences in efficiency between stock and mutual insurance firms. [Spiller \(1972\)](#), for example, provides evidence that ownership structure is a determinant of performance. Moreover, in their empirical study of U.S. life insurers, [McNamara and Rhee \(1992\)](#) conclude that increased efficiency is an important reason for and result of the transformation of mutuals into stock firms. Their view is confirmed by [Cummins, Weiss, and Zi \(1999\)](#), who find mutuals to be less cost-efficient. Examining Spanish data, in

³ The notion that the equity stake in a company can be interpreted as a call option on its assets, struck at the face value of the liabilities, was introduced by [Merton \(1974\)](#).

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