Regulation, Capital, and the Evolution of Organizational Form in US Life Insurance

By George Zanjani*

Over the past 150 years, the US life insurance industry has changed from one dominated by mutual companies to one dominated by stock companies. Mutual market share dropped from more than 85 percent in 1850 to about 15 percent in 2000. Mutual companies comprised nearly half of those operating in 1850 but less than 10 percent of those operating today. The industry's transformation—with ownership moving from consumers to investors—stands out as an extraordinary revolution in organizational form.

While many trends surely influenced the transformation, a common explanation stresses the emergence of state regulation.[1] In this view, the importance of consumer control over management declined as the insurance industry came under state supervision. Consumers then grew confident that firm owners and managers could not expropriate their funds and grew comfortable ceding control to outsiders. Regulation thus served as a benevolent assignment of Coasian property rights: by establishing and protecting claimant interests, it cleared a path for the stock form, which was in other respects more efficient than the mutual form, to ascend.

It is difficult to evaluate this argument with modern data. Entrepreneurs rarely opted for the mutual form after the early 1950s, so most of today's life mutuals, unlike their stock counterparts, are products of a bygone era. This paper takes the view that the basic motivations for mutual governance are best understood by examining the conditions under which mutuals were actually being formed. Thus, it turns to the first half of the twentieth century to study how the organizational form of new life insurers varied with state regulatory environments and macroeconomic conditions.

The main findings point to a significant regulatory influence, but not in the way suggested by the common explanation. In general, stronger state regulation was *not* associated with a decrease in the popularity of the mutual form. Popularity did, however, vary dramatically across states (see Figure 1), and this variation fit neatly with variation in the structure of initial capital requirements. Mutuals were formed in states that had low initial capital requirements for mutuals and differentially higher requirements for stock firms, but they rarely appeared elsewhere.

This suggests a new explanation for the decline of the mutual and a much different role for regulation in shaping the industry. Rather than embracing the benefits of strong state oversight, entrepreneurs appear to have taken the path of least resistance by adopting the mutual form only in situations where it enjoyed advantages in the form of relaxed capital requirements. As regulation evolved, however, the burden was not borne evenly. The rising emphasis on strong initial capitalization, as well as the elimination of differentials between requirements for stock and mutual firms, struck at the heart of the mutual form's inferior access to capital markets. Thus, the mutual's well-known disadvantage in raising capital (e.g., Scott E. Harrington and Greg Niehaus 2002; J. David Cummins and Krupa Viswanathan 2003) may have been a critical handicap for would-be startups in the presence of rising initial capital requirements.

The paper identifies two additional factors associated with mutuality, both of which offer

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[1] Variations on the explanation appear in the academic literature (e.g., Henry Hansmann 1985, 1996) and the practitioner literature (e.g., Ulrike Birkmaier and David Laster 1999; Phillippe Guijarro and David J. P. Hare 2002).

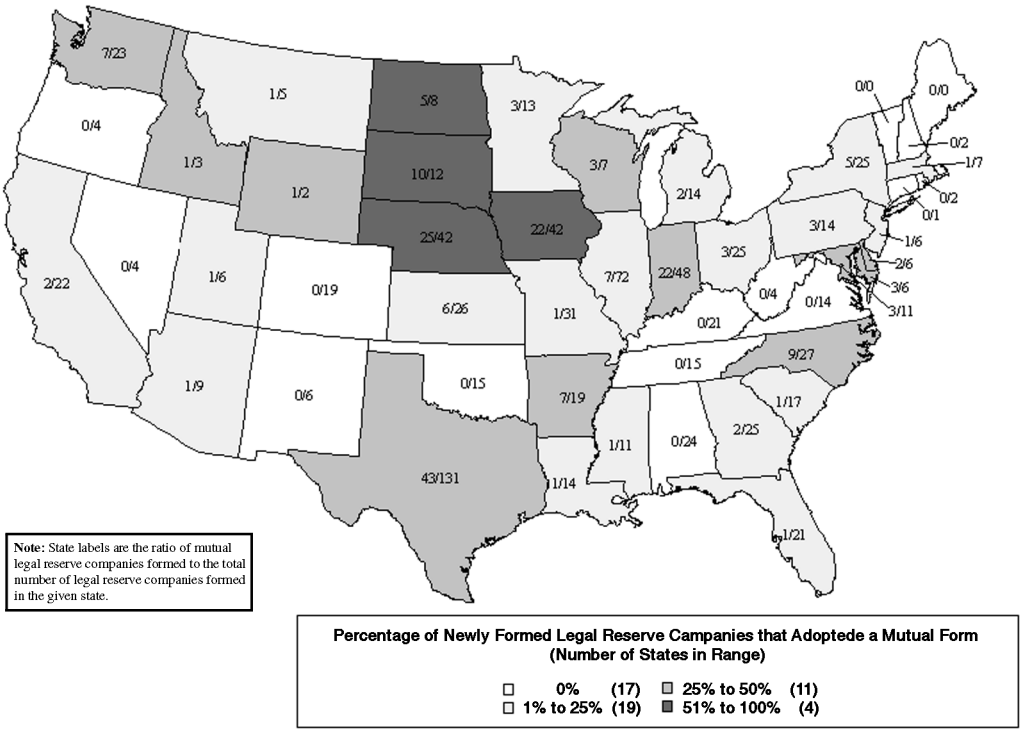

FIGURE 1. MUTUAL/TOTAL LEGAL RESERVE FORMATIONS, 1900–1949

further clues on the nature of the form and its decline. First, the relative popularity of the mutual increased during the Great Depression, echoing an association of mutuality with crisis observed elsewhere (see, e.g., Bruce D. Smith and Michael J. Stutzer 1995). While there are several possible (and not necessarily mutually exclusive) explanations for this association, one consistent with the other findings above is that mutual form adoption during "hard times" represents a substitution away from using capital in production when it is difficult or costly to raise capital. Second, the mutual form was significantly more popular with "nonprofit" life insurers (such as fraternal societies and assessment associations) that reorganized. Hence, the decline of that sector (see David T. Beito 2000) may have contributed to the decline in mutual form popularity indirectly through the reincorporation market.

More generally, this paper adds to a literature that studies the influence of regulatory, tax, and financing considerations on organizational form. Capital market access, financing policies, and regulation have been shown to be integral to organizational form in a variety of contexts (see, e.g., William M. Gentry 1994; Aswath Damodaran, Kose John, and Crocker H. Liu 1997; Jay F. Coughenour and Daniel N. Deli 2002; and Leslie Hodder, Mary L. McAnally, and Connie D. Weaver 2003). These themes are echoed here, where it is suggested that the interaction of regulation with organizational differences in capital market access exerted a profound influence on the organizational composition of the life market.

I. Background and Motivation

Figure 2 shows the mutual share of the US legal reserve life insurance market since 1850, along with a partial history of the number of mutuals in operation.[2] Although life insurance

[2] "Legal reserve" refers to companies that collect premiums in advance and operate under state laws mandating a minimum reserve for liabilities. Estimates exclude

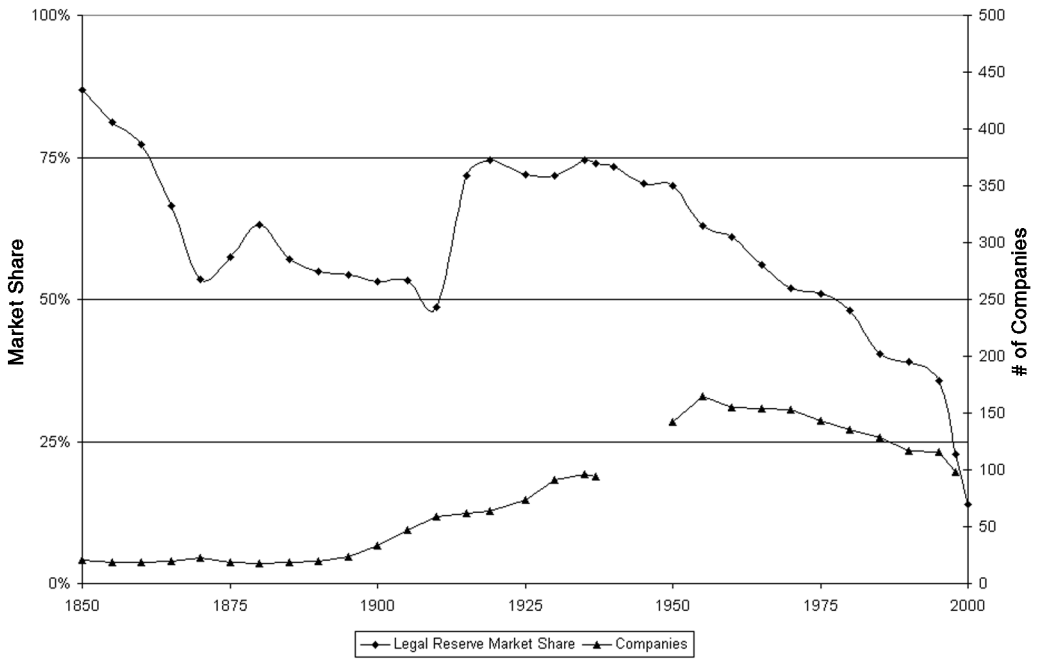

FIGURE 2. MUTUAL COMPANIES IN OPERATION AND MUTUAL SHARE OF LEGAL RESERVE LIFE INSURANCE IN FORCE, 1850–2000

Notes: Market share figures are based on the author's estimates for 1945 and prior; for 1950 and forward, ACLI figures (as reported in the Life Insurance Fact Book) are used. Company count estimates show the number of mutual legal reserve life insurance companies operating at the end of a year. Stalson (1969) is the source for 1937 and prior, while the ACLI is the source for 1950 and forward. No estimates are provided for 1938–1949, and the count estimate series ends in 1998. See the Data Appendix for details on sources and methodology.

in the United States existed earlier, the early 1840s are usually cited as the birth date of the modern industry. The mutuals of the 1840s revolutionized the business with agency marketing and dominated a rapidly growing industry by 1850 (J. Owen Stalson, 1969). Mutual market share ebbed after 1850, nearing parity with stock firms by 1870, before rebounding to 75 percent in the 1910s with the mutualization of three leading companies. It eased only slightly in the next few decades, but it declined steadily after 1950 and was ravaged by demutualization in the 1990s. The company counts also show a decline starting in the early 1950s: active mutuals peaked in 1953 at 171 (about 20 percent of all companies) but declined steadily thereafter and accounted for less than 10 percent of companies operating in 2000.

Regulation seems likely to have been a key influence on the industry's evolution. Soon after the industry's rebirth in the early 1840s, the foundation of modern US life insurance regulation was set in New York with a general insurance law in 1849 and the Deposit Law of 1851. These laws mandated annual reports, restricted investments, and required firms to make a deposit of $100,000. By 1900, nearly all states were engaged in regulation, with laws regarding solvency, investments, contract terms, and a variety of other aspects of the business. The Armstrong Committee investigation of 1905, which started after reports of corruption at the Equitable and uncovered abuses at many leading companies as it proceeded (see R. Carlyle Buley 1953, 193–247, for details), spurred the evolution of regulation in the twentieth century. Many of the committee's recommended reforms were adopted by New York in 1906 and,

fraternal orders, various benefit societies, and some small industrial companies. The Data Appendix (http://www.e-aer.org/data/june07/20040720_app.pdf) discusses the nuances of the "legal reserve" definition and provides sources for the figure.

TABLE 1—LIFE INSURANCE REGULATIONS

Law	Description	Armstrong reform?	Sample mean	Percent of states (1900)	Percent of states (1950)
Financial requirements					
Mutual requirement	Assets required of mutuals before starting business (in millions of 2002 dollars)	No	0.88	N/A	N/A
Stock requirement	Assets required of stocks before starting business (in millions of 2002 dollars)	No	1.48	N/A	N/A
Legal reserve regulations					
Annual statement	Company obliged to provide annual report of financial condition	No	0.98	86%	100%
Valuation	Commissioner obliged to make periodic valuation of company solvency	Yes	0.91	61%	96%
Examination	Commissioner empowered to examine the affairs of any licensed company	No	0.98	84%	100%
Voucher	Company must establish voucher for any disbursement over a given sum	Yes	0.44	0%	53%
Valuation deposit	Company required to deposit assets to cover liabilities	No	0.19	8%	16%
Review	New policy forms must be filed with commissioner	Yes	0.56	2%	69%
Rebates	Rebating and price discrimination forbidden	Yes	0.85	51%	98%
Incontestability	Policy incontestable after a fixed period of time	Yes	0.53	10%	65%
Nonforfeiture	Ordinary life policies required to contain nonforfeiture provisions	Yes	0.60	22%	84%
Investments	Any law restricting the types of financial asset holdings	Yes	0.86	57%	92%
Dividend	Stockholder dividends allowed only out of surplus earnings	No	0.70	51%	71%
Political	Political contributions forbidden	Yes	0.13	0%	31%
Self-dealing	Any law banning loans to employees/owners, or barring employees from receiving compensation for negotiating an investment purchase or sale	Yes	0.49	18%	61%
Compensation	Limits on pensions, bonuses, or contingent compensation for officers	Yes	0.35	2%	35%
Other expense	Limits on acquisition or policy expenses	Yes	0.05	0%	8%
Board	Officer salaries *or* investments must be approved by board of directors	Yes	0.51	2%	69%
Non-legal reserve regulation					
Fraternal	Any law requiring fraternal rates to be based on a recognized mortality table	No	0.63	0%	94%
Constructed					
Favor	Mutual requirement $<$ stock requirement	—	0.50	N/A	N/A
Regulate	State has enacted at least 13 of the "legal reserve regulations"	—	0.27	0%	28%

Notes: The Data Appendix gives details on sources and methods. The last columns show the fraction of mainland states (plus DC) with each law in place by 1900 and by 1950. This information is not available for financial requirements, since data are incomplete for state-years where there are no formations.

subsequently, by other states—although the timing and scope of adoption varied (see Table 1).

Variation in regulation across states and time allows us to study the link between regulation and organizational form. Importantly, a state's power to regulate insurance was unchecked during this era. In *Paul v. Virginia* (1869), the Supreme Court ruled that insurance was not commerce, thereby empowering states to regulate insurance transacted within their borders. The McCarran-Ferguson Act of 1945 preserved these powers after the Court's reversal in 1944, and state regulatory dominion over its insurance market remains largely intact even today. Hence, entrepreneurs wishing to sell insurance in a particular state could not circumvent that state's laws by incorporating elsewhere and, indeed, faced higher hurdles if they did, since

licensing standards were usually tougher for out-of-state companies.

Figure 1 shows striking variation in mutual form adoption across states during the 1900–1949 period. This offers a prima facie case for the importance of regulation and confirmation of previous findings on variation in organizational form by state (David Mayers and Clifford W. Smith 1994). It also suggests that the 1900–1949 period may offer insight into the nature of the mutual form and its decline.

TABLE 2—LEGAL RESERVE FORMATIONS (INCLUDING REORGANIZATIONS) BY DECADE

Decade	Stock	Mutual	Mutual share
1900–1909	173	41	19%
1910–1919	138	22	14%
1920–1929	170	49	22%
1930–1939	62	58	48%
1940–1949	132	36	21%
Totals	675	206	23%

II. Empirical Analysis

This section studies how mutual form adoption was related to regulation during the 1900–1949 period. We start by reviewing the data and identifying some salient patterns therein. We then present the econometric analysis.

A. *Data and Variables*

The sample of company formations is summarized in Figure 1 by state and in Table 2 by decade. It covers all legal reserve formations in the mainland United States between 1900 and 1949. The state, year, and form (stock or mutual) of each formation is known, and each is classified as a "startup" or a "reorganization." Reorganizations by non-legal reserve institutions—such as fraternal insurers and assessment societies—make up 26 percent of the sample. Methods of operation varied among these insurers prior to conversion, but, importantly, they typically faced much less regulation than legal reserve insurers: reorganization meant an expansion of powers (e.g., the ability to issue larger contracts) and more regulation.[3]

Insurance regulation data were collected from statute compilations and session laws (see the Data Appendix at http://www.e-aer.org/data/june07/20040720_app.pdf for details). The data cover regulations on consumer protection, governance, oversight, solvency, and initial financial requirements as they existed in the mainland United States between 1900 and 1949. Table 1 summarizes the data with indicator variables for each regulation and shows the percentage of states with a corresponding law in place in 1900 and 1950. Laws were assumed to apply in the year after enactment. The variables represent laws applying to legal reserve insurers, with the exception of the "Fraternal" variable—which indicates the presence of any law requiring new fraternal insurers to base rates on an established mortality table (thereby ending the practice of using post mortem assessments to fund benefits).

Initial financial requirement laws specified deposits of securities with the insurance commissioner, capital and surplus, or assets needed before starting business. We simplify by defining "requirements" as the minimum assets necessary to start business.[4] Importantly, some states set requirements for mutuals lower than those for stocks (the reverse was seen only rarely).

The striking association between form choices and financial requirement structure is shown in Table 3, which summarizes formations according to the requirements in place at the time and state of formation. "Startup" mutual formations were concentrated in circumstances characterized by (a) a low initial requirement for mutuals ($25,000 or less) and (b) a high initial requirement for stock firms ($100,000 or more). Over 40 percent of the 277 firms formed under these circumstances were mutuals. In contrast, only 6 of 303 startups took the mutual form when initial requirements for mutuals were high. A similar pattern is found among reorganizers, although the contrast is less pronounced. In

[3] The Data Appendix provides details on sources and methods behind the sample, as well as additional background on non-legal reserve forms.

[4] This masks differences in stringency. For example, capital and surplus (i.e., the excess of assets over liabilities) is a tougher standard than assets, since the latter can be met with premiums. Mutuals can raise capital/surplus through subordinated debt, but this is effectively their only option in the capital markets. The Data Appendix provides analysis based on more refined definitions of requirements.

TABLE 3—MUTUAL SHARE OF FORMATIONS BY NOMINAL FINANCIAL REQUIREMENT LEVELS, 1900–1949

	Startups				Reorganizers			
	Stock requirement				Stock requirement			
	$0–$25,000	$26,000–$99,000	$100,000+	Totals	$0–$25,000	$26,000–$99,000	$100,000+	Totals
Mutual requirement								
$0–$25,000	0/33	6/22	114/277	120/332	4/11	2/5	38/83	44/99
$26,000–$99,000	0/0	0/10	1/8	1/18	0/0	0/0	3/3	3/3
$100,000+	0/0	0/0	6/303	6/303	0/0	0/0	32/126	32/126
Totals	0/33	6/32	121/588	127/653	4/11	2/5	73/212	79/228

general, reorganizers adopted the mutual form more frequently than their startup counterparts.

B. *Regression Results*

Logistic regression is used to disentangle the associations between mutual formation and state financial requirements, other regulations, and other environmental variables. The unit of observation is a single formation, with the dependent variable ("mutual") being one when the formation is a mutual and zero when it is a stock. Two models are used, both of which address unobserved effects within states. The first is a pooled logit model with robust covariance matrix estimation (with no restrictions on the covariance structure within state "clusters"); the second is a conditional fixed-effects logit model, which explicitly recognizes state effects.[5]

Table 4 shows descriptive statistics for variables used in the regressions. Of the 881 pooled observations, 23 percent were mutual formations. Along with quantitative measures of financial requirements, two dummy variables from Table 1 are used as measures of regulation. The first ("favor") indicates situations where the mutual financial requirement was less than the stock requirement. The second ("regulate") indicates the presence of at least 13 of the 16 individual regulations listed in the "legal reserve" section of Table 1.[6] The decadal dummies indicate more observations in the earlier part of the sample, but Table 2 shows no clear trend in mutual form use: the form's high point came in the 1930s—when it accounted for 48 percent of formations. Variables interacting reorganization with financial requirements and with law dummies are included to allow for the possibility that regulation affected reorganizers differently than startups (as suggested by Table 3).

The fixed-effects approach has drawbacks (although Hausman tests reject the null hypotheses of homogeneity across states in each of the specification pairs). About 15 percent of the observations are lost—from 13 states where only stock insurers were formed. Also, time variation in financial requirements is limited. Seventeen states switched regimes with respect to financial requirement favoritism during the sample period (i.e., "favor" changed from zero to one, or vice versa), but, as shown in the Data Appendix, few of these had sufficient formations in the "before" and "after" periods for meaningful within-state comparisons.

Table 5 shows parameter estimates from both models. The results confirm a positive association between mutual form use and the presence of financial requirement differentials—both in specifications using the "favor" variable and those using the numerical requirements themselves. In the latter specifications, the estimated coefficient for "mutual requirement" was larger in absolute magnitude than that for "stock requirement," suggesting that financial hurdles were more problematic for the mutual form. The estimates are economically significant. Table 5 also shows predicted probabilities of mutual formation for different sets of financial requirements, using sample means for the nonfinancial regressors. Two sets of nominal requirements typical of the

[5] See Wooldridge (2002) for discussion of the models (482–92) and the robust covariance matrix estimation (405–08).

[6] The threshold of 13, met by 27 percent of the pooled observations and by only 14 states in 1950, was chosen to yield a strong standard in the context of the sample. Nevertheless, it is arbitrary, and variations on the statistical definition of strong regulation are explored in the Data Appendix.

TABLE 4—SAMPLE STATISTICS

		Pooled logit sample				Fixed-effects logit sample			
Variable	Description	Mean	Std	Min	Max	Mean	Std	Min	Max
Mutual dummy (dep. var.)	1 if mutual, 0 if stock	0.23	0.42	0	1	0.27	0.45	0	1
Mutual requirement (MR)	Requirement in millions of 2002 dollars	0.88	1.04	0	11.89	0.82	1.00	0	5.42
Stock requirement (SR)	Requirement in millions of 2002 dollars	1.48	0.72	0	5.81	1.52	0.72	0	5.81
Reorganization dummy (RD)	1 if reorganization, 0 if startup	0.26	0.44	0	1	0.27	0.45	0	1
Real interest rate	Basic 10-year corporate yield × 100 adj. for inflation	1.49	5.59	−13.38	16.40	1.44	5.66	−13.38	16.40
RD*MR	Interaction of reorganization with mutual requirement	0.24	0.72	0	11.89	0.24	0.62	0	4.02
RD*SR	Interaction of reorganization with stock requirement	0.38	0.74	0	4.02	0.41	0.77	0	4.02
Time dummies									
1910–1919		0.18	0.39	0	1	0.18	0.38	0	1
1920–1929	1 if year range covers formation date, 0 otherwise	0.25	0.43	0	1	0.25	0.43	0	1
1930–1939		0.14	0.34	0	1	0.14	0.35	0	1
1940–1949		0.19	0.39	0	1	0.19	0.39	0	1
Law dummies									
Favor	1 if MR < SR, 0 otherwise	0.50	0.50	0	1	0.57	0.50	0	1
Regulate	1 if state has 13 of 16 legal reserve laws, 0 otherwise	0.27	0.44	0	1	0.30	0.46	0	1
Fraternal	1 if state requires rates based on mortality table	0.63	0.48	0	1	0.62	0.49	0	1
RD*Favor	Interaction of reorganization with Favor	0.12	0.32	0	1	0.13	0.34	0	1
RD*Regulate	Interaction of reorganization with Regulate	0.08	0.27	0	1	0.09	0.28	0	1
RD*Fraternal	Interaction of reorganization with Fraternal	0.18	0.39	0	1	0.19	0.39	0	1
Observations		881 (47 states)				750 (34 states)			

Note: See Data Appendix for details on sources, methods, and variable construction.

sample are studied—a "mutual-favoring" set ($0 for mutual and $100,000 for stock) and a form-neutral set ($100,000 for both). The predicted probability of the mutual form adoption is substantially higher in the former case (e.g., 38 percent versus 4 percent in specification (3)).

The time dummy coefficients show mutual formation rebounding during the 1930s. The positive coefficient on the real interest rate variable hints at a more general connection between economic conditions and mutuality.[7] One possible interpretation is that capital is costly to raise when business conditions are unfavorable,[8] leading entrepreneurs to substitute toward

[7] Alternative measures of economic conditions and the cost of capital are considered in the Data Appendix. Some, including credit spreads and the unemployment rate, exhibited a strong association with mutual form use, while others, including measures based on stock valuations, did not. The real interest rate is used here because its association with mutual formation was relatively stable across the 1900–1925 and 1926–1949 subsamples.

[8] Several lines of research connect the cost of equity capital to business conditions. Adverse selection (e.g., Hyuk Choe, Ronald W. Masulis, and Vikram K. Nanda 1993) and poor investor sentiment (e.g., Michelle Lowry 2003) have been identified as contributors to high costs of equity issuance during cyclical downturns. Eugene F. Fama and Kenneth R. French (1989) link poor business conditions to the

TABLE 5—REGRESSION RESULTS FOR LOGIT MODELS OF ORGANIZATIONAL FORM CHOICE

	Pooled logit model				Fixed-effects logit model			
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mutual requirement (MR)	**−2.12****	—	—	**−2.12****	**−0.73***	—	—	**−0.92***
	(0.39)			(0.38)	(0.39)			(0.48)
Stock requirement (SR)	**1.03****	—	—	**0.92****	0.29	—	—	0.27
	(0.26)			(0.24)	(0.25)			(0.29)
Favor	—	**3.23****	**3.24****	—	—	**1.59****	**1.63****	—
		(0.45)	(0.44)			(0.56)	(0.60)	
Regulate	0.48	0.50	0.56	**0.63***	**1.86****	**1.80***	**1.95****	**1.96****
	(0.33)	(0.39)	(0.35)	(0.34)	(0.93)	(1.05)	(0.89)	(0.78)
Fraternal	0.45	0.15	0.45	**0.81****	0.40	0.25	**0.72***	**0.93***
	(0.43)	(0.41)	(0.34)	(0.37)	(0.57)	(0.57)	(0.44)	(0.49)
Reorganization (RD)	1.00	**3.71****	**3.69****	1.03	**2.22****	**4.41****	**4.40****	**2.10****
	(0.83)	(0.57)	(0.59)	(0.81)	(0.97)	(1.07)	(1.04)	(0.97)
RD*MR	**1.14***	—	—	**1.20****	**1.22***	—	—	**1.34***
	(0.61)			(0.59)	(0.65)			(0.72)
RD*SR	0.50	—	—	0.42	0.06	—	—	0.08
	(0.47)			(0.46)	(0.53)			(0.51)
RD*Favor	—	**−1.76****	**−1.77****	—	—	**−1.88***	**−1.89****	—
		(0.79)	(0.75)			(1.02)	(0.93)	
RD*Regulate	−0.84	−0.99	−0.95	−0.84	−1.47	−1.57	−1.45	−1.34
	(0.94)	(1.02)	(0.97)	(0.87)	(0.96)	(1.06)	(1.07)	(0.96)
RD*Fraternal	**−1.11***	**−1.15***	**−1.25****	**−1.18****	**−1.47****	**−1.47****	**−1.60****	**−1.58****
	(0.58)	(0.60)	(0.59)	(0.59)	(0.70)	(0.77)	(0.77)	(0.71)
1910–1919	**−0.97****	**−0.99****	—	—	**−1.01****	**−1.12****	—	—
	(0.44)	(0.40)			(0.51)	(0.51)		
1920–1929	0.29	−0.15	—	—	0.25	0.04	—	—
	(0.47)	(0.40)			(0.57)	(0.56)		
1930–1939	**0.93***	**0.80***	—	—	**1.12****	**1.07***	—	—
	(0.49)	(0.46)			(0.56)	(0.58)		
1940–1949	−0.08	−0.42	—	—	−0.01	−0.13	—	—
	(0.55)	(0.45)			(0.62)	(0.63)		
Real interest rate	—	—	**0.05****	**0.04****	—	—	**0.06****	**0.05****
			(0.02)	(0.02)			(0.02)	(0.02)
Constant	**−2.46****	**−4.02****	**−4.43****	**−2.56****	—	—	—	—
	(0.54)	(0.42)	(0.44)	(0.51)				
Conversion factor	0.110	0.112	0.116	0.113	—	—	—	—
Implied probabilities of mutual formation under different scenarios								
At the sample means	13%	13%	13%	13%	—	—	—	—
At MR = 0 & SR = 1.032571	30%	37%	38%	32%	—	—	—	—
At MR = SR = 1.032571	6%	4%	4%	7%	—	—	—	—

Notes: Dependent variable is "mutual" (1 if formation is mutual, 0 if it is stock). All standard errors (in parentheses) are robust to clustering by state. Statistical significance at 10 percent and 5 percent levels is indicated with * and **, respectively. Observations: 881 (47 states) in the pooled model and 750 (34 states) in the fixed-effects model. The requirement used for the implied probabilities (1.032571) corresponds to 100,000 in 1925 dollars. Conversion factors translate coefficient estimates into marginal effects at the sample means. Conversion factors and implied probabilities are not available in the conditional fixed-effects logit model since the state effects are not directly estimated.

the organizational forms that use less capital. Stock firms were required by some states to start with more capital, and, even absent such requirements, stock firms may have used stronger capitalization to compensate for any misalignment of owner and consumer incentives (relative to the presumably superior alignment offered by the mutual form—see, e.g., Tomas Philipson and Zanjani 2003). In either case, if

ex ante equity premium, while John R. Graham and Campbell R. Harvey (2005) link the ex ante equity premium to the real interest rate.

raising capital becomes more expensive during "hard times," the mutual form could gain favor.[9]

The coefficients on "regulate" are positive, though not statistically significant in all specifications. As discussed in the Data Appendix, this characterization—of a consistently positive but not always statistically significant association—applies to different model specifications and alternative definitions of the regulation index variable. Thus, other regulations (including fraternal regulations) were associated with higher mutual form use by startups, but the finding is not statistically robust.

A positive association does not support the common explanation for mutual decline but is not inconsistent with organizational form theory (e.g., Mayers and Smith 1981; Hansmann 1985, 1996), which offers ambiguous predictions on regulations' effects. One possibility suggested by theory is that regulations constraining management behavior favor the mutual form.[10] Another is that reforms aimed at consumer rights in mutuals (not analyzed here, but presumably correlated with the adoption of other reforms) made them more attractive due to stronger governance. Finally, a contrary view is that the association reflects a flight from oversight by managers, who sought refuge from outside investors (on newly empowered boards) and regulators (who may have subjected mutuals to less scrutiny after the Armstrong Report's endorsement of the form).

The reorganization dummy coefficient is positive (and statistically significant in most specifications), suggesting a stronger appetite for mutuality among reorganizers. In addition, the coefficients on the interaction variables suggest mitigated regulatory effects for reorganizing firms.[11] Two characteristics of reorganizers may help to explain these findings. First, reorganizers were already in business: they had accumulated assets, and some were operating in multiple states. Hence, regulations of the domiciliary state were only part of the equation, and financial requirements were less likely to constrain choice. Second, many reorganizers had started from forms built on consumer ownership: thus, existing infrastructure and managerial preferences may have favored mutuality, and policyholder or regulatory approvals required for conversion may have been easier to obtain when mutualizing.

The Data Appendix presents robustness tests and additional analysis. Alternative variables (including law variables) and sample constructions are considered, and various subsamples (including the sample of startups only) are analyzed. In general, the findings on financial requirements and time effects are robust, especially in pooled estimation. An analysis of the association between entry and regulation is also presented: the association was negative and consistent with financial requirements being a barrier to entry, although other interpretations cannot be ruled out.

III. Discussion and Extensions

The analysis suggests a more complex role for regulation in the evolution of the industry than previously suspected. Regulation does not appear to have "enabled" the stock form by protecting the consumer. Mutual formation thrived in the presence of most regulations, except when confronted with high initial capital requirements. We conclude by reexamining the rise and fall of the mutual form in the light of these findings.

A. *Regulation and Mutual Decline, Revisited*

A plausible interpretation of the results is that financial requirements elevated the importance

[9] Of course, there are other possible interpretations. For example, consumer trust of stock firms could have fallen during the Depression—although the strong performance of the life insurance industry during the 1930s (e.g., Buley 1953, 681–877) suggests that any distrust did not stem from failures within the industry itself.

[10] Steven W. Pottier and David W. Sommer (1998) note this as an implication of the "managerial discretion hypothesis." A related idea is offered by Linda P. Fletcher (1966), who attributes the mutualizations of the 1910s partly to the restriction of profit-making opportunities by Armstrong legislation.

[11] In all specifications, Wald tests fail to reject the null hypothesis that "Regulate" and "RD*Regulate" sum to zero. Tests in fixed-effects specifications yield similar results for the sums of "MR" and "RD*MR," "SR" and "RD*SR," and "Favor" and "RD*Favor," but the corresponding nulls are rejected at the 99 percent level in the pooled specifications. The null hypothesis that "Fraternal" and "RD*Fraternal" sum to zero is rejected (at the 90 percent level) in only one specification.

of access to capital in the calculus of entrepreneurs—who were also inclined to take a "path of least resistance" when one was available. Could changing financial requirements have played a role in the decline of the mutual? Exploring this question involves examining two key episodes of stock form ascent outside the sample period—the 1850s, and the latter half of the twentieth century.

The rise of the stock form in the 1850s coincided with major changes in regulation, including financial requirements. Hansmann (1996, 272) attributes the subsequent rise of the stock firm to consumer confidence bred by the spread of New York–style regulation. But others suggest that the key issue with New York's Deposit Law was the inability of mutuals to meet the $100,000 deposit requirement: Charles K. Knight (1920, 128) states that it "virtually prohibited the formation of any new mutuals," and Stalson (1969, 302) blames it for the withdrawal of 12 firms from the state.

Rising financial requirements, as well as a gradual elimination of requirement differentials, coincided with the decline of the mutual after 1950. Many of the mutual hotbeds of 1900–1949—including Arkansas, Iowa, Indiana, Nebraska, North Carolina, South Dakota, and Texas—raised requirements in the 1940s and 1950s. By 1974, all states had capital and surplus requirements (rather than asset-based requirements), the median requirement had increased substantially in real terms from 1949, and only two states had requirements comparable to those of the hotbeds in the 1900–1949 period.[12] Moreover, the relative advantage of the stock form in *meeting* capital requirements may well have increased since 1950: as capital market development brought greater liquidity for investor-held equity, the gap between the two forms with respect to ease of capital-raising seems likely to have grown wider.

Regulation of the nonprofit life insurance sector may also have contributed to the decline of the mutual in the legal reserve market, to the extent that regulation factored in the sector's decline. In any case, nonprofit sector market share (mostly fraternals) fell from 45 percent in 1900 to 3 percent in 1950, so the flow of reorganizers into the legal reserve market may well have slowed in the following decades.[13]

[12] See the Data Appendix for information on capital requirements after 1950.

B. *Capital and the Puzzle of Mutual Ascent*

The ascent of mutual life insurance took place in a largely unregulated market of the 1840s, so other factors must have influenced organizational form. One suggested by the empirical results is economic distress: a severe contraction occurred in the early 1840s, and this coincidence of mutuality and "hard times" was mirrored in the revival of mutual life insurance during the Great Depression.[14] The results here support a link, and one possible mechanism suggested above relates to changes in the cost of equity capital during contractions.

So, was the mutual form in the 1840s a "second-best" solution in an undeveloped capital market, doomed to extinction as improvements in capital markets extended the advantages of the stock form? The results here are not inconsistent with that view, but they suggest further that the form of regulation was key to the mutual's prospects for survival after the 1840s: regulation was a distinct influence that could reinforce or counteract other fundamental forces at work. The mutual persisted as a viable choice for entrepreneurs in those states that created opportunities for the form with capital requirement differentials, and it withered in those that emphasized strong capitalization for all companies. Ultimately, the migration of states toward the latter approach appears to have helped seal the mutual's fate.

[13] See Beito (2000, 130–42, 214–15) for an account of the onset of fraternal regulation and its effects. See the Data Appendix for more details on fraternal market share.

[14] The revival seems part of a broader phenomenon: mutual property-liability insurers and savings banks both gained share on their stock rivals during the early 1930s (see US Bureau of the Census *Historical Statistics of the United States, Colonial Times to 1970,* Series X 588–609, 821–33, and 933–46).

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