# Regulation, Capital, and the Evolution of Organizational Form in U.S. Life Insurance

by

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## Abstract

This paper studies the influence of the legal environment and economic conditions on the form taken by life insurance company incorporations between 1900 and 1949. It identifies three key factors associated with mutual formation—low initial capital requirements for mutuals, regulatory favoritism, and economic distress. Mutuals were formed almost exclusively in states offering an explicit advantage to mutual incorporation in the form of reduced initial capital requirements. This suggests that the mutual form's disadvantage in raising capital, in conjunction with rising capital requirements and the elimination of such regulatory favoritism, may have contributed to the decline in its use.

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# 1 Introduction

Over the past 150 years, the U.S. life insurance industry has changed from one dominated by mutual companies to one dominated by stock companies. Mutual market share of life insurance in force dropped from more than 85% in 1850 to about 15% in 2000. Mutual companies comprised nearly half of the legal reserve companies operating in 1850, but less than 5% in 2000. The life insurance industry's ongoing transformation—with ownership and control moving from consumers to investors—stands out as an extraordinary revolution in corporate governance.

The transformation of the life industry seems likely to hold lessons for students of the corporate form. It appears to be a promising candidate for analysis within the classic theory of the firm, with minimization of transaction costs (especially those induced by regulation) playing a primary role. Yet, the transformation has received little attention from economists—perhaps because of the limits of modern data. Entrepreneurs rarely opted for the mutual form after the early 1950's. As a result, the mutuals of today, unlike their stock counterparts, are products of a bygone era, with the vast majority being more than five decades old. While there have been important contributions studying the market behavior and conversion activity of

mutuals that exist today (see below), this paper studies the motivations for mutual governance by examining the conditions that existed when mutuals were actually being formed.

The common explanation for the decline of the mutual (see, e.g., Swiss Re [29]) hinges on the development of state regulation. In this view, the importance of consumer control over management declined as the states assumed responsibility for insurance industry supervision. Consumers then grew confident that firm owners and managers could not expropriate their funds and grew comfortable ceding control to outsiders. Regulatory protection thus cleared a path for the stock form, which was in other respects more efficient than the mutual form, to ascend. This argument has obvious analogs outside the world of life insurance and, in particular, dovetails with research that has stressed the role of strong claimant protections in enabling decentralized corporate ownership (La Porta et al. [14], [15]). In this literature, claimant protections are viewed as a benevolent assignment of Coasian property rights, protecting the interests of parties to the corporation and enabling efficient organization.

This paper studies life insurer incorporations in the first half of the 20th century and, in particular, how their form varied across legal environments

and macroeconomic conditions. It finds a strong influence for regulation, but not in the way suggested by the traditional explanation. In general, the presence of claimant protections was *not* associated with decreased preference for the mutual form. The paper does, however, identify several key factors associated with mutuality. Most importantly, some combination of low initial capital requirements and regulatory favoritism appears to have been a prerequisite for mutual formation during this period. The popularity of the mutual form varied dramatically across states (see Figure 1), and the variation in popularity fit neatly with variation in a particular aspect of regulation: Mutuals were formed almost exclusively in states with low initial capital requirements for mutuals and differentially higher initial capital requirements for stock firms. In addition, there is some evidence connecting mutual formation with economic distress; in particular, the relative popularity of the mutual form increased significantly during the Great Depression and its immediate aftermath.

These findings suggest a new explanation for the decline of the mutual and, in particular, a much different (and more mundane) role for regulation in shaping the composition of the industry. Rather than embracing the benefits of state oversight and strong consumer protections, entrepreneurs

appear to have inclined to the path of least regulatory resistance: The mutual form was most popular in environments where strong ex ante capitalization was required for the stock form but not the mutual form. As regulation marched onward, however, the burden was not borne evenly. The rising regulatory emphasis on strong initial capitalization, as well as the elimination of differentials between requirements for stock firms and mutual firms, struck at the heart of the mutual form's inferior access to the capital markets. Thus, the cost of accessing capital—a consideration shown to be important for conversion decisions and market behavior in the insurance industry (see, e.g., Cummins and Viswanathan [3]; Harrington and Niehaus [11])—may well have exerted an even more powerful influence at incorporation time because of initial capital requirements.

The issue of capital and the cost of raising it may also influence organizational form through other channels. The paper argues that the revival of mutual insurance during times of crisis, an association observed elsewhere (see, e.g., Knight [13]; Smith and Stutzer [26]), may relate in part to changes in the cost of raising capital during those times. Since new stock firms are more capital-intensive than new mutual firms, use of the mutual form during times of capital market distress may represent a substitution away from using

capital in production. Put differently, the competitive fitness of the stock form may be vulnerable to capital market distress if the stock form depends on strong capitalization to compensate for other shortcomings (e.g., a misalignment of owner with consumer incentives, as in Mayers and Smith [18]).[1] Any tendency toward mutuality will be reinforced by differentials in capital requirements where they exist.

More generally, these findings add to a literature that views corporate organization as being influenced by regulatory, tax, and financing considerations. The optimal organizational form is determined by applicable taxes and laws, as well as the financial situation of the organization in question. In particular, capital structure, capital market access, and dividend policies have been argued to be integral to the organizational form decision in a variety of contexts. For examples, see Gentry [7], Damodaran et al. [4], and Hodder et al. [12]; general discussion can be found in Scholes and Wolfson [24]. In this paper, we find evidence suggesting that state regulations interacted with organizational differences in capital market access to wield a powerful influence on the organizational form decisions made by entrepreneurs.

[1] Possible theoretical bases for this substitution are explored in Section 4.

The body of this paper is organized as follows. Section 2 presents background on the life insurance market and the data used in the study. Section 3 presents the empirical analysis, using state-level data on incorporations and laws observed between 1900 and 1949. Section 4 discusses the results in the context of the existing literature. Section 5 concludes by considering possible extensions of the paper's results. The Appendix presents detailed case studies of two states—Texas and Washington.

# 2 Background and Data Summary

## 2.1 Background — Mutuals and Stocks since 1850

Figure 2 shows the history of the mutual share of the U.S. legal reserve market since 1850.[2] Mutuals arrived in the 1840's and achieved dominance by 1850. Stock firms rebounded during the period surrounding the Civil War, grabbing 46% of the market by 1870. Rough parity between stock and mutual

[2]Estimates are provided at (approximate) 5-year intervals starting in 1850. Estimates for 1850 through 1945 are constructed using Stalson [30] and Spectator Company [27], [28]. Stock and mutual companies were classified using information in Stalson's Tables A, E, F, and 15; the "Reports" section of the Spectator [28]; text references in Stalson and Knight; and, as a last resort, whether or not the company was listed as having a capital stock (this term was usually reserved for stock companies) in the "History" section of the Spectator [28]. Estimates for 1950 and forward were based on American Council of Life Insurance [1].

market share persisted until the 1910's, after which the mutualizations of Metropolitan, Equitable, and Prudential pushed mutual share to 75 percent. Mutual share eased only slightly in the next few decades, but it declined steadily after 1950. By 2000, demutualization had ravaged mutual market share.

The tug-of-war between stocks and mutuals can also be seen in the company counts. There were 33 mutuals, representing about 40% of all legal reserve companies, operating in 1900 (Stalson [30]). A spurt of stock company formation in the century's first decade lowered mutual share to 20% by 1910, but the mutual form held its ground between 1910 and the early 1950's with solid growth in company counts. The peak came in 1953, with 171 mutuals in existence—representing 20% of total companies in operation. Alas, mutuals were rarely chosen for new incorporations after the early 1950's, and their numbers dropped steadily. In 2000, fewer than 100 mutuals were operating in the U.S.—a mere 5% of the total number of companies.[3]

This paper focuses on law as a determinant of organizational form choice.

[3]The source for the post-1950 data is ACLI [1]. This overstates the case somewhat, since the "group" form of organization (in which multiple insurance companies belong to a similar parent) became popular after 1950. Subsidiaries in a group are typically organized as stock companies, so some of the stock company proliferation after 1950 was due to the formation of subsidiaries rather than new stand-alone organizations. If counting were done at the "group" level rather than the individual level, mutuals would comprise a larger share of the total.

This focus is motivated largely by an oft-repeated Coasian explanation for the mutual's decline: Stock firms were "enabled" by the development of state regulation, which served as an effective substitute for the mutual form and eventually rendered mutuality unnecessary.

While this thesis has never, to our knowledge, been closely examined, there are good reasons for examining the influence of law. Previous empirical research has shown a strong connection between regulatory jurisdiction and organizational form (see, e.g., Mayers and Smith [17]). Further testimony is provided by Figure 1, which shows striking differences in the relative popularity of the mutual form among neighboring states. Mutuals made up more than half of the 87 startups in Iowa and Nebraska between 1900 and 1949, but only two of 87 in Missouri, Oklahoma, and Colorado. They comprised 10 of the 30 startups formed in North Carolina, but none of 36 in Kentucky and Virginia. In the West, mutuals accounted for 30% of new incorporations in Washington, but only 7% in California and Oregon.

Differences in state law seem likely to have contributed to this variation because of the unique legal status of insurance. Companies wishing to operate in a given state cannot dodge that state's laws by incorporating elsewhere. State power to regulate out-of-state companies was upheld in Paul v.

Virginia (1869), where the Supreme Court ruled that insurance was not commerce. The Court reversed in United States v. South-Eastern Underwriters Association (1944), but this led to the enactment of McCarran-Ferguson (1945), which, among other things, affirmed the system of state regulation. As a result, a state's insurance laws apply to any company *operating* in that state, regardless of the company's state of domicile. Moreover, licensing requirements were usually more stringent for out-of-state companies than for in-state companies where any distinction was made.

## 2.2 Data on Incorporations and Regulations

The company formation data was collected from the annual issues of the Spectator Life Insurance Year Book, from 1900 to 1952. The type of company (mutual or stock) and the state and year of incorporation were noted. In cases where the incorporation year was not listed, the "year commenced" was taken as the incorporation year. Only new legal reserve company formations were counted.

It was also noted whether the company was starting up or reincorporating as a legal reserve company. While legal reserve companies were the most important, other organizational forms were popular during the 1900-

1949 period. In particular, fraternal insurers and assessment companies[4] had significant market share early in the 20th century, but many reincorporated as legal reserve companies as the century proceeded. Such conversions were counted as legal reserve incorporations, but conversions by legal reserve companies (from stock to mutual or vice versa) were not. Since legal reserve company conversions were rare during this period (Stalson [30], p. 759), this is not likely to have a major impact on the results.

The focus on incorporations (instead of market share) was driven by several considerations. As a practical matter, the data sources did not provide convenient aggregations of statistics by state: Using market share would have increased the data collection by more than an order of magnitude. There are also methodological considerations that favor the use of incorporations. Incorporations are likely to be more sensitive to the local regulatory environment than market share, which may be slow to respond to environmental changes because of the switching costs faced by both policyholders and companies. For companies in particular, changing organizational form is a costly

[4]The major difference between legal reserve companies and these competitors was operational. Legal reserve companies collected premiums in advance and established reserves, while fraternal and assessment organizations relied less on advance premiums and more on post mortem collections from policyholders to fund benefits. Fraternal insurers, moreover, operated on a lodge system with local chapters and often limited membership to people of a particular religion, ethnicity, or occupation.

process, with years elapsing between initiation and completion. A final consideration is that conversions of national companies are difficult to interpret at the state level. For example, mutual market share in many states surged with the mutualizations of the 1910's, but the main regulatory pressures for conversion came from New York.

The focus on incorporation decisions guides the choice of time period for study. Mutual incorporation was rare after the early 1950's, and pre-1900 data is relatively difficult to obtain and offers only a few dozen company formations. Accordingly, this study focuses on an easily accessible period with many formations of both mutual and stock companies.

Statute compilations and session laws for the mainland states and D.C. were used to identify enactment dates of insurance laws that applied to legal reserve companies formed during the sample period. Before proceeding, some qualifications are necessary. Although the data collection exercise is straightforward on paper, insurance codes of this period lacked clarity and were littered with conflicting provisions. Discretion was sometimes applied in determining which statutes applied to legal reserve companies. Moreover, some laws may have been missed. Unless compilation or session law indices indicated otherwise, only the insurance code was consulted. Thus, relevant

laws buried in the general corporate or criminal codes may have been overlooked. The same can be said of laws that were enacted and quickly repealed within the five decade period, since not all of the session laws were reviewed.

A wide net was cast. The Coasian explanation for the decline of the mutual predicts that state oversight and consumer protection will be associated with greater use of the stock form, but the existing literature on insurance organization admits a variety of other possibilities for the influence of law. Accordingly, we examine a wide variety of laws dealing with consumer protection, insurer governance, oversight, and minimum capitalization. We postpone discussion of the existing literature and how the empirical results fit into that literature until Section 4.

# 3 Empirical Analysis

## 3.1 Incorporations & Capital Requirements: 1900-1949

The most striking association apparent in the data is that between initial capital requirements and incorporation choices, so we start with an analysis of the initial minimum financial requirements for newly incorporated companies. As will be discussed in Section 4, it is possible that initial capital requirements

exerted a direct influence on incorporation choices. In particular, where requirements were significant, the mutual form's well-known disadvantage in accessing the capital market could come into play.

States differed on the nature and level of financial requirements during this time period. Requirements took the form of deposits, assets, or capital needed before starting business.[5] A number of states applied them unevenly, with requirements for mutual companies set lower than those for stock companies. The focus here is on funds needed *before* starting business, but some states required periodic deposits *subsequent* to starting business. The latter deposits will be analyzed along with the other laws in Section 3.2.

Initial requirement levels varied substantially across states and over time. Table 1 displays the requirements as they existed, circa 1925. It is evident that the mutual hotbeds from Figure 1 all had significant requirements for stock firms ($100,000 or higher) and small requirements for mutual firms ($25,000 and lower).

Tables 2a and 2b break down the incorporations according to the financial

[5]Some states required mutual companies to collect applications for a minimum total face value of insurance and at least one annual premium (or a fraction thereof) from each consumer before starting business. In cases where this requirement was not subsumed by other financial requirements (e.g., by a minimum asset requirement), it was converted into a dollar figure by using a premium rate of .04 times the minimum face value of insurance required times the fraction of the annual premium that had to be collected.

requirements that existed for stock and mutual companies at the time and place of incorporation. The requirements are simplified to the total cash necessary to start the company, regardless of whether the cash represented capital, assets, or paid premiums.[6] Table 2a shows that "start-up" mutual incorporations were concentrated in circumstances characterized by 1) a low initial cash requirement for mutuals ($25,000 or less) and 2) a high initial cash requirement for stock firms ($100,000 or more). Of the 138 start-up mutuals in the sample, 114 were formed under these circumstances. The 114 mutuals comprised nearly one-third of total incorporations under these conditions. By contrast, only 14 start-up mutuals were formed in situations with high initial cash requirements for mutuals; this amounted to less than 4 percent of total incorporations under such conditions. In summary, organizers were more inclined to the mutual form when the financial hurdles associated with mutual incorporation were 1) low and 2) lower than those associated with stock incorporation.

Table 2b examines *reincorporation* patterns. Reincorporators were much more likely to adopt the mutual form than their start-up counterparts, as

[6] Thus, some differences in the stringency of the requirements are masked. For example, a $100,000 capital/surplus requirement would be equated to a $100,000 asset requirement in this table, although the former is a tougher hurdle than the latter.

nearly half chose the mutual form. The influence of financial requirements, however, is still clear. When the financial requirement for mutuals was low, reincorporators mutualized more than two-thirds of the time. When it was high, reincorporators mutualized less than one-third of the time.

Two features of reincorporators may help to explain their higher preference for the mutual form. First, minimum asset or capital requirements were likely to be less problematic for reincorporators, since they had been operating for some period of time prior to reincorporation and thus had had a chance to accumulate assets. Second, most had started as fraternal assessment insurers; these were more likely to be non-profit in nature and, therefore, may have been more philosophically inclined toward the mutual form than the start-up companies.

Table 3 breaks down incorporations by decade. The Depression years stand out in the sample as a period of relatively high preference for the mutual form. Mutuals accounted for about one-third of the incorporations made in the 1930's, a level of popularity not seen since the 1890's (Stalson [30]). Also noteworthy is the absence of any obvious secular trend in the relative popularity of the mutual form: Mutual share of new incorporations in the 1940's was about the same as in the 1900's. The abandonment of the mutual

form that would occur in the second half of the 20th century was not yet under way.

Table 4 studies the distribution of financial requirements by decade and re-examines the temporal incorporation patterns in the context of changing financial requirements. This sheds light on the two issues brought up by Table 3. First, the high relative popularity of the mutual form in the 1930's derives from a) a higher-than-average preference for the mutual form in "mutual-favoring" states (i.e., states that required $100,000 or more from stock firms and $25,000 or less from mutual firms) and b) an unusually low rate of company formation in other states, most of which had high financial requirements for both forms. Second, the enduring popularity of the mutual form over this 50-year period is consistent with the evolution of financial requirements. In aggregate, financial requirements did not tighten between 1900 and 1949: The number of states with "mutual-favoring" requirements remained relatively stable (although there was some back-and-forth movement by individual states), and financial requirements increased only modestly in nominal terms—in fact, the requirements in 1949 were substantially lower in real terms than requirements in 1900. As will be discussed in the concluding section, these trends would reverse later in the 20th century.

To investigate more rigorously, we use a logit model to measure the association between the propensity to form a mutual and state financial requirements. The model here considers an entrant's choice between the mutual form and the stock form, given a regulatory environment.[7] Table 5 presents summary statistics and Table 6 presents the logistic regression results. The dependent variable takes a value of one when the company formed is a mutual and zero when it is a stock. The financial requirements are expressed in thousands of 2002 dollars. Laws were assumed to apply to incorporations in the year after their enactment.

Two approaches are used to address within-state correlation in the error term. The first set of logistic regressions reports standard errors robust to clustering by state. The second set uses state fixed effects. Although we report the latter set of regressions, it is worth noting that the use of state fixed effects here is problematic for two reasons. First, more than 10% of the observations are lost because of states where all firms formed were of one organizational type. Second, many states had little or no X-variation during the sample period. Although there were some states with significant

[7] Although not reported here, it should be noted that higher financial requirement levels were also associated with lower overall rates of entry, even after adjusting for population. This is consistent with the idea that initial capital requirements were a barrier to entry.

changes in regulatory regimes during the sample period (see the Appendix for two examples), this was not true of the majority. To illustrate, financial requirements in ten states did not change at all. Thus, since much of the important variation is cross-sectional, the use of state fixed effects implies an unusually high standard of evidence in this case.

The results confirm the patterns suggested by the cross-sectional tables. The mutual and stock requirement coefficients were negative and positive, respectively. Higher cash requirements for mutuals were associated with higher rates of stock formation, while higher cash requirements for stocks were associated with the opposite. The estimated effect for the mutual requirement is larger than the stock requirement effect, suggesting that initial financial hurdles may have been more problematic for mutual companies than for stock companies. In the regressions that use state fixed effects, the estimated magnitude of the difference is smaller, and the estimated coefficient on the stock requirement is not statistically significant. This change is not surprising, given the issues discussed above.

The estimated effects are economically significant. The bottom section of Table 6 provides predicted probabilities of mutual formation for different sets of financial requirements, with sample means being used for the non-financial

regressors. The second and third rows show the implied probabilities of the mutual form being chosen for an incorporation (or reincorporation) under two different sets of financial requirements that were typical of those in place in 1925 (see Table 1). The first is a "mutual-favoring" set ($0 for mutual and $100,000 for stock), and the second is a form-neutral set ($100,000 for both). The predicted probability of the mutual form being chosen is substantially higher in the former case than the latter. For example, the predicted probability of mutual incorporation under the mutual-favoring requirements in Column (4) is 30.44% but drops to 7.33% when considering the form-neutral requirements.

The reincorporation dummy is positive, confirming the stronger inclination of reincorporators to choose the mutual form. In addition, the interaction between the mutual cash requirement and the reincorporation dummy is positive and significant, suggesting that mutual cash requirements were a less significant barrier for reincorporators than for start-ups.

The time dummies[8] indicate a rebound in mutual formation during the Depression years. This is echoed in the specifications that use macroeco-

[8]The time dummies used represent five-year and ten-year periods. One-year or two-year time dummies can be used only at the expense of observations, since there are years in which only one type of organization was formed.

nomic variables—unemployment and the real interest rate[9]—instead of time dummies (collinearity concerns rule out using them simultaneously). The coefficients on unemployment and the real interest rate are both positive. This hints at a connection between "hard times" and mutuality, but it should be noted that not all macro variables yielded the same story. Nominal GNP growth and inflation were both associated with stock company formation, but real GNP growth was not. This inconsistency may be explained in part by the volatility of growth measures relative to unemployment. Changes in mutual popularity appear to have been slow-moving. Not surprisingly, the best fit was obtained with the least volatile variable—unemployment.

## 3.2 Other Laws

There were, of course, many other types of laws that affected insurance companies. The first decades of the 20th century brought significant changes in regulation in the wake of the Armstrong Committee investigation of 1905. The Armstrong investigation initiated in response to reports of corruption at the Equitable, and it uncovered a variety of abuses at leading life insurance

[9]The unemployment rate and real interest rate data are taken from *Historical Statistics of the United States*. The real interest rate is a long-term rate calculated as the basic yield on 10-year high-grade corporate bonds adjusted for the previous year's consumer price inflation.

companies as it proceeded. The Committee recommended reforms, many of which were adopted in New York's insurance code of 1906.

The Armstrong reforms addressed a wide range of insurance activities, including company investments, policy forms, management expenses, and reporting. Not all of the recommended reforms were innovations, nor were they adopted universally by the states. For example, the Armstrong Committee affirmed the wisdom of annual valuations of insurance company liabilities, but this was a common feature of state insurance codes before 1905. On the other hand, few state codes required board approval of investment decisions and officer salaries before Armstrong.

These reforms and other changes in regulation may have influenced organizational form choice and thus may confound identification. For example, if high financial requirements were associated with regulatory regimes that offered strong oversight and restrictions on managerial (mis)behavior, it is possible that the latter aspects of regulation were the real factors behind organizational form decisions. Although state fixed effects control for some of the differences in regulatory regimes, the regimes did change over time. This section presents regression results with controls for other insurance laws included.

Table 7 describes these laws and files them into categories. "Oversight" laws concern the obligations of the insurance department (e.g., examination, valuation) and rules that facilitate supervision (e.g., annual statements, vouchers). "Policy" laws concern regulations on policy forms, especially required provisions. "Conduct" laws concern investments, expenses, and other aspects of production behavior. "Board" laws are ones that require board of director review of management actions. The "Fraternal" variable is for laws that addressed fraternal order solvency: Such laws could potentially affect both the nature of reincorporating fraternal orders and the demand for mutual legal reserve startups to the extent that mutual and fraternal insurers were substitutes.

The "Constructed" category refers to variables that were generated based on selected groupings of the underlying laws. The table also classifies the laws as to whether they were explicitly endorsed by the Armstrong Committee and provides statistics on the fraction of states that had each law in place in 1900 and in 1950. Figure 3 shows an adoption timeline for selected law variables.

Table 8 presents the regression results, and Table 9 presents the same regressions after including state fixed effects. For the most part, the additional

controls do not change the sign or statistical significance of the coefficients on financial requirements. The magnitudes of the coefficients on the Mutual Requirement (MR) are roughly in line with the corresponding estimates in Table 6. The implied probabilities of mutual formation (not reported) are similar to the corresponding values in Table 6. Initial financial requirements are still strongly connected to organizational form choice, even after the effects of other regulations are considered. More surprising, however, is that the additional regulations do not appear to have been associated with stock company formation.

On the contrary, the coefficients on the regulation variables tend to be positive and, in some cases, statistically significant. While the collinearity in the data (see Figure 3) suggests the use of caution when interpreting individual estimates, it appears that the Armstrong reforms, taken as a whole, were associated with higher rates of mutual formation. This can be seen clearly in the specifications that use "Armstrong"—a variable indicating whether the state has adopted at least three of the named reforms after 1905.[10] It is

[10]This may not have applied to reincorporating companies, as evidenced in the negative and significant coefficients on "RD*Armstrong." The estimated coefficients are similar in absolute magnitude to the "Armstrong" coefficients, and, in all specifications, Wald tests fail to reject the hypothesis that "Armstrong" and "RD*Armstrong" sum to zero. One plausible explanation is that the "Armstrong" variable proxies for changes in fraternal law not captured in the analysis. Toughening of the laws governing fraternal insurers and, in

also evident in the specifications that break out the individual laws, where summing the estimated coefficients for various Armstrong reforms yields a positive number: Wald tests of the null hypothesis that Political, Voucher, Basic Conduct, Basic Oversight, Basic Policy, Compensation, Board, and Other Expense sum to zero reject at the 95% level in all specifications.[11]

There are several possible explanations for this puzzling finding. First, the regulations may have restricted profit-making opportunities or effected transfers from owners to consumers, thereby making the stock form less attractive. The legal changes and their effects on profits have been identified by Fletcher [5] as motivations for the mutualizations of Metropolitan, Prudential, and Equitable in the 1910's, and they may have exerted a similar influence in the market for new incorporations. Second, the finding could reflect provisions of the Armstrong legislation omitted in the analysis—such

particular, the expiry of grandfather clauses associated with the initial rounds of fraternal legislation in the first two decades of the 20th century may have induced conversions by financially weak companies that were unable to meet minimum capital requirements without the help of outside investors.

[11] A variety of approaches were used to test robustness, including alternative groupings of the laws and summary indexes of enacted laws. The findings were directionally similar. In all alternative specifications, the parameter estimates indicated a positive association; Wald tests yielded rejections of the null hypotheses in all specifications that did not use state fixed effects. In those that did, Wald tests rejected the null hypothesis in only some of the specifications. The same can be said of the estimated coefficients on the financial requirements. No noteworthy changes occurred in the models without state fixed effects; in the state fixed effects models, the coefficient on MR was always negative but not always statistically significant.

as those concerning policyholder rights and elections in mutual companies. Some states (including New York) did not recognize a difference between stock and mutual companies before the Armstrong Investigation, and parts of the ensuing legislation were aimed at enabling mutual formation. The enabling legislation may have strengthened governance in mutual companies, in addition to relaxing financial requirements for mutuals. Finally, as will be discussed in more detail in the next section, the finding could be interpreted through the lens of the "managerial discretion" hypothesis.

# 4 Discussion

The empirical analysis yields four main lessons. First, high initial capital requirements were associated with low use of the mutual form—a finding that was robust to the inclusion of additional law variables and state fixed effects. Second, there appears to be a tendency toward a path of least resistance: Mutual formations tended to occur in states that featured mutual capital requirements that were relaxed in relation those imposed on stock companies. Third, the mutuals born in this period were not the offspring of lawless jurisdictions: States where mutuals were popular tended to have

stronger-than-average consumer protection regulations. Finally, the relative popularity of the mutual form increased during the Great Depression.

The evidence does not support the existing explanation for the decline of the mutual. Use of the mutual form was positively correlated with regulation. The major exception is the minimum capital requirement, but the popularity of the mutual was largely confined to states where the mutual was exempted from the minimum capital requirement. This suggests that this law was a barrier to entry rather than an enabling statute embraced by industry.

The tendency toward the path of least regulatory resistance in this industry serves as a interesting example for a growing body of research on claimant protections. Providing legal protections to stakeholders is often viewed as beneficial in a Coasian sense, but this case makes clear that such provision may entail costs. It is possible to provide inefficiently high levels of protection if significant compliance or monitoring costs are involved. Indeed, the behavior of incorporators in this case suggests that initial capital and deposit requirements involved significant compliance costs that may have engendered distortions in the organization of production.[12]

[12]For general theory on the potential inefficiency of minimum asset requirements, see Shavell [25].

**Capital and Organizational Form** The empirical importance of minimum capital requirements is open to a variety of interpretations, but a plausible and obvious one is that these requirements directly affected organizational form choices. Access to capital is a well-known advantage of the stock form and has been studied in several contexts. Cummins and Viswanathan [3] argue that access to capital is a primary motivation for demutualization, a result also suggested by Mayers and Smith [16]. Harrington and Niehaus [11] argue that the relatively poor capital market access of mutuals leads to conservative capital targets and adjustment policies relative to stock firms. If the stock form has a significant cost advantage in raising capital, it will presumably succeed in environments where significant minimum capital requirements are being applied evenly across organizational forms.

Moreover, differences in capital market access may be able to explain the connection between mutuality and "hard times." One possible mechanism is suggested by Philipson and Zanjani [20], who argue that stock firms may compensate for any misalignment of owner and consumer incentives through stronger ex ante capitalization. If this bonding becomes expensive during times of capital market distress, the mutual form may enjoy relative favor during such times. This idea is explored further by Zanjani [31], who finds

that mutual fire insurance rose in relative popularity during insurance market crises: When the cost of insurance capital was high, consumers and entrepreneurs substituted toward forms that used little capital in production.[13]

**Regulation: A Substitute for Governance?** Mayers and Smith [18] and Hansmann [9], [10] apply a contracting cost framework to study the comparative advantages of the stock and mutual organizational forms. Specifically, the stock form of governance is argued to offer superior tools for owners to discipline and motivate managers (the so-called "managerial discretion hypothesis"), while the mutual form is argued to offer a better alignment of owner with consumer incentives. Here, conflicts of interest among the parties to the corporation are key, with the governance choice balancing mitigation of one set of conflicts with exacerbation of another.

Consumer protection law has an ambiguous impact within this framework. On one hand, law could mitigate the severity of the owner-consumer incentive conflict and thereby undermine the comparative advantage of the mutual form: This is the foundation of the common explanation for the decline of the mutual. On the other hand, law could also circumscribe the

[13]While widely recognized, the stock form's advantage in capital market access is rarely emphasized in theoretical analysis. For another exception, see Remmers [23].

discretion of managers and thereby reduce the importance of the stock form's discipline mechanisms. Thus, the managerial discretion hypothesis predicts more regulation being associated with greater use of the mutual form. This latter possibility is explored by Pottier and Sommer [21], who find evidence of greater use of the mutual form in the tough regulatory environment of New York (although they conclude that this association is likely to be an historical artifact rather than a reflection on the current New York law).

The evidence in the paper supports the managerial discretion hypothesis by showing a positive association between (most) consumer protection regulation and mutual incorporation. At the same time, however, the evidence suggests that the "conflict of interest" paradigm may not be the most promising one for analyzing law's role in the evolution of organizational form in the life industry. Since regulation has been on an upward march since its inception, the interaction of regulation and managerial discretion would have produced a long-term trend toward the mutual form. Yet, this trend is clearly not present. If law is in fact a primary influence on organizational form (and the evidence here is consistent with that presumption), any interaction between law and the usual conflicts of interest must have been trumped by something else.

# 5 Extensions and Concluding Remarks

This paper examined life insurance company formations over a five decade period in the United States, but it is a only a first step toward understanding the influence of legal and economic factors on the evolution of organizational form. There are a number of outstanding questions. In concluding, we consider some of these unresolved questions as areas for future research and discuss how the paper may help to answer these questions.

## 5.1 Minimum Capital and Mutual Decline

Can these findings help to explain the triumph of the stock form over the mutual form in the life industry? They may, although we must extrapolate beyond the time period studied. The 1900-1949 period does not feature dramatic changes in preference at the national level. We witness neither the rise of the stock form seen in the 1850's nor the disappearance of mutual incorporations during the latter half of the 20th century. Yet, it is plausible that shifting minimum capital requirements played roles in both episodes.

**The Decline of the Mutual after 1850** The rise of the stock form in the 1850's had a strong connection to regulation. Modern insurance regulation

began with New York's Deposit Law of 1849, which imposed annual reporting requirements, investment restrictions, and a deposit of $100,000 from all firms. Hansmann [9] (p. 272) interprets the subsequent rise of the stock firm as being driven by increasing consumer confidence bred by New York-style regulation, but the evidence also supports an alternative view—that the deposit requirement choked off mutual formation. While the available data[14] support either view, historical accounts do not describe an industry embracing the benefits of third party oversight: Knight [13] (p. 128) states that the $100,000 minimum deposit requirement "virtually prohibited the formation of any new mutuals," and Stalson [30] (p. 302) blames it for the withdrawal of 12 companies from the state.

**The Decline of the Mutual after 1950** Regulation may also have played a role in the strangulation of the mutual form during the latter half of the 20th century. The legal noose did tighten considerably, as the exemptions granted to mutuals became fewer and less substantial. Texas—the main hotbed of mutual activity during the sample period (with more than half of the start-up

[14]For example, Stalson's company formation data shows that none of the six companies incorporated in New York during the 1850's was a mutual, despite the ongoing success of mutuals in other jurisdictions (8 of the 18 non-New York legal reserve companies formed in the 1850's were mutuals).

incorporations in the 1940's) equalized and raised financial requirements for stocks and mutuals in 1956. By 1974, all states required capital or surplus (rather than assets) to start a life insurance company, and the median state required $600,000 in surplus to start a mutual—a substantial increase (in both real and nominal terms) from 1949. Furthermore, only 12 states had incorporation laws that showed any favoritism to domestic mutuals with respect to initial capital, and, of those, only two had requirements that were comparable (in real terms) to the "mutual-favoring" requirements that had fostered formation in the 1900-1949 period. By 1999, only 4 states showed any favoritism to domestic mutuals and, of those, two had "mutual-favoring" requirements. The days of starting a mutual life insurance company with next to nothing were over.[15]

## 5.2 Crisis and Mutuality

As discussed earlier, mutuality in both property-casualty and life-health insurance has historically been associated with financial crises—both crises localized to the insurance market and crises involving the broader financial

[15]The source for 1974 is Carter [2], and the source for 1999 is NAIC [19]. The "low" states in 1974 were North Dakota ($10,000) and North Carolina ($100,000). The "low" states in 1999 were North Carolina ($200,000) and New York ($150,000).

markets. The regression toward mutuality during the Great Depression, as well as the connection between macroeconomic variables and mutual formation shown in the paper, lends further support to this association.

Cycles and capacity shortages are a recurring phenomenon in insurance markets even in the modern day (see, e.g., Gron [8]), and there may be an ongoing connection between market crisis and mutuality. Contemporary examples of the association between insurance market crises and mutuality include the medical malpractice crises of the 1970's and 1980's. The rise of consumer-owned institutions (such as mutuals, captives, reciprocals, and risk-retention groups) during these episodes fits with the historical association of mutuality with hard insurance markets. As discussed earlier, this may be explained theoretically as a response to an increased cost of insurance capital and the unwillingness of consumers to bear that cost.

The general decline in mutuality has also been tied to differences in capital access between the forms. It is possible that this difference in access has widened over time. Technical change (such as increases in the efficiency or liquidity of stock markets) may have increased the relative advantage of stock form in the area of raising capital, and this could be an additional reason for the decline of the mutual.

## 5.3 The Paradox of Mutual Ascent

We are left with the question of what led to mutual dominance in the first place. The ascent of mutual life insurance occurred during the early 1840's. According to Stalson, the new mutuals formed during this period used agency marketing methods to revolutionize a moribund business. By 1850, less than a decade after the "Revolution of 1843," mutuals dominated the industry. The window of opportunity for the mutuals seems to have been brief. Prior to 1843, stock companies had dominated the U.S. life industry; after 1850, mutuals lost ground to stock companies (although there were some hiccups along the way). The context for this window of opportunity thus merits closer examination.

The window of opportunity came during a period when state insurance regulation was minimal. Regulatory arbitrage—which appears to have encouraged mutual formation during 1900-1949—could not have been a major influence in 1843. On the other hand, the absence of minimum capital requirements implies that the regulatory barriers to entry for mutual companies were lower.

The window of opportunity also came in the wake of a disastrous economic depression—one severe enough to be compared to the Great Depression (see

Friedman and Schwartz [6], pp. 299-300). This association of the mutual form with hard times is consistent with the evidence in this paper. It also raises the question of whether the mutual form use might have been more widespread during the Great Depression in the absence of initial capital requirements or other consumer protection laws.

This question is difficult to answer. The mutual form was more popular in states with low minimum capital requirements (less than $25,000) for mutuals during the Great Depression and its immediate aftermath (1930-1935). In those fifteen states, 29 of the 56 new incorporations were mutuals; in the rest, only 6 of 42 new incorporations were mutuals. It is impossible, however, to disentangle the effects of the low minimum capital requirement from the effects of regulatory favoritism: All fifteen states with low requirements showed some degree of favoritism to mutuals in financial requirement levels.

Assessing the impact of other consumer protection laws is even more difficult. Although the paper showed a positive overall association between the strength of other consumer protection laws and mutual formation, most of the states in the 1900-1949 period had a basic regulatory apparatus in place. Hence, it is difficult to ascertain the effect of the basic elements of regulation. We have few formations in environments that did not regulate

insurance (one such environment was D.C. between 1900 and 1933). The formations in unregulated environments tended to be stock firms, but there are only a handful, so the evidence is hardly definitive.

So was the mutual form in 1843 a "second-best" solution in an environment with an underdeveloped (and underperforming) capital market? Was the spectacular success of mutuals in the 1840's a chance coincidence of an innovation (agency marketing) with harsh economic conditions that favored the mutual form? Would the mutual form still be dominant today if state regulation had not evolved toward emphasizing technical solvency and strong capitalization? Or was its lease on life prolonged by regulatory regimes that granted explicit or implicit favoritism?

The evidence of this paper represents a step toward addressing these and other questions. More broadly, it shows that the enactment of claimant protections can have perverse (and possibly unintended) consequences for corporate organization.

# 6 Appendix - Two Case Studies

**Texas** Texas merits special consideration, since it was the home of by far the most new incorporations in the first half of the 20th century. Domestic formation was probably fostered by a high degree of protectionism. In particular, the infamous "Robertson Law" of 1907 imposed penalties on companies that did not invest their "Texas reserves" in Texas securities and caused several national companies to withdraw from the state. This undoubtedly fostered local production in Texas, and suggests that protectionism was probably at work in other states with large numbers of formations.

Texas had some regulation in place by 1900. It required annual statements, annual valuations, and periodic examinations of life insurance companies. It had a law addressing permissible investments, and it stipulated that dividends could be paid only from profits. It even had a law forbidding self-dealing by managers in the company's investments. Texas required both stock and mutual companies to have $100,000 in capital before starting business.

Texas enacted a major reform of its insurance code in 1909. A number of Armstrong reforms were enacted, including the full plate of "Policy" reforms (no rebating, mandatory incontestability, mandatory nonforfeiture, and commissioner approval of new policy forms), "Board" reforms (board must authorize investments, board must approve salaries in excess of $5,000), a refinement of the restrictions on self-dealing, and a "Voucher" requirement for any expense in excess of $100.

The 1909 law retained the $100,000 capital requirement for stock companies, but it relaxed the incorporation requirements for mutual companies. Mutual companies could now be formed with applications from at least 200 people for insurance face value totalling at least $200,000; capital was not required, but the company was required to have collected the first premium installment on each policy.

The 1909 law would remain the basis of Texas insurance regulation for the remainder of the sample period. No major reforms were enacted between 1910 and 1950.

All companies formed in Texas prior to the 1909 enactment were stock. Seven stock companies were formed between 1900 and 1908. Eleven companies (all stock) were formed in 1909, the year of the enactment.

Things changed after 1909. Between 1910 and 1928, 23 stock companies and 10 mutual companies were formed. Between 1929 and 1935, 14 stock

companies and 18 mutual companies were formed. Between 1936 and 1949, 59 stock companies and 10 mutual companies were formed.

Thus, in Texas, we see a microcosm of the national results. When Texas had high capital requirements for both stocks and mutuals, no mutuals were formed. After an exemption was granted for mutuals, mutuals accounted for a substantial share of new incorporations. The relative popularity of the mutual form surged during the Depression years.

**Washington** Washington is one of the few states where 1) a lot of companies were formed and 2) long periods of were spent under different regulatory regimes. Like Texas, Washington initially had high financial requirements for both forms but later relaxed requirements for the mutual form. Washington's switch, however, took place in 1933.

In 1900, Washington had little more than a basic regulatory apparatus in place. It required annual statements and periodic examinations of life insurance companies. Dividends could be paid only from earnings. Both stock and mutual companies needed $100,000 capital to start business. A prohibition on price discrimination (rebating) was passed in 1905.

A major enactment, which included a number of Armstrong reforms, was passed in 1909. Companies were now subject to annual valuations. Investments were now regulated, and authority for investment activity was given to the board of directors. Self-dealing, including loans by the company to officers, was prohibited. Nonforfeiture and incontestability were now mandatory in policy forms, and commissioner approval was required for new policy forms.

Additional reforms were enacted in 1911. Vouchers for any expense over $25 were required. Political contributions were forbidden. Board approval was required for any salary over $5,000, and executive pensions were forbidden. These last two provisions remained on the books for 8 years before being repealed. Capital and surplus requirements, however, remained in place. They were raised to $150,000 for both stocks and mutuals in 1912.

In 1933, the incorporation requirements for mutuals were relaxed. Mutuals could now be formed with 200 applications for at least $200,000 in insurance, the collection of one annual premium, and the posting of a $25,000 bond or guaranty fund. The applications requirement was raised to 500 applications for $500,000 in insurance in 1937, and changes to the law regarding mutual-to-stock conversions were also made during that year. The $25,000

bonding requirement was removed in 1947 and replaced with a requirement of either $7,500 in cash premiums or $5,000 in surplus.

There were 5 companies formed before the reforms of 1909 and 1911, and all were stock. An additional stock company was formed in 1909, and another stock company incorporated in 1910. Three stock companies were formed between 1911 and 1928. Two stock companies were formed during the Depression years—one in 1929, and one in 1930.

The first mutual company was formed in 1932, and a flood of new mutuals came after the 1933 change in the law. Six were formed between 1934 and 1937, along with one stock company in 1937. However, these were the last mutuals seen in the sample. Three more companies were formed between 1938 and 1949, and all were stock.

Thus, Washington is a convenient example for the paper. Use of the mutual form was largely confined to a period of regulatory favoritism that coincided with the aftermath of the Great Depression. Moreover, enactment of Armstrong reforms occurred at a different time than the revision of incorporation requirements for mutuals. The Armstrong enactments were not associated with an obvious change in the relative popularity of the organizational forms, but the relaxation of incorporation requirements was.

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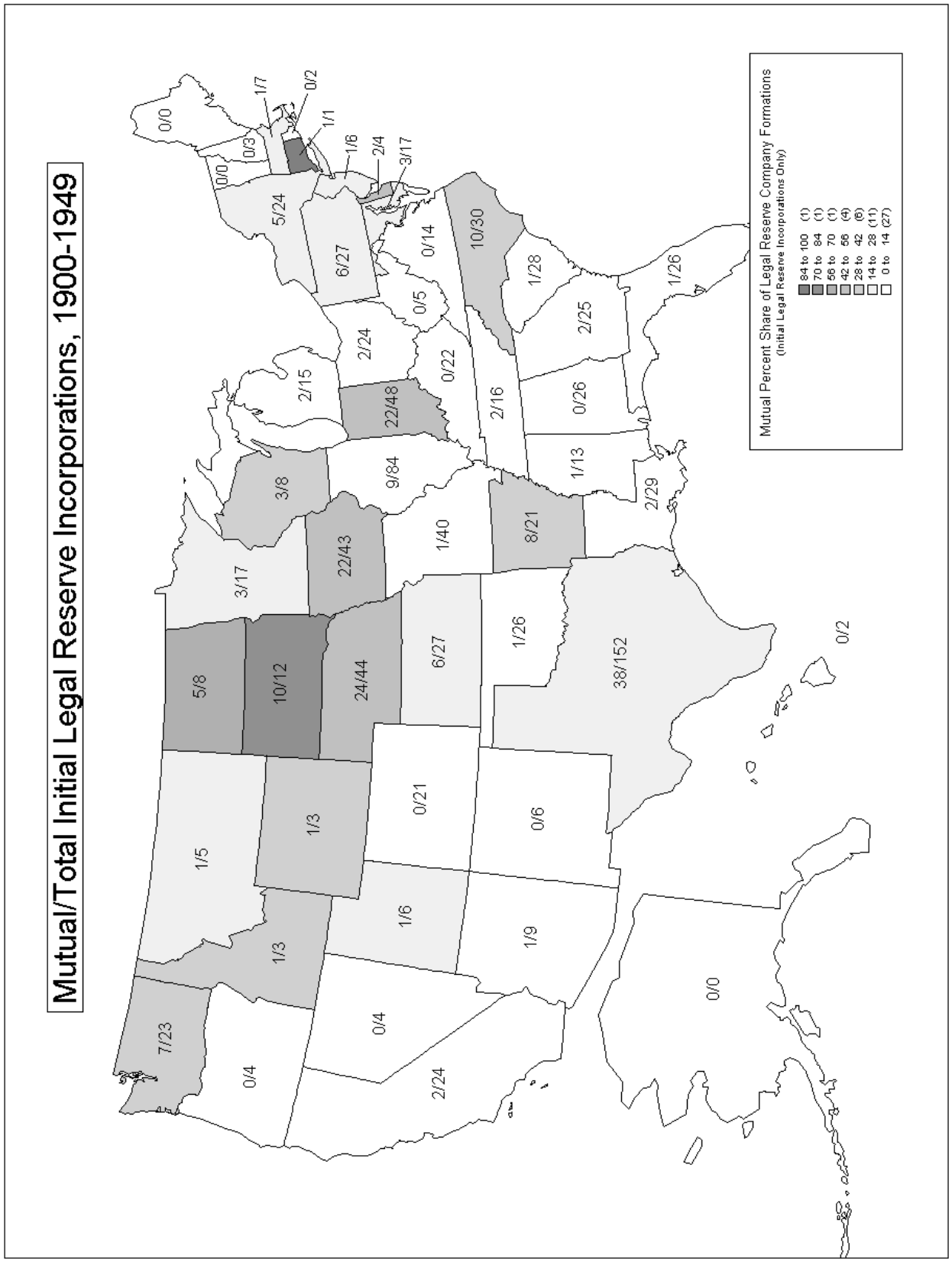


Figure 1 - Mutual and Total Legal Reserve Startups by State, 1900-1949

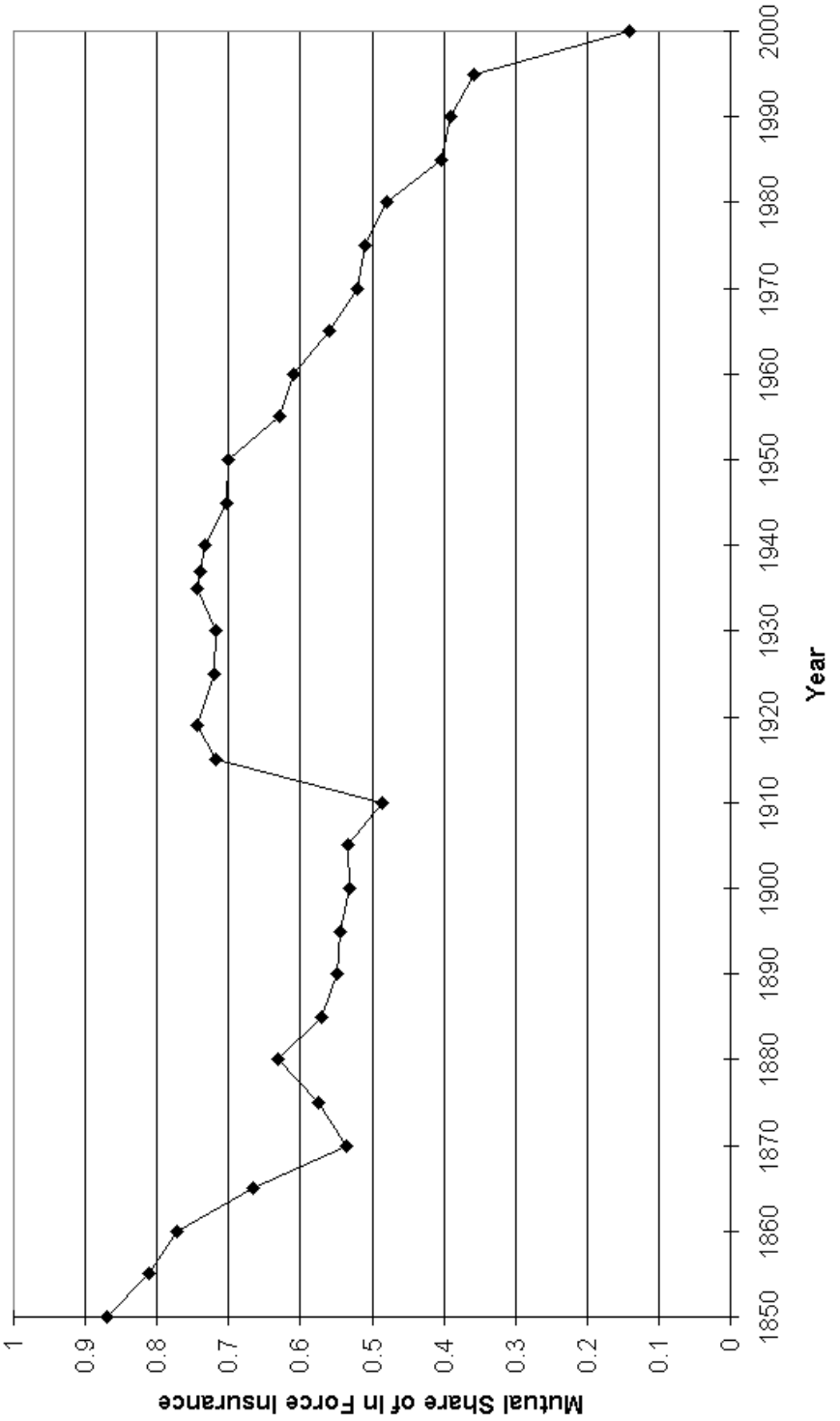


Figure 2 - Mutual Share of Legal Reserve Insurance In Force, 1850-2000.

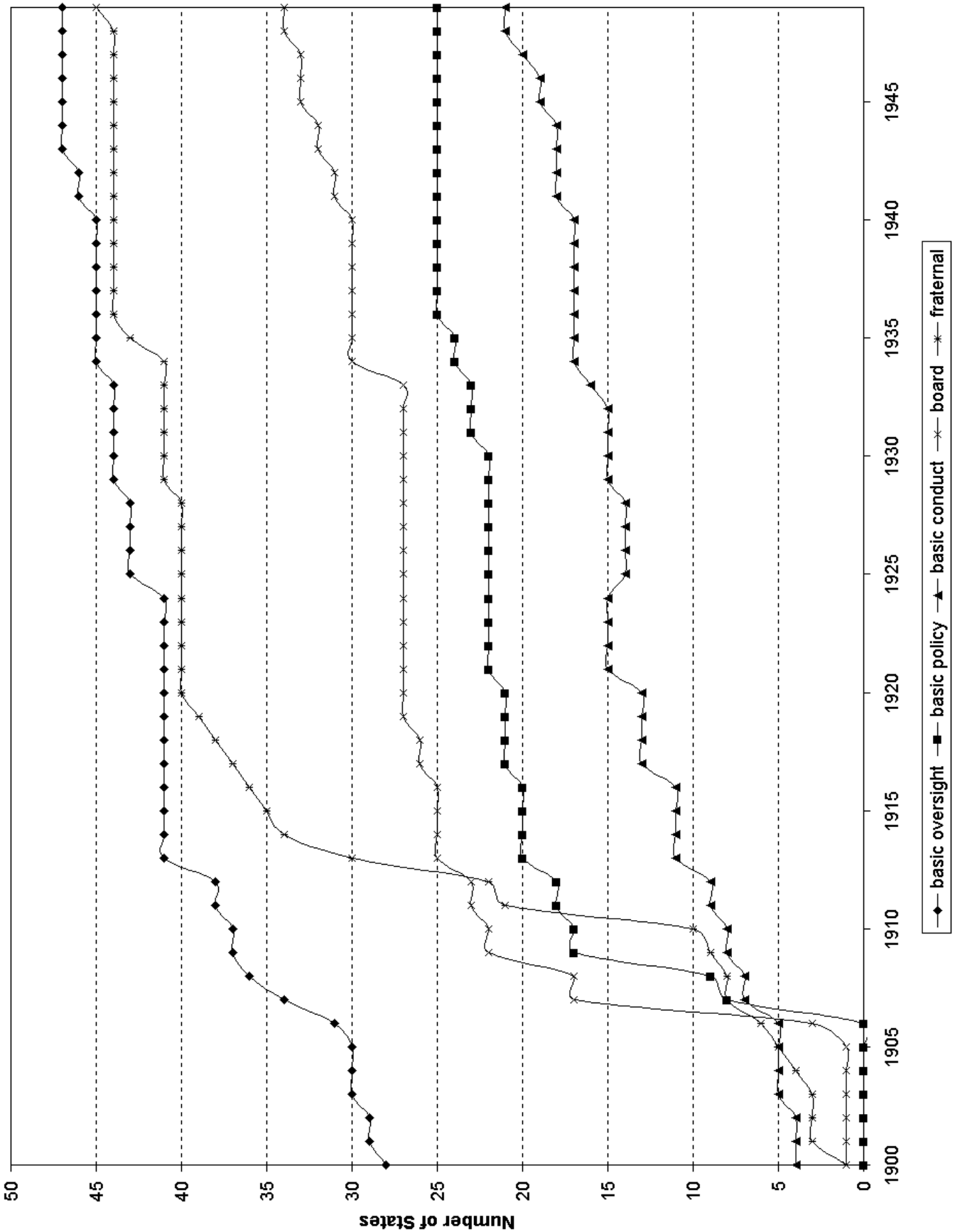


Figure 3 - Laws in Place by State and Year, 1900-1950

## Table 1

### Initial Financial Requirements for Stocks and Mutuals, circa 1925

| State | Stock | Mutual | State | Stock | Mutual |
|---|---|---|---|---|---|
| **Alabama** | $100,000 | $100,000 | **Montana** | $100,000 | $10,000 |
| **Arizona** | $100,000 | $0 | **Nebraska** | $125,000 | $0 |
| **Arkansas** | $100,000 | $20,000 | **Nevada** | $100,000 | $100,000 |
| **California** | $200,000 | $250,000 | **New Hampshire** | $200,000 | $100,000 * |
| **Colorado** | $100,000 | $100,000 | **New Jersey** | $100,000 | $30,000 |
| **Connecticut** | $0 | $0 | **New Mexico** | $100,000 * | $100,000 * |
| **Delaware** | $100,000 * | $0 | **New York** | $150,000 | $100,000 |
| **D.C.** | $0 | $0 | **North Carolina** | $50,000 | $0 |
| **Florida** | $100,000 | $100,000 | **North Dakota** | $250,000 | $0 |
| **Georgia** | $100,000 | $100,000 | **Ohio** | $100,000 | $100,000 |
| **Idaho** | $150,000 | $100,000 | **Oklahoma** | $100,000 | $100,000 |
| **Illinois** | $100,000 | $100,000 | **Oregon** | $150,000 | $100,000 * |
| **Indiana** | $100,000 | $25,000 | **Pennsylvania** | $200,000 | $200,000 |
| **Iowa** | $125,000 | *$6,000* | **Rhode Island** | $0 | *$0* |
| **Kansas** | $100,000 | *$6,000* | **South Carolina** | $20,000 | *$10,000* |
| **Kentucky** | $100,000 | $100,000 | **South Dakota** | $100,000 | $0 |
| **Louisiana** | $100,000 | $100,000 | **Tennessee** | $100,000 | $100,000 |
| **Maine** | $100,000 | $100,000 | **Texas** | $100,000 | *$8,000* |
| **Maryland** | $100,000 | $100,000 | **Utah** | $200,000 | $100,000 |
| **Massachusetts** | $0 | $0 | **Virginia** | $200,000 | $200,000 |
| **Michigan** | $100,000 | $100,000 | **Washington** | $150,000 | $150,000 |
| **Minnesota** | $100,000 | $100,000 | **West Virginia** | $200,000 | $200,000 |
| **Mississippi** | $50,000 | $0 | **Wisconsin** | $125,000 | $20,000 |
| **Missouri** | $100,000 | $100,000 | **Wyoming** | $100,000 | $100,000 |

Notes: Values depict total amount required before starting business. Italicized amounts are premium-based requirements that are estimated as described in the text. Asterisk (*) indicates that the value presented is from a date earlier than 1925. The earlier dates are for DE (1917), NH (1913), NM (1916), and OR (1909).

**Table 2a**
**Mutual Share of Total Start-Up Incorporations by Nominal Financial Requirement Levels, 1900-1949**

| | | Stock Requirements | | | Totals |
|---|---|---|---|---|---|
| | | $0 - $25,000 | $26,000 - $99,000 | $100,000 + | |
| Mutual Requirements | $0 - $25,000 | 2/57 | 6/27 | 114/343 | 122/427 |
| | $26,000 - $99,000 | 0/0 | 1/10 | 1/8 | 2/18 |
| | $100,000 + | 0/3 | 0/0 | 14/408 | 14/411 |
| Totals | | 2/60 | 7/37 | 129/759 | 138/856 |

**Table 2b**
**Mutual Share of Reincorporations by Nominal Financial Requirement Levels, 1900-1949**

| | | Stock Requirements | | | Totals |
|---|---|---|---|---|---|
| | | $0 - $25,000 | $26,000 - $99,000 | $100,000 + | |
| Mutual Requirements | $0 - $25,000 | 7/12 | 1/4 | 33/44 | 41/60 |
| | $26,000 - $99,000 | 0/0 | 0/0 | 3/3 | 3/3 |
| | $100,000 + | 1/2 | 0/0 | 28/90 | 29/92 |
| Totals | | 8/14 | 1/4 | 64/137 | 73/155 |

Only reincorporations by non-legal reserve institutions are included.

**Table 3**
**Legal Reserve Incorporations (including Reincorporations) by Decade**

| Decade | Stock | Mutual | Mutual Share |
|---|---|---|---|
| 1900 | 192 | 44 | 19% |
| 1910 | 159 | 26 | 14% |
| 1920 | 201 | 53 | 21% |
| **1930** | **111** | **55** | **33%** |
| 1940 | 137 | 33 | 19% |

## Table 4 - Incorporations and Financial Requirements by Decade

| | Start-Ups | | | | Reincorporators | | | | Total Number of Mutual-Favoring States* | Financial Requirements (38-state average) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mutual-Favoring States* | | Other States | | Mutual-Favoring States* | | Other States | | | | |
| Decade | Stock | Mutual | Stock | Mutual | Stock | Mutual | Stock | Mutual | | Stock | Mutual |
| 1900 | 36 | 16 | 146 | 7 | 2 | 12 | 8 | 9 | 12 | $84,474 | $62,632 |
| 1910 | 48 | 11 | 83 | 3 | 2 | 6 | 26 | 6 | 12 | $95,263 | $66,447 |
| 1920 | 44 | 40 | 133 | 7 | 4 | 1 | 20 | 5 | 13 | $110,395 | $73,237 |
| 1930 | 46 | 36 | 61 | 6 | 0 | 7 | 4 | 6 | 14 | $131,579 | $81,000 |
| 1940 | 55 | 11 | 66 | 1 | 3 | 7 | 13 | 14 | 13 | $139,474 | $82,776 |

* "Mutual-favoring" states had financial requirements of $100,000 or more for stock firms and $25,000 or less for mutuals. The total number of such states was counted at the end of each decade. The average financial requirements were calculated across the 38 states for which we had an uninterrupted history of requirements between 1900 and 1949. The (nominal) average is taken at the end of each decade.

# Table 5

## Sample Statistics

| Variable | Description | Mean |
|---|---|---|
| Mutual Dummy (Dependent Variable) | 1 if mutual, 0 if stock | 0.2087 |
| Mutual Requirement (MR) | cash requirement in millions of 2002 dollars | 0.8840 |
| Stock Requirement (SR) | cash requirement in millions of 2002 dollars | 1.4241 |
| Reincorporation Dummy (RD) | 1 if reincorporation, 0 if startup | 0.1533 |
| National Unemployment Rate | Percentage of civilian labor force unemployed x 100 | 6.6287 |
| Real interest rate | Basic 10-year corporate yield x 100 adjusted for inflation | 1.6014 |
| RD*MR | Interaction of Mutual Requirement with Reincorporation | 0.1589 |
| RD*SR | Interaction of Stock Requirement with Reincorporation | 0.2323 |
| ***Time Dummies*** | | |
| 1900-1904 | 1 if incorporation year, 0 otherwise | 0.0534 |
| 1905-1909 | | 0.1800 |
| 1910-1914 | | 0.1137 |
| 1915-1919 | | 0.0692 |
| 1920-1924 | | 0.0969 |
| 1925-1929 | | 0.1543 |
| 1930-1934 | | 0.0722 |
| 1935-1939 | | 0.0920 |
| 1940-1944 | | 0.0524 |
| 1945-1949 | | 0.1157 |
| 1900-1909 | | 0.2334 |
| 1910-1919 | | 0.1830 |
| 1920-1929 | | 0.2512 |
| 1930-1939 | | 0.1642 |
| 1940-1949 | | 0.1682 |
| ***Law Dummies*** | | |
| Valuation Deposit | 1 if law is in place, 0 otherwise | 0.1800 |
| Voucher | | 0.4500 |
| Political | | 0.1227 |
| Basic Oversight | | 0.9080 |
| Basic Policy | | 0.4491 |
| Basic Conduct | | 0.3541 |
| Other Expense | | 0.0495 |
| Compensation | | 0.3511 |
| Board | | 0.5094 |
| Fraternal | | 0.5697 |
| Armstrong | 1 if state has enacted 3 reforms since 1905, 0 otherwise | 0.5687 |
| RD*Fraternal | Interaction of fraternal law with reincorporation | 0.0880 |
| RD*Armstrong | Interaction of Armstrong with reincorporation | 0.0870 |

*Notes*: See Table 7 for detailed descriptions of the laws and the text for more information about the macro variables.

# Table 6

## Parameter Estimates for Pooled Logistic Model of Organizational Form Choice

| | Without State Effects | | | | With State Effects | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Reincorporation Dummy (RD) | 0.88 | 0.91 | 1.21 | 1.22 | **1.29**** | **1.26**** | **1.80**** | **1.78**** |
| | (0.72) | (0.74) | (0.82) | (0.82) | (0.60) | (0.60) | (0.64) | (0.63) |
| Mutual Requirement (MR) (in millions of 2002 dollars) | **-1.81**** | **-1.75**** | **-1.79**** | **-1.79**** | **-1.03**** | **-0.80**** | **-0.78**** | **-0.79**** |
| | (0.21) | (0.20) | (0.22) | (0.21) | (0.31) | (0.32) | (0.33) | (0.32) |
| Stock Requirement (SR) (in millions of 2002 dollars) | **0.75**** | **0.73**** | **0.94**** | **0.92**** | -0.03 | -0.16 | 0.21 | 0.19 |
| | (0.28) | (0.28) | (0.32) | (0.31) | (0.24) | (0.25) | (0.29) | (0.27) |
| RD*MR | **0.71*** | **0.66*** | **0.68*** | **0.65*** | **0.81**** | **0.70*** | **0.75**** | **0.70*** |
| | (0.37) | (0.34) | (0.37) | (0.35) | (0.37) | (0.36) | (0.38) | (0.37) |
| RD*SR | 0.47 | 0.47 | 0.34 | 0.38 | 0.32 | 0.34 | 0.02 | 0.10 |
| | (0.52) | (0.52) | (0.56) | (0.55) | (0.40) | (0.40) | (0.42) | (0.42) |
| National unemployment rate (x 100) | - | **0.04**** | - | - | - | **0.06**** | - | - |
| | | (0.01) | | | | (0.02) | | |
| Real interest rate (x 100) | **0.04**** | - | - | - | **0.06**** | - | - | - |
| | (0.02) | | | | (0.02) | | | |
| ***Time Dummies*** | | | | | | | | |
| 1905-1909 | - | - | -0.67 | - | - | - | **-0.89*** | - |
| | | | (0.42) | | | | (0.50) | |
| 1910-1914 | - | - | **-1.20**** | - | - | - | **-1.33**** | - |
| | | | (0.55) | | | | (0.53) | |
| 1915-1919 | - | - | **-1.35**** | - | - | - | **-1.68**** | - |
| | | | (0.65) | | | | (0.60) | |
| 1920-1924 | - | - | -0.05 | - | - | - | -0.11 | - |
| | | | (0.51) | | | | (0.52) | |
| 1925-1929 | - | - | -0.11 | - | - | - | -0.17 | - |
| | | | (0.50) | | | | (0.50) | |
| 1930-1934 | - | - | 0.36 | - | - | - | 0.55 | - |
| | | | (0.54) | | | | (0.54) | |
| 1935-1939 | - | - | 0.13 | - | - | - | 0.33 | - |
| | | | (0.51) | | | | (0.52) | |
| 1940-1944 | - | - | -0.56 | - | - | - | -0.31 | - |
| | | | (0.57) | | | | (0.62) | |
| 1945-1949 | - | - | -0.72 | - | - | - | -0.75 | - |
| | | | (0.47) | | | | (0.52) | |
| 1910-1919 | - | - | - | **-0.78*** | | | - | **-0.86**** |
| | | | | (0.43) | | | | (0.35) |
| 1920-1929 | - | - | - | 0.39 | | | - | 0.47 |
| | | | | (0.37) | | | | (0.33) |
| 1930-1939 | - | - | - | **0.70**** | | | - | **1.04**** |
| | | | | (0.31) | | | | (0.34) |
| 1940-1949 | - | - | - | -0.20 | | | - | -0.01 |
| | | | | (0.38) | | | | (0.37) |
| ***Implied Probabilities of Mutual Formation Under Different Scenarios*** | | | | | | | | |
| At the sample means | 13.41% | 13.44% | 12.83% | 12.88% | 13.07% | 13.08% | 12.44% | 12.50% |
| At MR=0 and SR=1.03257 | 33.12% | 32.26% | 30.27% | 30.44% | 24.53% | 22.09% | 18.78% | 19.16% |
| At MR=SR=1.03257 | 7.85% | 7.98% | 7.08% | 7.33% | 11.31% | 11.04% | 10.42% | 10.46% |
| **Observations** | 1011 | 1011 | 1011 | 1011 | 904 | 904 | 904 | 904 |

*Notes*: Standard errors are shown in parentheses. Standard errors in (1) through (4) are robust to clustering by state. Estimates of the intercept are omitted. Estimates of state fixed effects in (5) through (8) are omitted. The requirement used for the implied probabilities (1.03257) corresponds to 100 thousand 1925 dollars. Statistical significance at the 90% and 95% levels is indicated with * and **, respectively.

# Table 7 - Other Life Insurance Regulations

| Law | Description | Armstrong Reform? | Sample Mean | Fraction of States (1900) | (1950) |
|---|---|---|---|---|---|
| **Oversight** | | | | | |
| Annual Statement | Company obliged to provide annual report of financial condition and operations | No | 0.97 | 0.86 | 1.00 |
| Valuation | Commissioner obliged to make periodic valuation of company liabilities and assets | Yes | 0.91 | 0.61 | 0.96 |
| Examination | Commissioner empowered to examine the affairs of any licensed company | No | 0.98 | 0.84 | 1.00 |
| Voucher | Company obliged to establish voucher for any disbursement over a given sum | Yes | 0.45 | 0.00 | 0.53 |
| Valuation Deposit | Company required to deposit assets to cover liabilities | No | 0.18 | 0.08 | 0.16 |
| **Policy** | | | | | |
| Review | New policy forms must be filed with commissioner | Yes | 0.54 | 0.02 | 0.69 |
| Rebates | Rebating and price discrimination forbidden | Yes | 0.88 | 0.53 | 0.98 |
| Incontestability | Policy incontestable after a fixed period of time | Yes | 0.52 | 0.10 | 0.65 |
| Nonforfeiture | Ordinary life policies required to contain nonforfeiture provisions | Yes | 0.61 | 0.22 | 0.84 |
| **Conduct** | | | | | |
| Investments | Any law restricting the types of financial asset holdings | Yes | 0.85 | 0.57 | 0.92 |
| Dividend | Stockholder dividends allowed only out of surplus earnings | No | 0.71 | 0.51 | 0.71 |
| Political | Political contributions forbidden | Yes | 0.12 | 0.00 | 0.31 |
| Self-Dealing | Any law forbidding loans to employees or owners, or barring employees from receiving compensation for negotiating an investment purchase or sale | Yes | 0.47 | 0.18 | 0.61 |
| Compensation | Limits on pensions, bonuses, or contingent compensation for officers | Yes | 0.35 | 0.02 | 0.35 |
| Other Expense | Limits on acquisition or policy expenses | Yes | 0.05 | 0.00 | 0.08 |
| **Board Involvement** | | | | | |
| Salary | Salaries in excess of a specified sum must be approved by board of directors | Yes | 0.41 | 0.00 | 0.41 |
| Authorization | Investments must be authorized by board of directors | Yes | 0.34 | 0.02 | 0.51 |
| **Other** | | | | | |
| Fraternal | Any law requiring minimum rates or valuations of fraternal orders | No | 0.57 | 0.00 | 0.92 |
| **Constructed** | | | | | |
| Armstrong | State has implemented at least three Armstrong reforms subsequent to 1905 | - | 0.57 | 0.00 | 0.84 |
| Basic Oversight | Annual Statement + Examination + Valuation | - | 0.91 | 0.57 | 0.96 |
| Basic Policy | Review + Rebates + Incontestability + Nonforfeiture | - | 0.45 | 0.00 | 0.51 |
| Basic Conduct | Investments + Dividend + Self-Dealing | - | 0.35 | 0.08 | 0.43 |
| Board | Salary or Authorization | - | 0.51 | 0.02 | 0.69 |

# Table 8

## Parameter Estimates for Pooled Logistic Model of Organizational Form Choice

**(Without State Effects)**

| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Reincorporation Dummy (RD) | **1.54*** | **1.60**** | **1.82**** | **1.47**** | **1.53**** | **1.80**** |
| | (0.82) | (0.80) | (0.84) | (0.69) | (0.69) | (0.71) |
| Mutual Requirement (MR) | **-1.53**** | **-1.60**** | **-1.63**** | **-1.74**** | **-1.79**** | **-1.78**** |
| | (0.23) | (0.25) | (0.26) | (0.21) | (0.20) | (0.20) |
| Stock Requirement (SR) | **0.57**** | **0.64**** | **0.76**** | **0.68**** | **0.73**** | **0.83**** |
| | (0.20) | (0.21) | (0.20) | (0.26) | (0.27) | (0.27) |
| RD*MR | 0.50 | 0.54 | 0.57 | **0.68**** | **0.70**** | **0.69**** |
| | (0.35) | (0.39) | (0.38) | (0.34) | (0.35) | (0.35) |
| RD*SR | 0.37 | 0.35 | 0.28 | 0.49 | 0.47 | 0.41 |
| | (0.47) | (0.47) | (0.46) | (0.49) | (0.50) | (0.50) |
| RD*Fraternal | -0.56 | -0.61 | -0.54 | -0.12 | -0.14 | 0.04 |
| | (0.61) | (0.60) | (0.58) | (0.65) | (0.64) | (0.62) |
| RD*Armstrong | - | - | - | -0.87 | -0.89 | **-1.06*** |
| | | | | (0.56) | (0.55) | (0.58) |
| National Unemployment Rate | **0.04**** | - | - | **0.04**** | - | - |
| | (0.01) | | | (0.01) | | |
| Real Interest Rate | - | **0.05**** | - | - | **0.04**** | - |
| | | (0.02) | | | (0.02) | |
| ***Law Dummies*** | | | | | | |
| Political | **0.89**** | **0.95**** | **0.99**** | - | - | - |
| | (0.42) | (0.41) | (0.38) | | | |
| Voucher | -0.43 | -0.46 | -0.20 | - | - | - |
| | (0.48) | (0.51) | (0.52) | | | |
| Valuation Deposit | **0.84**** | **0.85**** | **0.73*** | - | - | - |
| | (0.39) | (0.38) | (0.37) | | | |
| Basic Conduct | **0.97**** | **0.97**** | **0.95**** | - | - | - |
| | (0.39) | (0.41) | (0.34) | | | |
| Basic Oversight | **1.33**** | **1.26**** | **1.35**** | - | - | - |
| | (0.59) | (0.58) | (0.59) | | | |
| Basic Policy | 0.62 | 0.75 | 0.51 | - | - | - |
| | (0.48) | (0.50) | (0.58) | | | |
| Board | **-1.06*** | **-1.09*** | **-1.26**** | - | - | - |
| | (0.63) | (0.61) | (0.59) | | | |
| Compensation | 0.51 | 0.47 | 0.43 | - | - | - |
| | (0.48) | (0.48) | (0.43) | | | |
| Other Expense | 0.06 | 0.00 | 0.28 | - | - | - |
| | (0.63) | (0.65) | (0.54) | | | |
| Fraternal | -0.09 | 0.12 | -0.36 | -0.33 | -0.17 | -0.46 |
| | (0.38) | (0.35) | (0.42) | (0.28) | (0.27) | (0.30) |
| Armstrong | - | - | - | **0.83**** | **0.88**** | **0.89**** |
| | | | | (0.37) | (0.35) | (0.34) |
| ***Time Dummies*** | | | | | | |
| 1910-1919 | - | - | **-0.79*** | - | - | **-0.98**** |
| | | | (0.43) | | | (0.44) |
| 1920-1929 | - | - | 0.59 | - | - | 0.17 |
| | | | (0.63) | | | (0.44) |
| 1930-1939 | - | - | 0.95 | - | - | 0.54 |
| | | | (0.61) | | | (0.46) |
| 1940-1949 | - | - | 0.00 | - | - | -0.34 |
| | | | (0.65) | | | (0.57) |

*Notes:* Standard errors (shown in parentheses) are robust to clustering by state. Intercept estimates are omitted. Statistical significance at the 90% and 95% levels is indicated with * and **, respectively. Observations: 1011.

# Table 9

## Parameter Estimates for Pooled Logistic Model of Organizational Form Choice

**(With State Effects)**

| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Reincorporation Dummy (RD) | **1.74**** | **1.92**** | **2.21**** | **1.73**** | **1.92**** | **1.93**** |
| | (0.71) | (0.71) | (0.74) | (0.76) | (0.76) | (0.77) |
| Mutual Requirement (MR) | **-0.78**** | **-0.92**** | **-0.77**** | **-0.86**** | **-1.04**** | **-0.94**** |
| | (0.33) | (0.33) | (0.33) | (0.35) | (0.34) | (0.35) |
| Stock Requirement (SR) | -0.19 | 0.05 | 0.11 | **-0.76**** | -0.40 | -0.43 |
| | (0.27) | (0.26) | (0.29) | (0.31) | (0.29) | (0.34) |
| RD*MR | **0.75**** | **0.81**** | **0.83**** | 0.60 | 0.59 | 0.60 |
| | (0.38) | (0.38) | (0.39) | (0.41) | (0.41) | (0.42) |
| RD*SR | 0.30 | 0.23 | 0.09 | 0.34 | 0.23 | 0.26 |
| | (0.40) | (0.41) | (0.42) | (0.45) | (0.45) | (0.46) |
| RD*Fraternal | 0.28 | 0.26 | 0.56 | -0.43 | -0.48 | -0.26 |
| | (0.55) | (0.55) | (0.57) | (0.56) | (0.55) | (0.57) |
| RD*Armstrong | **-1.00*** | **-1.08*** | **-1.30**** | - | - | - |
| | (0.59) | (0.60) | (0.61) | | | |
| National Unemployment Rate | **0.06**** | - | - | **0.07**** | - | - |
| | (0.02) | | | (0.02) | | |
| Real Interest Rate | - | **0.06**** | - | - | **0.06**** | - |
| | | (0.02) | | | (0.02) | |
| ***Law Dummies*** | | | | | | |
| Political | - | - | - | 0.88 | 1.04 | 1.12 |
| | | | | (0.93) | (0.93) | (0.97) |
| Voucher | - | - | - | **-1.01*** | -0.84 | -0.58 |
| | | | | (0.61) | (0.61) | (0.63) |
| Basic Conduct | - | - | - | **2.70**** | **2.71**** | **2.48**** |
| | | | | (0.65) | (0.67) | (0.69) |
| Basic Oversight | - | - | - | 0.60 | 0.48 | 0.58 |
| | | | | (0.90) | (0.91) | (0.90) |
| Basic Policy | - | - | - | 0.31 | 0.58 | 0.39 |
| | | | | (0.64) | (0.65) | (0.68) |
| Board | - | - | - | 0.18 | -0.10 | -0.19 |
| | | | | (0.72) | (0.74) | (0.75) |
| Compensation | - | - | - | 0.11 | -0.03 | -0.11 |
| | | | | (0.83) | (0.83) | (0.84) |
| Other Expense | - | - | - | -0.66 | -1.00 | -0.58 |
| | | | | (1.02) | (1.03) | (1.08) |
| Fraternal | -0.54 | -0.20 | **-0.89**** | -0.57 | -0.19 | **-0.82*** |
| | (0.36) | (0.35) | (0.45) | (0.38) | (0.36) | (0.48) |
| Armstrong | **0.96**** | **1.01**** | **0.85*** | - | - | - |
| | (0.36) | (0.36) | (0.45) | | | |
| ***Time Dummies*** | | | | | | |
| 1910-1919 | - | - | **-0.90**** | - | - | -0.68 |
| | | | (0.42) | | | (0.44) |
| 1920-1929 | - | - | 0.54 | - | - | 0.39 |
| | | | (0.51) | | | (0.55) |
| 1930-1939 | - | - | **1.25**** | - | - | **1.15*** |
| | | | (0.57) | | | (0.60) |
| 1940-1949 | - | - | 0.23 | - | - | -0.27 |
| | | | (0.59) | | | (0.64) |

*Notes:* Standard errors are shown in parentheses. Intercept and state fixed effect estimates are omitted. Statistical significance at the 90% and 95% levels is indicated with * and **, respectively. Observations: 904.