Financial Intermediaries and Consumer Complaints*

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Abstract

We investigate the role of intermediary ownership form in providing reliable financial services to consumers. Exploiting a novel dataset of the universe of consumer complaints to state regulators, we find significant differences between stock and mutual insurers in the number of complaints made about them. Consumer complaints stem from concerns over reduced claim settlements, delayed payments, customer care, and misconduct (e.g. redlining and fraud). Following natural disasters, consumer complaints about insurers, especially stock insurers, exhibit a significant upward spike in both the state affected by the disaster and the *unaffected* states. Contrary to our expectations, competition among insurers appears to intensify the relatively high number of consumer complaints about stock intermediaries. We also discover evidence to suggest that consumers in states with strong regulatory oversight of intermediary solvency experience less reliable service from stock insurers. Finally, we observe that within-state increases in the stock-mutual complaint wedge are followed by substantial increases in personal bankruptcies. Overall, our analysis indicates that intermediary organizational structure is an important component of consumer financial protection.

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Financial intermediary dealings with consumers receive substantial attention in the business press and among academics (Campbell et al., 2011). An important characteristic of the financial intermediary industry is the co-existence of multiple ownership forms that hold intrinsically different objectives, leading to distinct implications for how intermediaries behave towards consumers. Stock-based financial intermediaries are widely viewed as the most efficient, providing more reliable dealings with consumers than their mutual or credit union peers (Mayers and Smith, 1986). In a similar vein, Rasmusen (1988) highlights how mutual insurers exhibit severe conflicts between managers and policyholders due to limited external oversight and ineffective corporate governance. Others suggest that competition for customers and profits causes stock intermediaries to offer more reliable consumer treatment in order to build a consumer-friendly reputation (Berger and Hannan, 1998). Accordingly, the limited supervision of mutual intermediaries, relative to their stock peers, potentially fosters severe inefficiencies and poor consumer treatment (Erhemjamts and Leverty, 2010). However, it appears difficult for consumers to learn about unreliable financial intermediaries (Israel, 2005), allowing both mutual and stock insurers to co-exist (Easely and O'Hara, 1983). Overall, the financial intermediary literature indicates a declining role for mutual intermediaries because stock intermediaries attract managers of higher ability and provide better incentives to promote reliable intermediary services.

Arguably though, mutual financial intermediaries possess limited motivation to exploit policyholders to improve profitability since profits are returned to policyholders (Mayers and Smith, 1981). Conversely, Glaeser and Shleifer (2001) describe how stock intermediaries can be encouraged to reduce service reliability in order to subsidize returns. The distribution of profits to outside shareholders introduces the potential for a wealth transfer from policyholders to shareholders, creating incentives for stock intermediaries to take advantage of consumers relative to their mutual peers (Bubb and Kaufman, 2013; Rasmussen, 1988). Asymmetric information and behavioral issues can limit the capacity of market mechanisms, such as intermediary reputation and court remedies, to fully protect consumers in their dealings with financial intermediaries (Matvos et al., 2015; Egan, et al., 2016). If mutual financial intermediaries possess

fewer incentives to exploit their consumers, then the question of whether stock or mutual financial intermediaries provide more reliable financial services becomes an empirical issue.

We investigate the role a financial intermediary's ownership form plays in providing reliable financial services to consumers in the insurance industry; a sector with over $1 trillion in premiums each year (Mootz, 2002). Media accounts routinely depict instances where it appears that insurance companies delay payments and offer lower settlements than provided in the customer's policy agreement (e.g. Klas, 2013). Florida court records indicate that McKinsey and Company developed software to help Allstate and other insurance companies predict the lowest settlement payment for a consumer, based on the customer's immediacy needs, rather than the full severity of the insured event (Bloomberg, April 30, 2006). Focusing on cases settled just prior to their scheduled court date, Feinman (2010) argues that insurers typically delay and reduce consumer claims by 40% to 70% of the implied value in the policy. Financially fragile or constrained consumers, who comprise a large portion of U.S. households, are especially vulnerable to poor service quality, such as delayed payments and reduced settlement offers.

To compare consumer experiences between and within stock and mutual insurers, we analyze a unique dataset of consumer complaints and their regulator-adjudicated outcomes. Complaints to state regulators captured in the dataset cover a spectrum of consumer experiences with insurance intermediaries, ranging from misleading advertisements (ex ante) to reduced claim settlements (ex post). These concerns include egregious problems such as improper disclosures, regulatory noncompliance, and fraud. State regulators evaluate these grievances and the responses of insurance companies, and make a decision on the complaint. Consequently, the data allow us to capture consumer experience with all aspects of their engagement with insurers: marketing, underwriting, services, and claim handling.

We construct the dataset by manually collecting consumer complaint information for a seven-year period (2005-2011 inclusive) for each firm and each state, taking the data from the website of the National Association of Insurance Commissioners (NAIC). The NAIC data contain a rich set of information about these consumer complaints and their outcomes in the adjudication process. We focus on property-casualty (P-C) insurance, collecting detailed data on

the types of complaints on a variety of issues. Importantly, 60% of the complaints in our sample resulted in consumer success, suggesting that complaints provide a reasonable indicator of the quality of service provided by insurance intermediaries. The top three specific complaint types are: delayed claim (31%), reduced settlement offer (20%), and denial of claim (11%). Our full sample comprises 1,224 stock insurers and 522 mutual insurers.

To provide empirical evidence on the way consumers across the U.S. are treated in their dealings with financial intermediaries, we compare the nature and number of consumer complaints about stock insurers with those about mutual insurers. We also investigate two forces that potentially alleviate concerns about consumer treatment, namely, intermediary competition and state-level regulatory activity. Finally, we evaluate the implications of differing financial intermediary treatment of consumer by examining personal bankruptcies.

Our first set of tests indicates that stock insurers receive 21%-25% more complaints per year than their matched mutual counterparts. The type of complaint also matters, as the differences we observe between stock and mutual insurers are a result of more consumer complaints about delayed payments, reduced settlement offers, and misconduct by stock insurers. There are several plausible explanations for these findings. Greater complaints about delayed claims and reduced settlement offers may stem from differences in customer propensities to file complaints, from differing incentives to provide quality service or from stock insurers' efforts to limit policy holders' inflated claims for losses.[2] Consumers' choice of insurer type would suggest differing outcomes for their complaints; specifically, consumers of stock insurers should exhibit a lower probability of successful complaints, relative to consumers of mutual insurers. To assess whether consumer demographics, preferences, or expectations influence the results, we investigate complaint success rates (as independently determined by state regulators). We find no differences in success rates between mutual and stock insurers, despite a greater number of complaints against stock insurers.

Tests of complaints within insurers before and after random shocks allow us to better

[2] Insurers face substantial concerns and problems with deception by policyholders, and seek to limit fraudulent and exaggerated claims. The insurance industry estimates that almost 10% of the property and causality claims for damages involve either false or inflated losses http://www.insurancefraud.org/statistics.htm).

identify quality problems within an insurer by holding the profiles of the insurer's consumers constant. Natural disasters are plausibly exogenous and negatively affect intermediary profitability (Cortes and Strahan, 2015), providing an especially interesting opportunity to examine service quality. The source of identification derives from the within-insurer change in consumer complaints in the states *unaffected* by the disaster, which further alleviates the concern of a differential consumer response after the disaster in the *affected* states. Our test of the identifying assumptions indicates that complaints increase equally for both mutual and stock insurers within the affected state after a disaster. This evidence suggests that natural disasters indeed generate losses for insurance companies and that there is little difference between the two types of insurers regarding their direct impact on consumers.

The results in the *unaffected* states are striking. In the most important unaffected states consumer complaints about stock insurers rose by 27.9%; there was no similar increase for mutual insurers.[3] One interpretation of these results is that stock insurers devote fewer resources to consumer service than mutual insurers, a situation that is exposed when they are under pressure following a large natural disaster. In this context, one possibility is that stock insurers move scarce claim adjustors to the affected area after a natural disaster, leading to greater complaints relative to mutual insurers in unaffected states.

Greater competition between insurers within a state could foster market mechanisms or solutions, suggesting that, relative to mutual insurers, stock insurers may provide greater service quality due to concerns for their reputation. On the other hand, greater competition may also exacerbate the pressure to exploit consumers. The results indicate that relative to mutual insurers, stock insurers receive more consumer complaints in states with low industry concentration and greater insurer presence (i.e., where there is more competition). These findings suggest market mechanisms play only a limited role in providing incentives (or disciplining) stock insurers to protect consumer interests through service quality.

[3] Consider two examples from Oklahoma, where a large natural disaster occurred in 2008 and led to substantive losses for insurers. Company A, a mutual insurer in Oklahoma, also served a large number of consumers in Illinois. After the disaster, there was no impact on consumer claims against company A in Illinois. In contrast, company B, a stock insurer in Oklahoma that also had a substantial consumer base in Illinois, experienced an almost 30% increase in consumer complaints regarding service quality in Illinois.

Next, we study the extent to which regulation alleviates the problem of poor service quality in stock insurers. Our investigation exploits the heterogeneity among the different state regulators in the U.S. The results suggest an increasing, rather than diminishing, gap in service quality in states with a stronger regulatory body between stock and mutual insurers. To examine why strong regulators seem ineffective, we hypothesize that regulators face constraints due to their dual goals of insurer solvency and promotion of consumer interests through service practices. Consistent with the idea that regulators maintain insufficient resources or possess inadequate incentives to achieve both goals effectively, we find that complaints about stock insurers increase by 129% more when they are inadequately capitalized (i.e. approaching regulatory thresholds). Perhaps more surprising is that complaints against stock insurers become much more unsuccessful with the state regulators as the financial health of companies worsen (18.3% less successful). In addition, we exploit cross-state heterogeneity in policy pricing rules to gauge a regulatory measure intended to protect consumers. For every 10% increase in the portion of premiums subject to pricing regulation, stock insurers incur 5.7% more complaints than their mutual counterparts. This difference occurs across the full spectrum of complaints but is especially pronounced for complaints about claim handling (delay and reduced settlement offers) and misconduct.

Finally, to assess whether consumers potentially face costs from poor service provided by financial intermediaries, we study personal bankruptcies. Others describe the severe social consequences of insurer settlement delays and misconduct, pushing consumers into financial hardship (Reilly and Rosenthal, 2011). Because liquidity constraints can increase the probability of bankruptcy (e.g. Gross and Notowidigdo, 2011; Lusardi and de Bassa Scheresberg, 2013; Melzer, 2014), we expect practices such as delaying and reducing settlement payments to lead to more instances of personal bankruptcies. Using state and year fixed-effect models, we find that a one standard deviation increase in the complaint wedge between stock and mutual insurers in a given state is followed by a 7% increase in personal bankruptcies in the following year.

This study makes three important contributions to the literature. First, we provide new evidence on the deficiency in consumer financial protection by documenting substantial

problems regarding settlement delays, reduced settlement offers, and misconduct in the insurance industry. Evaluating consumer complaints provides the first empirical evidence on a comprehensive scale of ex ante and ex post financial intermediary reliability and financial consumer protection for an important type of financial service. This adds to the literature on consumer financial protection, which draws rising interest in the aftermath of the financial crisis (e.g., Agarwal, et al., 2014; Matvos, et al., 2015; Egan, et al., 2016). Moreover, this analysis suggests the need for greater focus on educating consumers about the reliability of services provided by financial intermediaries. Yet, such data is difficult to obtain from the NAIC, hard to interpret, and disappears from the website after three years. As widespread large insurance shocks occur infrequently, greater transparency about service quality would, potentially, facilitate consumer ability to evaluate intermediary reputation.

Second, our analysis offers evidence on the nature of industry composition in an area that includes both stock and mutual intermediaries. Stock intermediaries provide greater economic efficiency than mutual intermediaries (Mayers and Smith, 1986). Arguably, our evidence indicates this occurs at the cost of lower consumer financial protection. These experience goods occur with infrequent delivery and the local nature of learning makes it difficult for stock-based intermediaries to compete on service quality (Israel, 2005; Bolton et al., 2007; Agarwal et al., 2016). Yet, mutual intermediaries, relative to their stock peers, receive relatively few consumer complaints about claim settlements, delayed payments, customer care, and misconduct. We interpret this evidence to suggest that the continued co-existence of mutual and stock insurers potentially arises from greater efficiency in stock insurers and better consumer treatment by mutual insurers.

Finally, we add to the literature on the regulatory efficacy of financial intermediaries (Agarwal et al., 2014; Reeb et al., 2014). This paper is the first to highlight the impact of the regulator having dual goals in the regulation of financial intermediaries. Regulators focus on both financial intermediary solvency and service quality to consumers. Joskow (1973) and Kroszner and Strahan (1996) suggest that regulators place great emphasis on intermediary solvency to safeguard the state's guarantee fund. Our evidence supports this notion, implying that regulators

focus primarily on financial solvency, which puts pressure on their capacity to promote service quality, even in times of financial difficulty for consumers. Moreover, price regulation seems to lead to an increased practice of delaying and reducing insurance settlements by insurance intermediaries. These well-intentioned regulatory goals have unintended, costly consequences for consumers.

I. The Insurance Industry

I.A. Background Information

The insurance industry serves as an important financial intermediary with total written premiums worth 6.7% of the U.S. GDP and an asset size of $5.1 trillion in 2014. The insurance industry offers products in the form of contingent claims against loss and damage, essentially to all consumers in the U.S. economy. For example, *all* vehicle drivers must purchase auto insurance with compulsory minimum liability coverage. Most homeowners and a large proportion of renters in the U.S. have home insurance. According to the Insurance Information Institute, U.S. drivers have 213 million auto policies (information from the Automobile Insurance Plans Service Office), while homeowners (and renters) have 240 million insurance policies. The insurance industry also contributes to the economy by providing substantial employment—2.5 million jobs in 2014 (2.1% of the U.S. employment), according to the U.S. Department of Labor.

There were 6,118 insurers in the U.S. (including territories) in 2014, including 2,583 P-C insurers, 1,752 life-health (L-H) insurers, and 1,783 other insurers and related agencies.[4] Given the objective to gauge the service quality of insurers by using the volume of consumer complaints, our analysis focuses on the P-C insurers. Consumer complaints within the L-H industry may correlate only weakly with consumer experience, due to the obvious disconnect between purchasers and beneficiaries of these insurance policies—under life insurance policies claimants typically are not the policy buyer, and the purchase of health insurance is often tied to

[4] Other companies include specialty insurers that consist of fraternal (85), title (56), and risk retention groups (252); and other insurance agencies, brokers, and other insurance-related enterprises (1,390). These specialty insurers write only a small fraction of insurance premiums. Source: http://www.iii.org.

the employer's plan rather than being the individual's choice. P-C insurance companies represent a significant portion of the entire industry; they accounted for 44% ($502.6 billion) of the total premiums written in the U.S. in 2014.[5] The largest stock firms in our sample are Allstate and Berkshire Hathaway, while the largest mutual insurers are State Farm and Liberty Mutual.

The P-C industry exhibits the two major ownership forms we are analyzing: stock and mutual (Cummins et al., 1999). Mutual insurers are owned by their policyholders (or consumers) who also receive the residual cash flows (profits) from the business. In contrast, stock insurers are owned by shareholders, who receive the profits made on the policies held by consumers. Clearly, stock insurance companies have greater conflicts of interests with consumers than mutual insurers, especially after insurance policies are sold. Stock insurers, however, also have greater governance and reputational concerns than their mutual peers. Yet, both stock and mutual companies in the insurance industry are profit-seeking firms that offer similar product types, and are subject to the same regulatory scrutiny. Our central research question is whether these incentive differences in mutual and stock insurers translate into differing consumer financial protection.

It is important to note that the P-C industry has become more dominated by stock insurers over time. In 2009, stock insurers accounted for 70%-73% of the industry based on the size of the written premiums or assets (A.M. Best Company, *Best's Aggregates and Averages*, *P/C edition*, *2010***)**. Similarly, in the banking industry stock banks (i.e., commercial banks) are increasing in size relative to credit unions, which are owned by members (consumers). Based on asset size, commercial banks were nine times as large as credit unions in 2014.[6]

I.B. Regulatory Environment

The P-C insurance industry is heavily regulated at the state level (Joskow, 1973). While the NAIC seeks to coordinate many regulatory standards through model legislation across states,

[5] P-C insurance primarily consists of three lines: auto, home and commercial insurance. These insurance policies help individual consumers recover from losses stemming from car accidents, or from the effects of a disaster on their home arising from storms or fires.

[6] The statistics are obtained from the Federal Reserve Board and the National Association of Federal Credit Unions.

state regulators have authority to set their own standards and regulate the insurers operating in their state.

Regulation of insurers can be broadly classified into two main areas: solvency regulation and market regulation. Solvency regulations mainly focus on capital adequacy requirements. Every state has its own statutory minimum capital requirement. For example, according to the Uniform Certificate of Authority Application companies need to make to the NAIC, in Delaware the statutory minimum paid-in capital is $300,000 capital plus $150,000 surplus while in Washington DC it is $300,000 capital plus $30,000 surplus.[7] Note that the capital requirement for each state is set at a very low level, relatively, and does not serve as a binding constraint for insurers seeking to expand across states. Risk-based capital (RBC) requirements, which went into effect in the U.S. P-C insurance industry in 1994, mandate intervention by (state) regulators when the risk-based capital ratio (i.e., total adjusted capital divided by the risk-based capital) falls below 2.

Market regulations concern insurer licensing, policy provisions, pricing, market conduct and consumer complaints. Insurance companies must be licensed in each of the states in which they operate. Standards in each state differ in regards to price regulation (Grave and Leverty, 2010). While many states adopted competitive rating (CR) laws that allow insurers substantial pricing freedom in most lines of business, many others stringently regulate pricing. The two most stringent systems require insurers to use rates either approved by or determined by the state's regulatory authorities. The other regulated pricing requirements provide insurers with some degree of flexibility in setting and using their own rates (Harrington, 2002). Although each insurer must obtain a license and meet the capital and policy pricing requirements of each state it operates in, regulators typically concentrate their supervisory efforts on the locally domiciled insurers (and rely on other states to monitor the out-of-state insurers) to avoid duplication of regulatory endeavor across states (Grace and Phillips, 2008).

[7]Source: http://www.naic.org/documents/industry_ucaa_chart_min_capital_surplus.pdf

Finally, there is virtually no difference in capital requirements between stock and mutual insurers (Joskow, 1973)[8] and regulations governing policy rates do not differentiate between the two types of insurer, either. Nor can we find documentation indicating differences in other market regulations between stock and mutual insurers. In other words, stock and mutual insurers not only provide similar products but they also face the same regulatory scrutiny.

II. Data and Sample

II.A Consumer Complaints Data

When consumers cannot resolve their concerns about insurance service or claims with the agents or representatives of their insurer (including the consumer complaints department of the insurer), they can file a complaint against their insurer with the state regulator. Consumers need to provide supporting documents for their complaints. A copy of the complaint is sent to the insurer involved, which is given several weeks to respond before further action is taken by the regulator. For example, Illinois allows 21 days for an insurer or agent to respond to a complaint. After that, an experienced and independent arbitrator, assigned or approved by the state regulator, determines the validity of the complaint, whether the insurer has satisfactorily resolved it, and whether further follow-up actions are necessary. Consumer complaints yield a wide range of outcomes, including no-action required, company position upheld, complaint being withdrawn, insufficient information, compromised settlement, or disciplinary actions against the relevant insurer. Disciplinary actions that can be taken against insurers include a monetary fine and, in extreme cases, revocation of the insurer's license in the state.[9] The state regulator typically advises consumers about the outcome of their complaint within a few months of their filing.

State regulators collect all filed complaints and report them to the NAIC. With the goal of giving consumers information that will help them make their insurance purchase decisions, the NAIC compiles the regulators' reports into its online Consumer Information Source (CIS)

[8] In the early 1990s, mutuals had relatively lower capital requirements than stocks in some states. However, this differential has been eliminated since the mid-1990s (Zanjani, 2007).

[9] Consumers can also resort to their state's consumer protection division, the Better Business Bureau, or consider pursuing other legal actions. We do not observe their actions through these other venues.

database. The database provides reports on the number of closed consumer complaints by insurer and by year for each state the insurer operates in, along with key financial data about the insurer. For each insurer in a given year, the reasons for complaints are provided and classified into four types based on the different stages of consumer experience with an insurer: marketing and sales, underwriting, policyholder service, and claim handling (see Appendix A for detailed definitions of these types). Finally, the database tabulates the outcomes of closed complaints for every insurer in each year.[10]

Using the information on the NAIC website, we manually collect all the data for complaints against U.S. licensed P-C insurers for the seven years from 2005 to 2011. Table 1 provides a breakdown of the 136,232 complaints in our raw sample according to complaint type, reason, and outcome. Note that the complaint type and reason are not mutually exclusive categories, while the complaint outcome is unique for each case. Panel A shows that the vast majority of complaints (73%) concern claim handling. Panel B presents a frequency breakdown of the top ten reasons cited in the complaints. The NAIC data provide a very detailed list with over 80 types of complaint, but most of the complaints concentrate on a few common categories related to either the claim process or the underwriting process. For example, the top five reasons are: delay of claim (31%), unsatisfactory settlement offer (i.e., reduced settlement offer) (20.3%), denial of claim (11.3%), policy cancelation (7.3%), and premium pricing (6.4%). In the subsequent empirical analysis, we group the reasons into five broad categories reflecting the nature of the concern: policy termination; policy pricing and other terms; denial, delay and underpayment; misconduct; and customer care (refer to Appendix A for the detailed construction of these categories). We also classify the outcomes and are specifically interested in resolutions that are favorable to the consumer. In Panel C we tabulate the percentage of complaints that are resolved in: compromised settlement (to the consumer), the company's position being overturned, or a fine or other disciplinary action being imposed. Nearly 60% of complaints are based on legitimate claims, that is, the regulators overturned the company's

[10] While the number of consumer complaints is available for each of the operating states of an insurer in a given year, the data do not provide a breakdown of the complaint reasons by state nor a decomposition of the complaint outcomes by state or by the type of complaint reasons.

position, which suggests that consumer complaints serve as a good indicator of the quality of an insurer's service.

II.B Financial Data

We match the complaint data with the financial information on the insurers from the NAIC annual statement database. The main control variables in this study are the insurer's size (logarithm of net admitted assets), return on assets (ROA), underwriting profitability (to better capture the operating performance of the underwriting business), and the insurer's independent standing (i.e., it is not part of an insurance group). Information about ownership form (i.e., stock or mutual) of insurers is further cross-checked with *A.M. Best's Insurance Reports: Property/Casualty Edition* (*Best's Insurance Reports*),[11] and proxy statements of the publicly traded insurers. This renders 20,988 insurer-year observations for the 2005–2011 period. We drop all observations with non-positive assets, non-positive premiums written, and non-positive surplus. These insurers are either under regulatory capture or in the run-off state. This step reduces the sample size to 16,673 insurer-year observations. Finally, we restrict our sample to stock and mutual insurers, excluding those that switched from stock to mutual or vice versa within our sample period.[12] This leaves us with a final sample of 1,746 insurers (1,224 of which are stock insurers) and 10,867 insurer-year observations.

II.C Regulatory Environment Data

To examine the implications of the regulatory environment, we obtain information about the state-level regulatory staff, budget, and commissioner appointment process from the NAIC's 2010 Insurance Department Resources Report, and information on the state-level regulatory law on policy rates from the NAIC's *Compendium of State Laws and Regulations on Insurance Topics*.

III. Consumer Complaint Difference between Stock and Mutual Insurers

[11] A.M. Best Company, various years, *Best's Insurance Reports: Property/Casualty Edition* (Oldwick, NJ).
[12] There are 37 (2%) converters in our sample period and we exclude them to facilitate a cleaner interpretation as the (likely endogenous) switching decision makes these insurers distinct from others.

III.A Univariate Statistics and Matched Sample

Table 2 summarizes the financial characteristics of the stock and mutual insurers in our sample, and the consumer complaints about them. The first three columns report the mean statistics as well as the difference in the full sample between 1,224 stock and 522 mutual insurance insurers. During the period from 2005 to 2011, a typical stock insurer has an asset size of $121.6 million, which is 78% higher than the asset size of a typical mutual insurer and the difference is statistically significant at the 1% level.[13] In addition, stock insurers exhibit better financial performance than mutual insurers in general. For example, stock insurers has an annual ROA of 0.024, compared to 0.019 for mutual insurers, and the difference is statistically significant at the 1% level. Stock insurers also underwrite or operate in significantly more states and are much more likely to be part of an insurance group.

Turning to consumer complaints, stock insurers are associated with a much higher level of complaints filed with the regulators. A typical stock insurer is the subject of 45.6% (=exp(0.376)-1) more consumer complaints per year than mutual insurers. This difference is economically large and statistically significant (at the 1% level). The fact that the rate of consumer complaints differs may reflect the disparity in consumer treatment by the two types of insurers or be due to them having distinct clienteles and the associated difference in their clientele's perceptions of consumer treatment. However, if the higher rate of complaints for stock insurers is due to the selection of customers more prone to complaining, then these complaints should have a lower chance of success. Tracking the outcome of these consumer complaints, 62.9% of the complaints about stock insurers result in success, very similar to the 62.8% success rate for mutual insurers. The (almost) equal complaint success rate between the two types of insurers shifts the interpretation of the drastic difference in complaints from differing clientele behavior towards one that considers the possibility of a disparity in service quality between the two types of insurers.

[13] In general, the difference, say X, in log variables between stock and mutual insurers in Table 1 means a percentage difference equal to exp(X) – 1. For example, the difference of 0.577 in log assets between stock and mutual insurers (first row of column 3) suggests that the percentage difference is exp(0.577)-1 = 78%.

An obvious factor confounding the above interpretation lies in the difference in insurer characteristics between stock and mutual insurers. As indicated in Table 2, stock insurers are much larger and more profitable than mutual insurers. To address the observable differences in the key financial variables between the two types of insurers, we construct a matched sample. Specifically, we use the nearest neighboring matching algorithm and match the stock insurer with the mutual insurer based on log assets, ROA and the affiliation status. This exercise leaves us with 939 stock insurers and 498 mutual insurers, and columns 4-6 of Table 2 report the summary statistics of the matched sample.

After matching, there are no discernible differences between stock and mutual insurers in terms of size, measures of performance, or the percentage of insurers that are part of an insurance group. Although the gap in the percentage of complaints against each type of insurer diminishes somewhat, the rate of complaints remains significantly higher for stock insurers. On average, stock insurers in the matched sample receive 24.7% (=exp(0.221)-1) more complaints per year than mutual insurers, and the difference is statistically significant at the 1% level. Similarly, as before, there is no difference in the complaint success rate between the stock and mutual insurers. In sum, the univariate comparison in the matched sample provides the first evidence that the significant difference between stock and mutual insurers in the number of consumer complaints they receive appears to reflect a disparity in service quality and is not driven by observable differences in insurer size and profitability.

Admittedly, the particular matching procedure does not fully eliminate the observable differences between the two types of insurer. Table 2 suggests that stock insurers continue to operate in more states than their matched mutual insurer. We will address this issue explicitly in the next section and study an alternative matched sample that includes the number of underwriting states in addition to size, profitability, and affiliation status as the matching variables. The choice of the current matched sample arises from consideration of the size of the sample and the associated power issues in the empirical tests. Lastly, matching in this situation may not eliminate the *unobservable* differences between stock and mutual insurers. Our empirical identification strategy to test for differences in service quality between the two types relies on

plausibly exogenous shocks (explained in the subsequent sections) to examine the within-insurer response to consumer complaints after the shock.

III.B Baseline Specification

In this section we study the difference in consumer complaints between stock and mutual insurers using a multivariate regression framework. If stock insurers are better able to offer high quality service to consumers, then we expect them to receive fewer complaints than their mutual peers. Conversely, if stock insurers have less reason to provide high quality service to consumers than mutual insurers, then we expect them to receive more complaints.

Since the NAIC data includes the outcome of complaints aggregated at the insurer level, the unit of observation in our baseline specifications is an insurer in a given year. Specifically, we run the following regression specification:

$$Y_{i,h,t+1} = \alpha + \gamma_{h,t+1} + \beta_1 Stock + \Phi\overrightarrow{X_{i,t}} + \epsilon_{i,t} \quad (1)$$

where $Y_{i,h,t+1}$ is either the natural logarithm of one plus the number of consumer complaints received by insurer *i* domiciled in state *h* in time *t*+1 or the fraction of the complaints received by insurer *i* in year *t*+1 that results in consumer success (i.e., with outcomes of either compromised settlement in favor of consumers, insurer position being overturned, or disciplinary actions against the insurer). *Stock* is a dummy variable equal to one for insurers with stock ownership, and zero for mutual insurers. We include insurer characteristics in year *t* as controls, and we also include the insurer's home state (i.e., state of domicile)-year fixed effects to control for any time-varying macro conditions or regulatory activities in the insurer's home state. The independent variables (controls) are measured with one year lag relative to the dependent variables to take into account either the possible delay in consumer response in filing complaints or simply the lengthy time spent dealing with insurers before consumers can respond (recall that 31% of the complaints in the sample concern delay in claim processing).

Columns 1 and 2 of Table 3 report the matched sample results. In general, consumer complaints are positively associated with the insurer asset size and are negatively associated with

the insurer performance measures (i.e., ROA and underwriting profitability). Given that the insurer's assets are highly correlated with the size of the underwritten premium, these results suggest that insurers with a larger underwriting business, or insurers when their underwriting business experiences poor performance, appear to draw more consumer complaints. In addition, independent insurers are associated with fewer consumer complaints. More importantly, after controlling for these insurer characteristics, we find that, consistent with the pattern in the univariate statistics in Table 2, on average stock insurers receive 20.7% (=exp(0.188) -1) more consumer complaints than mutual insurers on an annual basis in our matched sample. The difference is economically large and statistically significant at the 1% level.

Although the complaint difference likely reflects the disparity in service quality between stock and mutual insurers, there exists an alternative interpretation that arises from (unobservable) differences in the insurance contracts or simply distinct consumer clientele between the two types of insurers, which lead to different consumer perceptions and the propensity to complain. To differentiate the two interpretations, we study the outcome of the complaints between stock and mutual insurers. If a typical stock insurer tends to attract consumers who are more likely to complain regardless of the quality of consumer treatment provided by the insurer, we would observe a significantly lower fraction of complaints *ex-post* proven to be legitimate claims against the insurer. Indeed, we find no statistically significant difference in the complaint success rate between the stock and mutual insurers (Table 3, column 2), which suggests the complaint difference is more likely to reflect the disparity in the service quality provided by the insurers.

For the baseline specification, we conduct one more set of analysis based on a different matched sample. This matched sample includes the number of underwriting states as an additional variable. As a result, stock and mutual insurers are matched not only by insurer size, performance and affiliation status, but uniformity in the number of states they operate in (for brevity we do not show the summary statistics of this matched sample). Then we repeat the analysis in equation (1) and the results are reported in columns 3 and 4 of Table 3. Consistently, stock insurers are subject to 24.6% (=exp(0.220)-1) more consumer complaints per year than

mutual insurers. The difference is statistically significant at the 1% level and is even greater in magnitude than the original matched sample results. We also study complaint outcomes in this matched sample and continue to find no difference in the success rate of complaints between the two types of insurer.

Overall, results based on this alternative matched sample, which exploit a broader set of matching variables, confirm our previous findings. In particular, they alleviate concerns that higher consumer complaints about stock insurers are driven by the omitted variables associated with the number of underwriting states. On the other hand, due to the large difference in the number of underwriting states between stock and mutual insurers in the full sample, the more comprehensive matching results in a significantly smaller (by 17%) sample. Given the consistency in the results in Table 3 for both samples, we use the full sample in the subsequent analysis to maximize the power of our empirical tests.

Lastly, to verify the external validity of the results in the matched sample, we repeat the analysis in the full sample. Consistent with the matched sample results, we find a 17% (=exp(0.157)-1) higher rate of consumer complaints per year for stock insurers in comparison to mutual insurers (Table 3, column 5). Again, in the full sample, the success rate for complaints about stock insurers is the same as that for mutual insurers (Table 3, column 6).[14]

An interesting ensuing question relates to the geographical variation in the complaint difference between stock and mutual insurers. Using the full sample of observations, we estimate the specification in equation (1) for insurers headquartered in each state (or district) in the U.S. respectively. We obtain the regression coefficients for *stocks* and plot the variation in the difference in complaints between stock and mutual insurers at the state level (Figure 1). There is evident geographical variation; in Kentucky, Rhode Island, Kansas, South Carolina, and Florida, stock insurers receive the greater percentage, comparatively, of consumer complaints, while in Colorado, Nevada, Virginia, Utah, and Washington DC mutual insurers receive the greater

[14] For completeness, we also re-estimated the rest of the analysis in the full sample instead of the matched sample. The only exception is Table 5 as the empirical identification requires the two types of insurers to have comparable profitability before the treatment. All results are qualitatively and quantitatively similar. For brevity, we present these results in Table A2 in the Internet Appendix.

percentage of complaints. It is important to note that the level and pattern of the cross-state heterogeneity suggests that the documented consumer complaint difference between stock and mutual insurers is not clustered either by location or by eminent economic indicators.

III.C Heterogeneity in the Types and Nature of Consumer Complaints

In addition to the number of consumer complaints, the NAIC data also provided a break down of complaints by type and reason for each insurer. This makes it possible for further analysis of the difference in consumer complaints between stock and mutual insurers.

First, we disaggregate the total number of consumer complaints for each insurer for a given year into four categories corresponding to the different stages in the process of a consumers' dealing with an insurance company: marketing and sales, underwriting, general policyholder service, and claim handling. Then we study whether the difference in incidence of complaints between stock and mutual insurers, as documented in Table 3, is uniformly distributed across these four categories. We use the same empirical specifications that are used for the information in Table 3 and the results are reported in Panel A of Table 4. Complaints about claim handling and policyholder service for stock insurers are 14.9% and 11.5% higher than those for the mutual insurers, and both coefficients are statistically significant, both at the 1% and 5% level. There is no statistically difference between the two types of insurer in the number of complaints regarding marketing and sales or underwriting.

Next, we explore in greater detail the reasons for consumer complaints. As described earlier, there is a detailed list of over 80 reasons in the original data obtained from the NAIC. We group them into five broad categories: policy termination; policy pricing and other terms; denial, delay, and underpayment of claims; misconduct; and customer care.[15] The first two categories describe specific concerns consumers have about the underwriting process. The 'denial, delay, and underpayment' category covers the major issues consumers perceive during the claim handling process. The 'misconduct; and 'customer care' categories capture concerns regarding unreliable or fraudulent practices that occur in marketing and sales, underwriting, or

[15] Please refer to Appendix A for detailed construction of the nature of complaints.

claim handling. We use the same empirical specifications as used for the Table 3 data; the results are reported in Panel B of Table 4.

The difference in the volume of complaints lodged against stock insurers compared with mutual insurers is largely driven by a greater number of concerns over denial, delay or underpayment of claims; misconduct; and service quality. In particular, consumers file 14.6% more complaints about denial, delay and underpayment of claims against stock insurers than mutual insurers. There are no observable differences regarding policy termination and pricing and other (contractual) terms between the two types of insurer. These results resonate with those in Panel A of Table 4. Taken together, the findings in Table 4 are consistent with the interpretation that stock insurers, due to their weaker reason or incentive to serve consumers well, are more aggressive in handling consumer claims in order to minimize expenses associated with their underwriting business.

III.D Natural Disasters as Negative Profitability Shocks

Previous findings in the matched sample, particularly for complaint outcome as well as heterogeneity in the types and nature of complaints, offer a remarkable pattern consistent with the interpretation that stock insurers provided poorer service quality by denying, delaying or underpaying their consumers' claims or engaging in fraudulent behavior. However, the above analysis largely captures the cross-sectional nature of the correlation. Specifically, we cannot fully eliminate concerns about the *unobservable* differences in product features or consumer characteristics between the two types of insurer that could explain, at least in part, the difference in the rate of consumer complaints against each type of insurer.

To identify a causal channel, we analyze exogenous shocks to insurer profitability and study the response in complaints rates for each insurer. A negative profitability shock erodes the already weak incentives to serve consumers, especially in stock insurers. If the rate of consumer complaints truly reflects an insurer's service quality, we would expect a larger increase in

complaints about stock insurers after a negative profitability shock compared with mutual insurers.[16]

Specifically, we take natural disasters such as thunderstorms, hurricanes, floods, wildfires, and tornados as negative profitability shocks to insurance insurers. Severe natural disasters, specifically those that cause significant property damage, will lead to a large number of claims, and consequent large increases in expenses and decreases in profits for exposed P-C insurers.[17] These shocks are plausibly exogenous to insurers' behavior in the period before the event for the following reasons. First, an insurer's choice of location of their operation is determined long before the occurrence of the disasters in our sample period. Second, while it remains feasible that insurers could have a reasonably good idea of disaster-prone locations, the precise timing and severity of the disasters are much less predictable. This makes insurers less able to change their behavior in full anticipation of a severe natural disaster in the near future. More importantly, to isolate the impact of an exogenous profitability shock on insurer's responses to consumer claims, we make use of the fact that a typical insurer operates in multiple states (see summary statistics in Table 2). When a natural disaster hits state A, the exposed insurers—those that operate in state A—tend to also be operating in states that do not experience the natural disaster. By focusing on the change in consumer complaints in the no-disaster states of exposed insurers, we further alleviate concerns about the unobservable characteristics in product features or consumer profiles that may correlate with the disaster risk in the affected locations.

We obtain natural disaster data from the Spatial Hazard Events and Losses Database (SHELDUS), which is a county-level dataset covering the U.S. It categorizes various natural hazard events by type, including thunderstorms, hurricanes, floods, wildfires, and tornados. We identified large disaster events in our sample period, specifically those that result in losses at the state level of over $500 million. We focus on states with a *single* large disaster in our sample

[16] An alternative empirical strategy is to exploit changes in organizational structure (e.g., demutualization) to identify the effect of ownership form on consumer complaints. A practical limitation in implementing this strategy lies in the fact that we have less than 30 insurers in our sample that have changed from mutual to stock or vice versa. That said, we have performed the regression analysis to study the within-insurer complaints response after the organizational structure change and do find a positive relationship between the stock ownership status and complaints. However, the results are statistically insignificant, highlighting the power issue.

[17] For example, in the five-year period between 2009 and 2013, wind and hail accounted for the largest share of claims, affected 3.2% of the insured homes with an average loss of $8,793.

period, removing those that experience multiple disasters. As a result, we identify six states, Wisconsin, California, Iowa, Oklahoma, Texas, and Tennessee, as the *hit* states with a staggered timing of severe natural disasters during the sample period, 2007 and 2010.[18]

To increase the power of our empirical analysis, we study insurers that experience a greater level of negative profitability shock induced by such disasters. Specifically, we define insurers as *heavily exposed* if they underwrite more than 5% of their total premiums in one or more of the six hit states in the disaster year. Given the staggered nature of the disaster shocks, we restrict our analysis to complaints in the no-disaster states of heavily exposed insurers (treatment states). To ensure our treatment states are truly free from (damaging) disasters, we require that the no-disaster states are not one of the six states that experienced $500 million in losses and are not among the five states with the highest losses in the same year. In addition, to warrant a comparable profitability condition between the stock and mutual insurers before the natural disaster, we use the matched sample in the analysis. Then we run the following regression,

$$Y_{i,s,t+1} = \alpha + \rho_i + \lambda_s + \tau_{t+1} + \beta_1 1_{nodisaster\ state\ pre} + \beta_2 1_{nodisaster\ state\ post} + \beta_3 1_{\ nodisaster\ states\ post} \times Stock + \Phi\overrightarrow{X_{i,t}} + \Gamma\overrightarrow{Z_{i,s,t}} + \epsilon_{i,s,t} \quad (2)$$

where $Y_{i,s,t+1}$ is the (natural logarithm of one plus the) number of consumer complaints for a given insurer *i* in its underwriting state *s* in year *t*+1, and $1_{nodisaster\ state\ pre}$ and $1_{\ nodisaster\ state\ post}$ are the treatment dummy variables for the post- and pre- period respectively (please refer to Appendix A for detailed definitions of the variable construction). To study the differential effect between stock and mutual insurers, we also include an interactive term between $1_{\ nodisaster\ state\ post}$ and the *Stock* dummy variable. We include a pre-disaster dummy variable ($1_{nodisaster\ state\ pre}$) as a validation test of our empirical identification strategy: if these natural disasters are truly exogenous shocks, we expect to see no change in consumer complaints in the period immediately before the disaster event. We control for the insurer-level

[18] Specifically, the timing of the natural disaster events is as follows: 2007 for Michigan and California, 2008 for Iowa, Oklahoma and Texas, and 2010 for Tennessee. We did not consider disasters before 2007 or after 2010 to ensure two years of observations in the pre-disaster period and one year of observations after the disaster event.

variables ($\overrightarrow{X_{i,t}}$) as well as insurer-state-level characteristics ($\overrightarrow{Z_{i,s,t}}$), and include (underwriting) state (λ_s), year (τ_{t+1}), as well as insurer (ρ_i) fixed effects in the regression. Standard errors are clustered at the insurer level. To interpret, given a natural disaster event in year *t,* the coefficient β_2 captures the consumer complaints in a no-disaster state in year *t*+1 for the heavily exposed *mutual* insurers relative to the complaints in the same state of the same insurer in the period before the natural disaster event. The coefficient β_3 thus measures the incremental change in consumer complaints after a natural disaster in a no-disaster state about heavily exposed *stock* insurers. We report the regression results in Table 5.

In the first column of Table 5, we first study the average consumer complaint response after the disaster shock without distinguishing stock and mutual insurers. On average there is no significant change in complaints in the no-disaster states of the heavily exposed insurer. However, when we separate stock and mutual insurers, we observe different responses in complaints. Column 2 of Table 5 shows that relative to the change in complaints in the no-disaster states of heavily exposed mutual insurers, their stock counterparts experience a 2.5% (=exp(0.025)-1) increase in complaints in the year following the disaster. At the same time, we find no difference in complaints in the disaster year from those in the pre-disaster period. Given that complaints are likely a lagging measure of insurer's service quality, the lack of complaint response in the disaster year suggests that the disaster events are uncorrelated with insurer's pre-disaster behavior, validating our identification strategy.

The effect of a 2.5% increase in complaints in the no-disaster states of heavily exposed stock insurers relative to their mutual counterparts may appear marginal both in economic magnitude and statistical significance (*p-value* = 0.093). However, this is likely a weak test by assuming a uniform effect across all no-disaster states in which an insurer underwrites. To further gauge the heterogeneity in complaint response about the stock insurers, we hypothesize that if the negative profitability shock compels stock insurers to engage in more aggressive consumer practice ex post, it would be more economical for them to concentrate such practices in a few states where they have a large underwriting business. Alternatively, insurers may need to mobilize limited company resources in order to respond to the large number of claims in the

disaster states; leading insurers to deploy means or make transfers from their larger underwriting states, which in turn produces deteriorating service quality in those states. In addition, the heterogeneity test can also help address an alternative interpretation that stock insurers (more promptly) respond to the disaster state's experience and revise the claim processing standard in *all* states, resulting in an increase in complaints in the no-disaster states.

To test this idea, we identify, within each insurer, the no-disaster states that comprise 25% or more of the insurer's total underwriting business in a year.[19] We label such a state as *Important state,* which typically corresponds to the top one or two underwriting states for an insurer. Then we interact $1_{nodisaster\ state\ post}$ with the *Important state* dummy and repeat the specification in equation (2). To ease interpretation, we perform the regressions for the heavily exposed stock and mutual insurers separately. Column 3 of Table 5 shows that for the heavily exposed stock insurers, the increase in consumer complaints after the disaster shock is driven by the top one or two underwriting states of the insurer; complaints increase by 27.9% (=exp(0.246)-1) in these states in the one year following the disaster event. The effect is both economically large and statistically significant at the 5% level. In comparison, there is no difference between the *Important state* and the rest for mutual insurers; the coefficient estimate is small (0.003) and statistically indistinguishable from zero.[20]

In sum, these results cast a causal interpretation of the complaint difference between stock and mutual insurers. One explanation of these results suggests stock insurers are ex ante less prepared or staffed for consumer service, resulting in insufficient resources to respond to consumer needs after large natural disasters. In this context, one possibility is that stock insurers move their limited claim adjustors after a natural disaster, leading to greater complaints in these unaffected areas.

[19] While the choice of 25% seems ad hoc, we repeat our analysis using the continuous variable, the share of the state's written premium over the insurer's total written premium in a year, and find the same results. To facilitate interpretation, we report the results using the dummy variable based on the 25% cutoff in the paper.

[20] To formally test the statistical difference, we also include both stock and mutual insurers in the same regression and conduct an F-test of the incremental effect of important state in stock insurers in the post-disaster year relative to the important states of their mutual counterparts in the post-disaster year. The F-stats are highly statistically significant, supporting a strong and positive incremental effect in the stock insurers.

Lastly, as a further verification of our empirical design, we consider it useful to study whether insurers are indeed affected by the natural disasters in the six hit states and whether stock and mutual insurers are affected in a similar way. To the extent that severe natural disasters cause a numerical increase in claim requests, we would also expect an increase in consumer complaints (whether an insurer's service quality in the hit states changes or not). In Table A1 in the Online Appendix, we indeed observe such a pattern. Consumer complaints in the six hit states increase in the year following the natural disaster, and the increase is substantially greater for insurers that are heavily exposed, i.e., those with a significant underwriting business in the hit states. In addition, heavily exposed mutual and stock insurers both experience an equally significant increase in complaints, suggesting that the effect of the shock in stock and mutual insurers is of comparable intensity[21]. Finally, there is no change in the number of complaints in the disaster year relative to the pre-disaster period, further validating our empirical identification.

III.E. Can Competition Mitigate Insurers' Conflict of Interest with Consumers?

A question naturally follows as to whether there are any market mechanisms that could alleviate the conflict of interest between insurers and their consumers. One appealing argument concerns the effect reputation may have on (potential) consumers, a consideration that would encourage insurers, particularly stock insurers, to incorporate consumer welfare into their service practices. Arguably concerns about reputation manifest most strongly in environments in which competition for underwriting is strongest. While states heavily regulate P-C policy rates, market entry proves very competitive (Joskow, 1973). These factors suggest that insurers have a strong incentive to use service quality to differentiate themselves in the presence of entry threat, as they cannot compete on price to any great extent. On the other hand, greater competition for the same pool of consumers also implies a smaller underwriting business for each insurer on average, further weakening an insurer's incentive, especially for a stock insurer, to provide quality service

[21] A notable feature of the insurance industry arises from insurers ability to purchase reinsurance, which helps offset exposure to large natural disasters. Wang et al. (2008) document that firms changing from stock to mutual experience no change in their demand for reinsurance. Lin et al. (2014) report similar reinsurance usage in both stock and mutual insurers. Furthermore, our results are robust to incorporating reinsurance.

to consumers. The net effect remains an empirical question, which we also test, and report on in this section.

We measure the extent of competitive pressure at the state level using two proxies. The first one resembles the canonical Herfindahl index to capture the concentration of underwriting insurers in a given state. Specifically, we construct a *State Herfindahl index* as the sum of the squares of the market shares of insurers underwriting within a given state in a given year, where the market share for each insurer is equal to the insurer's written premium in the state divided by the state's total written premiums (by all insurers underwriting in the state). A large *State Herfindahl index* suggests high concentration (and low competition) in underwriting in the state. The second proxy simply counts the number of insurers underwriting in each state in a given year (*Insurer presence*). The more insurers operating in a state, the greater the competition each insurer faces from rivals. To take into account the different sizes of insurers, we weight each insurer by the share of the particular state's written premium relative to the insurer's total written premium across all states in that year. Put differently, we give a higher weighting to insurers that had a significant share of their total underwriting business in the state. The two measures have a correlation coefficient of -0.30, suggesting that they capture correlated but differential aspects of competition in underwriting.

Then, using the matched sample, we study how an insurer's consumer complaints in a particular state and year vary with the level of competition in the state. We include the same control variables—insurer-level variables and insurer-state level characteristics—as in Table 4. In addition to insurer fixed effects, we include state-year fixed effects to control for any effects caused by time variations at the state level that might correlate with our competition measures. As a result, the coefficient of the interactive term between the *stock* dummy variable and competition measures captures the *within* insurer complaint differential between states with varying degree of competition in a given year in stock insurers (relative to their mutual peers).

We report the results in Table 6. Column 1 shows that the complaint differential between a state with more competition (low *State Herfindahl index)*) and a state with less competition (high *State Herfindahl index)* is more positive for a stock insurer than a comparable mutual insurer. To

facilitate interpretation, we construct a dummy variable for the states in the bottom 10th percentile of the *State Herfindahl index* distribution (low concentration) for each year and repeat the analysis (column 2). For a single stock insurer, complaints in low concentration states (more competition) are 8.8% (=exp(0.084)-1) higher than in the insurer's other states, relative to the equivalent rate for a comparable mutual insurer. Tests based on the measure *Insurer presence* deliver the same message. Specifically, in states with high insurer presence (i.e., states in the top decile distribution of *Insurer presence* in a given year) complaints about a stock insurer are 8.7% higher than for the same insurer in other states, compared to the equivalent rate for a comparable mutual insurer (column 4).

These findings reveal that the increased conflict of interest in the presence of greater competition explains the poorer consumer service practices of stock insurers, despite the potential costs to reputation. While this may appear puzzling at first glance, slow consumer learning in such experience goods can explain in part the stock insurer's lack of response to the incentive to protect their reputation. Israel (2005) documents that consumers of a car insurance company are over-optimistic about the quality of the product (or company) at the time of purchase and slow in learning due to the infrequent nature of claims. Agarwal et al. (2016) also find that consumer learning about quality occurs through informal networks and in a much localized context. Consequently, these results highlight the importance of regulators (and yet their limited efficacy) in protecting consumers when market mechanisms fail to function properly, likely due to informational or behavioral frictions.

IV. Impact of the Regulatory Environment

The results in section III establish that stock insurers are subject to more consumer complaints, especially after negative profitability shocks and when facing more competitive pressure in the local underwriting business. Furthermore, the strong and persistent pattern of a difference in the number of complaints lodged against stock insurers compared to mutual insurers raises the question of the role regulators play in protecting financial consumers through improved service quality. In this section, we focus on the variation in the regulatory strength as

well as an anatomy of the regulatory objectives to further gauge the regulatory efficacy in protecting consumer interest.

IV.A. Does the Complaint Difference Decrease in a Strong Regulatory Environment?

First, we study whether and to what extent variation in the complaint wedge between stock and mutual insurers relates to the strength of the regulatory environment. Insurance companies are regulated at the state level and each state practices regulatory control largely at its own discretion. Perhaps a strong regulatory environment in a particular state is associated with better regulatory oversight for consumer interest? While a typical insurer operates in more than one state, regulatory oversight is delegated to the state of its domicile, arguably to avoid duplication of regulatory activities across states (Grace and Phillips, 2008). Therefore, to test the idea, we examine the relationship between the insurer-level complaint difference between stock and mutual insurers and the regulatory environment of the home state of the insurers. Econometrically, we add an interactive term between the *stock* dummy and various measures of regulatory strength to the specification in Table 3 and run the analysis in the matched sample.

First, we use the staff and budget size of each state's insurance department to measure the amount of the expendable regulatory resources. From the NAIC 2010 Insurance Department Resources Report, we obtain the staff size of each state's insurance department during the period from 2006 and 2010, and the dollar value of budget for each state's insurance department during the period between 2008 and 2011.[22] The first two columns of Table 7, Panel A, show the results with respect to these two measures. Surprisingly, states with more regulatory staff or a larger regulatory budget in a given year are associated with a greater, rather than smaller, difference in complaint numbers between stock and mutual insurers. The effects are consistent for both measures of regulatory resource and both coefficients are highly statistically significant (either at the 1% or the 5% level).

[22] The budget information for year 2011 is the projected amount at the time of the report.

In the insurance industry, New York state is considered to have the most stringent regulation (Pottier and Sommer, 1998).[23] We test whether the difference in complaint numbers between stock and mutual insurers is weaker in the state of New York. Again, much to our surprise, the difference in the overall rate of complaints about P-C insurers based in New York was 36.3% (=exp(0.310)-1) higher than the equivalent rate for other states (column 3 in Table 7, Panel A). The effect is economically large and statistically significant at the 5% level. Lastly, we analyze consumer complaints about P-C insurers in each state in relation to the method of assigning the state's commissioner. It is a popular belief that an appointed commissioner is less subject to regulatory capture (for example by the insurers) compared to an elected state commissioner (Grace and Phillips, 2008). Unexpectedly, our results (column 4 of Table 7, Panel A) suggest consumer complaint rates are unaffected by the method of commissioner assignment. Although the coefficient is negative, it is not statistically distinguishable from zero.

A potential explanation for the above surprising result could stem from consumers' rational responses, reflected in their higher propensity to complain, in states with strong regulators. In addition, policyholders with stock insurers may be particularly responsive compared to those with mutual insurers. To investigate this possibility, we compare the difference in complaint outcomes between stock and mutual insurers across states. If consumers of stock insurers are more likely to complain to "tougher" regulators in anticipation of a higher likelihood of their concerns being addressed, we should observe a corresponding increase in the difference in successful complaint success rates between stock and mutual insurers in states with strong regulators. Panel B of Table 7 shows the results regarding complaint success rates. Across all four specifications, the difference in complaint success rates between stock and mutual insurers is not greater in states with greater regulatory strength. Coefficients are either of the wrong sign or economically small, and, more importantly, they are all statistically indistinguishable from zero. Thus, the greater complaint difference between stock and mutual

[23] For example, it is the only state that requires all insurers licensed in New York to meet New York laws both in New York and other states.

insurers in states with strong regulators cannot be attributable to a (differential) increase in the inclination to complain among the stock insurers' consumers.

IV.B. When Insurers Approach the Regulatory Threshold of Financial Insolvency

To understand the puzzling finding in Table 7, that stock insurers in states with strong regulators are subject to an even higher rate of complaints, relative to their mutual peers, we consider the regulator's dual objectives. In addition to promoting consumer protection, financial regulators are charged with guarding the financial health and solvency of the intermediaries. In principle, regulators should exert equal effort in achieving both goals. However, it remains a possibility that they focus unevenly on their two objectives, spending most of their resources on ensuring financial solvency. If this were the case, we should not observe a positive link between a strong regulatory environment and better service quality or equivalently, a lower level of consumer complaints (especially among stock insurers). Furthermore, the regulator's emphasis on financial solvency may imply fewer resources available for supervising insurers' service quality, while simultaneously providing insurers with a stronger incentive for maintaining financial performance at the cost of their service to consumers. The findings in Table 7 are indeed consistent with this interpretation.

We also explicitly test the hypothesis by examining the variation in the level of the risk-based capital ratio across insurers. Insurers with a risk-based capital ratio equal to or below 2 are subject to regulatory intervention. As a result, insurers near this insolvency threshold would face stronger regulatory scrutiny to ensure they maintain their financial health, which may exacerbate the tension or conflict between the profit objective and consumer interest, particularly for stock insurers. Empirically, we capture these insurers as those whose risk-based capital ratio is equal to or below 2.5 (*High insolvency risk*).[24] Then, in the matched sample, we study the difference in complaint numbers between stock insurers and their mutual peers when they face high financial insolvency risk.

[24] The choice of 2.5 arises from the need to capture imminent insolvency risk while ensuring a sufficient sample size (i.e., power of the test).

In columns 1 and 2 of Table 8, Panel A, we report that as stock insurers approach the regulatory insolvency threshold, they experience a 129% (=exp(0.827)-1) greater rate of increase in complaints compared with their mutual counterparts in the same position. We also find that their complainants have a 16.8% lower rate of success, compared to mutual policyholders. Both coefficients are significant at the 10% level. These results support our hypothesis that regulators put (much) more weight on insurers' financial health than on promoting service quality, especially when insurers' financial health is at risk.

We further examine nature of the complaints leading to the increase in the complaint difference. We use the specification in Table 4 in the matched sample and add an interactive term between the *stock* dummy and the *High insolvency risk* dummy variable. Results in Panel B and C of Table 8 reveal that the increase in the complaint difference is largely due to an increase in complaints about the insurer's marketing and sales and underwriting practices, particularly in complaints about policy termination and pricing and other contract term issues. These findings thus suggest that stock insurers become more aggressive in selling new policies and terminating existing policies when approaching insolvency levels, presumably in an effort to increase their revenue.

IV.C. The Impact of Stringent Regulatory Laws on Policy Rates

Regulators' constraints and their resulting uneven focus on their dual goals (financial health of the business and consumer protection) may also manifest in the multiple aspects of their goal to promote consumer protection. As mentioned earlier, policy rates are heavily regulated at the (underwriting) state level although the extent of rate regulation varies across states. In particular, where policy rates are stringently regulated, insurers are required to file for prior approval to charge a rate that is different from that determined by a rate advisory organization (Grace and Leverty 2010). Arguably the objective of (stringent) rate control is to promote affordable insurance policies to a broad consumer population. However, unless coupled with a comparable level of regulatory scrutiny over insurers' non-underwriting service, such a stringent rule may have unintended consequences as regulated prices limit profit margins and

therefore intensify the conflict between profit objectives and consumer interest.

To examine the implication of stringent regulatory laws on policy rates, we compute, for each insurer, the fraction of its written premium in a given year that is written in a state with stringent regulatory laws on policy rates (% *Rate Regulated*). Then we study whether the difference in consumer complaints between stock and mutual insurers vary when a higher fraction of an insurer's premiums are subject to stringent rate control. Econometrically, we add an interactive term between the *stock* dummy and % *Rate Regulated* to the specification in Table 3 and run the analysis in the matched sample. The results are reported in Table 9.

Results in Panel A of Table 9 show that the difference in complaints between stock and mutual insurers increases when rate control becomes more stringent. Compared with an equivalent mutual insurer, stock insurers experience a 5.7% (=exp(0.449*0.1)-1) increase in complaints for a 10-percentage point increase in the fraction of written premium subject to stringent rate control. However, the degree of rate control does not appear to affect complaint success rates (i.e. did not lower them).

Looking into the types of complaints that contribute to the divergence in the complaint difference, we find that the increase is due to increased complaints about marketing and sales, policyholder service, and, most prevalently, claim handling (Table 9, Panel B). Consistently, the most common reason for the greater number of complaints against stock insurers when they encountered stricter rate control is the denial, delay, and underpayment of claims, followed by concerns over misconduct and customer care, as well as policy pricing and other (contract) terms (Table 9, Panel C).

Taken together, these results are consistent with the interpretation that the regulatory focus on supervising policy rates is not accompanied by equal scrutiny of other aspects of insurers' service quality. Consequently, stock insurers, which are more sensitive to the profit pressure induced by the rate control, respond to the restriction in underwriting by dealing aggressively with consumers in other respects, particularly reflected in a large increase in consumer concerns over denial, delay, and underpayment of claims.

V. The Incidence of Personal Bankruptcy

To estimate the costs of poor service quality by stock insurers, we examine the incidence of personal bankruptcy in each state after an increase or decrease in the complaint wedge between stock and mutual insurers (e.g. Gross and Notowidigdo, 2011; Gross et al., 2014). Across a wide spectrum of annual incomes, a significant portion of U.S. households faces severe liquidity constraints, effectively living paycheck to paycheck (Lusardi and Bassa Scheresberg, 2013; Kaplan et al., 2014). These financially fragile consumers could suffer greater incidences of bankruptcy if, as is often alleged, insurers delay their insurance claims or offer them reduced settlement payments. To test whether this could be the case, we investigate whether changes in the complaint wedge between stock and mutual insurers is followed by changes in the incidence of personal bankruptcy in each state.

The *Bankruptcy Abuse Prevention and Consumer Protection Act of 2005* (BAPCPA) requires bankruptcy court clerks to report statistics on personal bankruptcies to the administrative office of the U.S. Court. Each year the U.S. Federal Judiciary Administrator compiles these statistics into a report on the number of Chapter 7, 11 and 13 bankruptcies for every federal district.[25] The BAPCPA reports are then disseminated through the federal judicatory website (www.uscourts.gov).[26] The compiled reports provide the number of cases in each district for each type of bankruptcy. For instance, during 2007, over 820,000 individuals filed for bankruptcy. We collect all bankruptcy cases from the BAPCPA for each state during our sample period (2005–2011). For our analysis, we aggregate all categories of personal bankruptcies for each state that started in a given year. To control for the differences in state size, we scale the number of bankruptcy petitions by the size of the state population in the same year.

The key independent variable, *Complaint wedge,* captures the extent to which service quality differs between stock and mutual insurers at the state level. We also include the total level of complaints in a state, *Total complaint ratio,* to control for the differences across states in

[25] Chapter 7 petitions form the majority of bankruptcy cases (60%) and seek to liquidate the debt and assets of the individual (Buckley and Brinig, 1998). Chapter 13 petitions comprise 39% of the petitions and typically lead to installment payment plans, while Chapter 11 cases comprise petitions to delay and reorganize the individual's assets.

[26] http://www.uscourts.gov/statistics-reports/analysis-reports/bankruptcy-abuse-prevention-and-consumer-protection-act-report

consumers' overall propensity to complain. Then we study how the complaint wedge between stock and mutual insurers in a given year (t) is related to the state-level bankruptcy rate in the following year (t+1). Table 10 reports the regression results.

In column 1, we regress the bankruptcy rate on the complaint wedge without any controls or fixed effects. There is a strong positive relationship between the complaint difference between stock and mutual insurers in a given state and the personal bankruptcy rate in that state in the following year. The coefficient is statistically significant at the 5% level, and the R-square indicates that the complaint wedge explains 4% of the variation in the state bankruptcy rate. Next, we control for the total complaint ratio at the state level (column 2). We continue to find a significant positive relationship between the complaint wedge and the state bankruptcy rate. On the other hand, a higher level of total complaints in a state bore no association with the bankruptcy rate in the state.

To better control for the time trend as well as the difference in personal bankruptcy rates across states, we include year fixed effects in column 3 and both year and state fixed effects in column 4. The coefficients of the complaint wedge become slightly smaller but remain statistically significant. The effect is also economically meaningful: from the estimate in column 4: a one standard deviation increase in the complaint wedge (=0.026) within a given state is followed by a 0.017 percentage point increase in the state bankruptcy rate, which is equivalent to 6.9% of the average bankruptcy rate in our sample. In sum, these results are consistent with the notion that financially fragile consumers endure substantial costs from poor service provided by stock insurers.

VI. Conclusion

Consumer financial protection has received substantial attention since the 2007 financial crisis. However, this discussion typically does not consider the role that the ownership form of financial intermediaries plays in supporting or limiting consumer financial protection. Our analysis exploits a unique database of consumer complaints about 522 mutual and 1,224 stock

insurance companies to evaluate consumer financial protection across differing ownership forms.

We find that stock financial intermediaries receive 20%-25% more consumer complaints than their equivalent mutual intermediary peers. We also find that these complaint differences arise from concerns about delayed claims, reduced settlement offers, and misconduct. Importantly, we do not find any differences in the success rates of consumer complaints against stock or mutual insurers that are decided by independent arbitrators. We interpret this result to suggest that differing incidences of complaints between stock and mutual insurers reflect differing quality in product offerings. To provide causal evidence for this correlational evidence, we compare insurer responses after natural (state-level) disasters in both the affected states and unaffected states. We find a substantial increase in consumer complaints about stock insurers in unaffected states but not about mutual insurers.

Further analysis indicates that competition exacerbates the complaint difference between stock and mutual insurers, questioning the effectiveness of market mechanisms in controlling stock insurers' incentives to neglect consumer service. In addition, we find that the difference is even greater in states with stronger regulatory oversight. To evaluate the effects of regulatory constraints due to the dual goals of intermediary solvency and consumer protection, we focus on risk-based capital thresholds. We find substantially greater complaints about stock insurers relative to similar mutual insurers as they approach capital requirement thresholds. Moreover, we find that when regulators seek to promote insurance availability by specifying stringent rate rules, consumer complaints about stock relative to mutual insurers increase.

Our analysis provides three important contributions to understanding the problems in the financial intermediary sector. First, we provide compelling evidence on the existence of substantial problems that consumers face with stock insurers, which highlights the need for greater education and transparency regarding intermediary reliability. Second, our analysis suggests that mutual intermediaries successfully compete in the insurance industry because they provide reliable service quality to their customers. In contrast, stock insures focus on improving operating efficiency, suggesting these organizational structures lead to differing competitive

strategies, product quality versus cost.

Finally, we add to the literature on the regulatory oversight of financial intermediary service quality by highlighting the negative impact, on consumers, of multiple regulatory objectives. Intermediary regulators seek to protect consumers from intermediary insolvency and mistreatment, with regulators overseeing sizeable state guarantee funds. This analysis indicates that regulatory attention to intermediary solvency hampers their incentives to promote reliable consumer treatment, which can have costly implications for consumers. In summary, our analysis indicates that a key aspect of organizational structure, namely ownership form, is an important component of consumer financial protection.

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Appendix A. Variable Definitions.

Complaint variables

Consumer complaints are the number of formal complaints insurance consumers file to the state regulators, aggregated at the insurer-year level.

State-level consumer complaints measure the number of formal consumer complaints in a state in which an insurer underwrites in a given year.

Type of complaints

Marketing & sales refer to the number of consumer complaints for a given insurance company that captures consumers' concerns about that particular company's practice in the marketing and selling of insurance policies in a given year.

Underwriting refers to the number of consumer complaints for a given insurance company that captures consumers' concerns about that particular company's practice in underwriting insurance policies in a given year.

Policyholder service refers to the number of consumer complaints for a given insurance company that captures consumers' concerns about that particular company's practice in serving policyholders in a given year.

Claim handling refers to the number of consumer complaints for a given insurance company that captures consumers' concerns about that particular company's practice in handling policyholders' claim requests in a given year.

Nature of the complaint reason

Policy termination refers to the number of consumer complaints for a given insurer in a year that cites policy cancelation, policy non-renewal, refusal to insure, or involuntary policy termination as the reason(s).

Policy pricing & other terms refer to the number of consumer complaints for a given insurer in a year that cites premium rating, surcharge, endorsement rider or other coverage issues as the reason(s).

Denial, delay & underpayment refer to the number of consumer complaints for a given insurer in a year that cites claim denial, claim delay, unsatisfactory settlement offer, or clauses on comparative negligence, subrogation, or medical necessity that result in underpayment as the reason(s).

Misconduct refers to the number of consumer complaints for a given insurer in a year that cites misleading advertising, fiduciary theft, misrepresentation, misappropriation of premium, duplication of coverage, fraud forgery, fraud, misstatement on application, premium misquotation, redlining, or unfair discrimination as the reason(s).

Customer care refers to the number of consumer complaints for a given insurer in a year that cites adjuster handling, delay in underwriting, audit dispute, high-pressure tactics, failure to submit application, (late) premium billing notice, delayed or no response (to inquiry), (deficiency in) policy delivery or premium refund, payment not being credited, abusive service, as the reason(s).

Complaint outcome

Complaint success (%) is the percentage of an insurer's closed consumer complaints in a year that is resolved in compromised settlement (with the consumer), company's position being overturned, fine or disciplinary actions against the insurer.

Insurer characteristics

Insurer-level

Stock is a dummy variable equal to one if the insurance company has stock ownership, and zero otherwise.

ROA is the ratio of net income divided by assets for a given insurance company in a year. It is winsorized at the top and bottom 0.5% level.
Underwriting profitability is the ratio of the direct premium earned by an insurance company in a year divided by the sum of the direct loss incurred, direct defense expenses incurred, commission and taxes paid by the same insurer in the same year. It is winsorized at the top and bottom 0.5% level.

Independent is a dummy equal to one if the insurance company is not part of an insurance group (or belongs to an insurance group comprising of only one company), and zero otherwise.

 # States is the number of states in which a given insurance company has underwriting business in a given year.

Insurer-state level

State underwriting profitability is the ratio of the direct premium earned by an insurance company for a particular state in a given year divided by the sum of the direct loss incurred, direct defense expenses incurred, commission and taxes paid by the same insurer for that state in the same year. It is winsorized at the top and bottom 0.5% level.

State policy premium is the direct policy premium written for a particular state of an insurance company in a given year.

No-disaster state post is a dummy variable defined as follows. For the six states (WI, CA, IA, OK, TX, and TN) that have a single local disaster with over $500 million loss in a year during the period from 2006-2010, insurers underwriting more than 5% of their total policy premium in (one or more of) the six hit states in the disaster year *t* are defined as *heavily exposed*. A state is defined to be *unaffected* if it is not subject to $500 million loss in local disasters in year *t and* if it is not one of the top five highest loss states in the same year. ***No-disaster state post*** is equal to one for the *unaffected* states in year *t* of the *heavily exposed* insurers, and zero otherwise.

No-disaster state pre is a dummy variable defined as follows. For the six states (WI, CA, IA, OK, TX, and TN) that have a single local disaster with over $500 million loss in a year during the period from 2006-2010 insurers underwriting more than 5% of their total policy premium in (one or more of) the six hit states in the disaster year *t* are defined as *heavily exposed*. A state is defined to be *unaffected* if it is not subject to $500 million loss in local disasters in year *t and* if it is not one of the top five highest loss states in the same year. ***No-disaster state pre*** is equal to one for the un-hit states in year *t*-1 of the *heavily exposed* insurers, and zero otherwise.

Important state is a dummy variable equal to one for a state of an insurance company if that state's written premium comprises over 25% of the insurance company's total written premium in that year, and zero otherwise.

State Herfindahl index is the sum of the squares of the market shares of insurers underwriting within a given state in a year, where the market share for each insurer is equal to the insurer's written premium in the state divided by the state's total written premium.

Low concentration is a dummy variable equal to one if the state falls in the bottom decile of the ***State Herfindahl index*** distribution among all states in a given year, and zero otherwise.

Insurer presence is the weighted sum of the number of insurers underwriting in a state in a given year, with the weight for each insurer equal to the share of the state's written premium relative to that particular insurer's total written premium in that year.

High insurer presence is a dummy variable equal to one if the state falls in the top decile of the ***Insurer presence*** distribution among all states in a given year, and zero otherwise.

Regulatory environment variables

 # State regulatory staff is the total number of full-time staff in the state insurance department (excluding contractual employees). We obtain the data from the *2010 Insurance Department Resources Report* by NAIC for the period from 2006 to 2011.

State regulatory budget is the dollar value of the budget for each state's insurance department. We obtain the data from the *2010 Insurance Department Resources Report* by NAIC for the period from 2008 to 2011.

New York-based is a dummy variable equal to one if an insurance company's state of domicile is New York, and zero otherwise.

State commissioner appointed is a dummy variable equal to one if a state's commissioner is appointed, and zero if elected.

High insolvency risk is a dummy variable equal to one when an insurance company's risk-based capital ratio, defined as the total adjusted capital divided by the risk-based capital, is equal to or below 2.5, and zero otherwise (note that the threshold value of the risk-based capital ratio for regulatory intervention is 2).

% Rate regulated is the percentage of an insurance company's total written premium in a year that is subject to stringent control over policy rates. Specifically, we follow Grace and Leverty (2010) and compute ***% Rate regulated*** for insurer *i* (that has insurance lines denoted by *l*) in year t to be ent variables are measured in year *t*. For variable definitions and details of their construction, see Appendix A. All regressions include the home state (i.e., state of domicile)-year fixed effects. Standard errors are clustered at the home state-year level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level respectively.

State-level variables

Bankruptcy rate is the number of started personal bankruptcy cases in a given state in a given year, divided by the state's population in the same year. We obtain the bankruptcy data from the BAPCPA reports disseminated on the federal judicatory website (www.uscourts.gov).

Complaint wedge is computed as follows. We aggregate all complaints filed in a given state against stock (mutual) insurers in each year as well as the total premiums written in the state by stock (mutual) insurers in each year. Then we compute the complaint ratio as (1,000,000 times) the aggregated complaints divided by the aggregated written premium, for mutual and stock insurers respectively. ***Complaint wedge*** is the difference in the complaint ratios between stock and mutual insurers for a given state and year.

Total complaint ratio is computed as follows. We aggregate all complaints filed in a given state in each year as well as the total premiums written in the state in each year. ***Total complaint ratio*** is (1,000,000 times) the total # of complaints divided by the total written premium for a given state and year.

Figure 1. Wedge in Consumer Complaints between Stock and Mutual Insurers

This figure plots the heat map of the consumer complaint difference between stock and mutual insurers across 51 states (including DC). For each state (or district), we run the regression as in Column 3 of Table 3 in the full sample, and obtain the regression coefficient on *Stock*. Based on the coefficient estimates, all states (and DC) are grouped into eight categories, with the darkest color corresponding to states with the largest difference in consumer complaint between stock and mutual insurers in our sample. Note that gray is used to indicate states for which we do not have enough data for estimation.

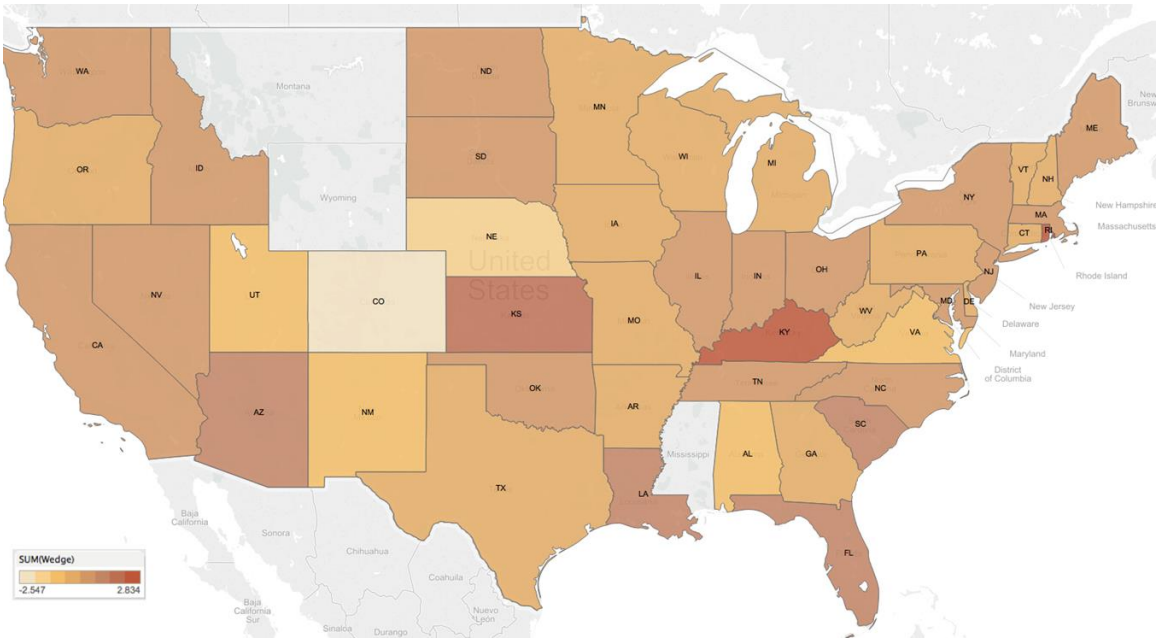

Table 1. Nature of Consumer Complaints

This table provides a breakdown of the 136,232 consumer complaints in our full sample according to the types and nature of the complaints. Panel A presents a frequency breakdown of the types—whether the complaints reflect concerns over marketing and selling of insurance policies, underwriting of insurance policies, policyholder service, or claim handling. Panel B presents a frequency breakdown of the top ten reasons cited in the consumer complaints. Panel C presents the complaint outcome, i.e., the fraction of the total complaints that are resolved in favor of consumers, i.e., compromised settlement (to the consumer), company's position being overturned, and fine or disciplinary actions against the insurer. For variable definitions and details of their construction, see Appendix A.

	Fraction (%) (N=136,232)
Panel A: Types of consumer complaints	
Marketing & sales	3.9
Underwriting	24.4
Policyholder service	13.5
Claim handling	72.9
Panel B: Top 10 complaint reasons	
Delay of claim	31.0
Unsatisfactory settlement offer	20.3
Denial of claim	11.3
Policy cancellation	7.3
Premium pricing	6.4
Premium refund	5.0
Surcharge	4.1
Nonrenewal of policy	4.1
(Late) premium billing notice	2.7
Adjuster handling	2.5
Panel C: Complaint outcome	
Complaint success	59.6

Table 2. Summary Statistics

This table provides the summary statistics of insurer characteristics and consumer complaints for the stock and mutual insurers respectively. The first three columns present the comparison in the full (unmatched) sample, and columns (4)-(6) present the comparison in the matched sample, which is constructed using the nearest neighboring matching algorithm based on the insurer's (log) assets, ROA, and affiliation status. For variable definitions and details of their construction, see Appendix A. We also perform a two-sided *t*-test for means, and use ***, **, and * to denote significance at the 1%, 5%, and 10% level, respectively.

	(1) Stock	(2) Mutual	(3) Difference	(4) Stock	(5) Mutual	(6) Difference
	Full sample			Matched sample		
Log assets	18.616	18.039	0.577***	18.362	18.373	-0.011
ROA	0.024	0.019	0.005***	0.021	0.021	-0.000
Underwriting profitability	1.684	1.643	0.041	1.696	1.669	0.026
Independent (%)	26.5	43.6	-17.1***	34.2	34.2	0.0
# States	21.0	7.8	13.1***	19.0	8.7	10.3***
Log # consumer complaints (per annum)	1.339	0.963	0.376***	1.247	1.026	0.221***
Complaint success (%)	62.9	62.8	0.1	61.1	62.9	-1.8
N	1,224	522		939	498	

Table 3. Consumer Complaints about Stock vs Mutual Insurers

The table reports the OLS regression estimates of the relationship between the stock status and insurer-level consumer complaints as well as the complaint outcome. Columns 1-2 present the results for the (baseline) matched sample, constructed using the nearest neighboring matching algorithm based on the insurer's (log) assets, ROA, and affiliation status. Columns 3-4 present results in an alternative matched sample, constructed using the nearest neighboring matching algorithm based on the insurer's (log) assets, ROA, the number of states in which an insurer underwrites insurance policies, and insurer's independent status. Columns 5-6 report the full (unmatched) sample results. The dependent variables in columns 1, 3, and 5 are the natural logarithm of 1 plus the number of consumer complaints for a given insurer in year *t*+1, and the dependent variables in columns 2, 4, and 6 are the fraction of the insurer's complaints in year *t*+1 that is resolved successfully (i.e., in favor of consumers). The independent variables are measured in year *t*. For variable definitions and details of their construction, see Appendix A. All regressions include the home state (i.e., state of domicile)-year fixed effects. Standard errors are clustered at the home state-year level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level respectively.

	(1) Log consumer complaints	(2) Complaint success (%)	(3) Log consumer complaints	(4) Complaint success (%)	(5) Log consumer complaints	(6) Complaint success (%)
	Matched sample		(Alternative) matched sample (based on size, profitability, # of states and affiliation status)		Full sample	
Stock	0.188***	-0.036	0.220***	-0.020	0.157***	-0.019
	(3.34)	(-1.52)	(3.72)	(-0.73)	(4.44)	(-1.44)
Log assets	0.325***	-0.005	0.358***	0.004	0.314***	0.001
	(15.73)	(-0.64)	(12.82)	(0.53)	(22.88)	(0.17)
ROA	-0.819	-0.106	-1.404***	-0.180	-0.371	-0.079
	(-1.57)	(-0.55)	(-2.76)	(-0.90)	(-1.29)	(-0.86)
Underwriting profitability	-0.053***	0.020	-0.044***	0.024**	-0.077***	0.017**
	(-3.70)	(1.52)	(-3.47)	(2.29)	(-8.10)	(2.08)
Independent	-0.131***	-0.011	-0.098	-0.006	-0.120***	-0.015
	(-2.65)	(-0.45)	(-1.64)	(-0.17)	(-4.27)	(-1.12)
Log # states	0.033	0.029***	-0.006	0.027**	0.001	0.021***
	(1.34)	(2.83)	(-0.19)	(2.54)	(0.03)	(3.85)
Constant	-4.822***	0.621***	-5.329***	0.437***	-4.486***	0.537***
	(-12.89)	(4.73)	(-10.76)	(3.23)	(-18.52)	(8.33)
Home state*year FE	Y	Y	Y	Y	Y	Y
Observations	2,895	1,672	2,397	1,355	9,116	5,379
R-squared	0.384	0.241	0.433	0.254	0.325	0.126

Table 4. Type and Nature of Consumer Complaints

The table reports the OLS regression estimates of the relationship between the stock status and the different types (Panel A) and nature (Panel B) of the consumer complaints in the matched sample. In Panel A, the dependent variables are the natural logarithm of 1 plus the number of complaints for a given insurer in year *t*+1 concerning marketing and sales (column 1), underwriting (column 2), policyholder service (column 3), and claim handling (column 4) respectively. In Panel B, the dependent variables are the natural logarithm of 1 plus the number of complaints for a given insurer in year *t*+1 concerning policy termination (column 1), policy pricing & other contract terms (column 2), denial, delay and underpayment (of claims) (column 3), misconduct (column 4), and service quality (column 5) respectively. The independent variables are measured in year *t*. For variable definitions and details of their construction, see Appendix A. All regressions include home state (i.e., state of domicile)-year fixed effects. Standard errors are clustered at the home state-year level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at 1%, 5%, and 10% level respectively.

Panel A: Types of complaints

	(1)	(2)	(3)	(4)
	Log consumer complaints			
	Marketing & sales	Underwriting	Policyholder service	Claim handling
Stock	0.031	0.029	0.109***	0.139**
	(0.96)	(1.49)	(3.67)	(2.57)
Log assets	0.193***	0.062***	0.145***	0.273***
	(12.07)	(6.30)	(10.34)	(13.74)
ROA	-0.862***	-0.281*	-0.659**	-0.817*
	(-3.26)	(-1.94)	(-2.47)	(-1.80)
Underwriting profitability	-0.019**	-0.001	-0.005	-0.060***
	(-2.18)	(-0.18)	(-0.69)	(-4.69)
Independent	-0.102***	-0.051***	-0.051*	-0.104**
	(-3.16)	(-3.01)	(-1.90)	(-2.01)
Log # states	-0.072**	0.024	-0.035	-0.099**
	(-2.28)	(1.37)	(-1.35)	(-2.14)
Constant	0.018	0.047***	0.031**	0.032
	(1.32)	(5.07)	(2.52)	(1.34)
Home state-year FE	Y	Y	Y	Y
Observations	2,895	2,895	2,895	2,895
R-squared	0.327	0.210	0.284	0.327

Panel B: Nature of complaints

	(1)	(2)	(3)	(4)	(5)
	Log consumer complaints				
	Policy termination	Policy pricing & other terms	Denial, delay & underpayment	Misconduct	Customer care
Stock	0.007	0.026	0.136***	0.024**	0.103***
	(0.29)	(1.01)	(2.66)	(2.07)	(3.65)
Log assets	0.136***	0.133***	0.260***	0.026***	0.150***
	(9.83)	(10.50)	(13.58)	(5.06)	(10.49)
ROA	-0.482**	-0.379*	-0.467	-0.049	-0.477*
	(-2.08)	(-1.85)	(-1.09)	(-0.65)	(-1.77)
Underwriting profitability	-0.009	-0.005	-0.051***	-0.001	-0.006
	(-1.55)	(-0.89)	(-4.23)	(-0.55)	(-0.72)
Independent	-0.044*	-0.032	-0.090**	0.013	-0.008
	(-1.81)	(-1.43)	(-2.02)	(1.28)	(-0.30)
Log # states	0.016	0.025**	0.033	0.021***	0.040***
	(1.48)	(2.39)	(1.44)	(3.92)	(3.02)
Constant	-2.162***	-2.168***	-3.890***	-0.456***	-2.466***
	(-8.65)	(-9.34)	(-11.16)	(-4.99)	(-9.55)
Home state-year FE	Y	Y	Y	Y	Y
Observations	2,895	2,895	2,895	2,895	2,895
R-squared	0.279	0.271	0.328	0.136	0.299

Table 5. Natural Disasters as Negative Profitability Shocks

This table reports the regression results on the complaint response in the unaffected states of insurers heavily exposed to natural disasters in the matched sample. We obtain natural disaster events in the U.S. from SHELDUS and focus on six events, corresponding to the states (WI, CA, IA, OK, TX, and TN) that have a single local disaster with over $500 million loss in a year during the period from 2006-2010. Insurers underwriting more than 5% of their total policy premium in (one or more of) the six hit states in the disaster year *t* are defined as *heavily exposed*. A state is defined to be a *no-disaster state* if it is not subject to $500 million loss in local disasters in year *t and* if it is not one of the top five highest loss states in the same year. The dependent variable is the natural logarithm of one plus the number of consumer complaints for a given insurer in a particular state in year *t*+1, and the independent variables are measured in year *t*. For variable definitions and details of their construction, see Appendix A. All regressions include insurer, state, as well as year fixed effects. Standard errors are clustered at the insurer level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Log state-level consumer complaints of no-disaster states			
	Combined sample		Stock	Mutual
No-disaster state pre	-0.002	-0.003	0.022	-0.028
	(-0.14)	(-0.25)	(1.21)	(-1.40)
No-disaster state post	-0.020	-0.034*	0.008	-0.044*
	(-1.19)	(-1.76)	(0.31)	(-1.94)
No-disaster state post x For profit		0.025*		
		(1.69)		
Important state			0.163*	0.296***
			(1.77)	(3.20)
No-disaster state post x Important state			0.246**	0.003
			(2.02)	(0.04)
Log assets	-0.017	-0.017	-0.015	0.031
	(-0.79)	(-0.78)	(-0.69)	(0.61)
ROA	-0.033	-0.049	0.035	-0.635*
	(-0.36)	(-0.52)	(0.34)	(-1.87)
Underwriting profitability	0.001	0.001	-0.002	0.004*
	(0.40)	(0.67)	(-0.62)	(1.72)
State underwriting profitability	0.000	0.000	-0.000***	0.000*
	(0.70)	(0.64)	(-4.56)	(1.94)
Log state policy premium	0.025***	0.025***	0.017***	0.032***
	(6.69)	(6.70)	(5.84)	(3.44)
Log # states	-0.093***	-0.092***	-0.058	-0.111***
	(-3.87)	(-3.70)	(-1.45)	(-2.88)
Constant	0.421	0.413	0.352	-0.642
	(1.00)	(0.98)	(0.80)	(-0.63)
State FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y
Observations	15,644	15,644	10,635	5,009
R-squared	0.517	0.517	0.340	0.620

Table 6. Competition and Consumer Complaints

This table reports the regression results on the effect of the level of competition within each state on the relationship between consumer complaint and stock status in the matched sample. We construct two proxies (continuous and discrete variables for each proxy), *State Herfindahl index* and *Insurer presence,* to measure the level of competition for each state. The dependent variable is the natural logarithm of one plus the number of consumer complaints for a given insurer in a particular state in year t+1, and the independent variables are measured in year t. For variable definitions and details of their construction, see Appendix A. All regressions include insurer as well as state-year fixed effects. Standard errors are clustered at the insurer level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Log state-level consumer complaints			
Stock x State Herfindahl index	-1.120**			
	(-2.12)			
Stock x Low concentration		0.084**		
		(2.38)		
Stock x Insurer presence			0.001**	
			(2.04)	
Stock x High insurer presence				0.083***
				(2.81)
Log assets	0.016	0.016	0.016	0.016
	(0.73)	(0.73)	(0.72)	(0.73)
ROA	-0.034	-0.035	-0.035	-0.034
	(-0.56)	(-0.58)	(-0.57)	(-0.57)
Underwriting profitability	-0.000	-0.000	-0.000	-0.000
	(-0.19)	(-0.20)	(-0.23)	(-0.19)
State underwriting profitability	0.000***	0.000***	0.000***	0.000***
	(3.55)	(3.34)	(3.52)	(3.39)
Log state policy premium	0.029***	0.029***	0.029***	0.029***
	(13.84)	(13.72)	(13.68)	(13.72)
Log # states	-0.108***	-0.108***	-0.107***	-0.107***
	(-6.38)	(-6.38)	(-6.34)	(-6.34)
Constant	-0.187	-0.224	-0.238	-0.226
	(-0.43)	(-0.52)	(-0.55)	(-0.52)
State-year FE	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y
Observations	41,761	41,761	41,761	41,761
R-squared	0.543	0.543	0.543	0.543

Table 7. Regulatory Environment and Consumer Complaints

The table reports the matched-sample regression results on the role of regulatory environments across states in explaining the difference in insurer-level consumer complaints between the stock and mutual insurers. Panel A presents results on the number of consumer complaints, and Panel B presents results on the complaint outcome. The dependent variables are constructed in the same way as in Table 3 and 4 and measured in year t+1, and the independent variables are measured in year t. For variable definitions and details of their construction, see Appendix A. We include the same controls as in Table 3. All regressions include home state (i.e., state of domicile)-year fixed effects. Standard errors are clustered at the home state-year level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Complaints				
	(1)	(2)	(3)	(4)
	Log consumer complaints			
Stock	-0.702**	-0.184	0.157***	0.261**
	(-2.40)	(-0.87)	(2.81)	(2.37)
Stock x Log # state regulatory staff	0.162***			
	(3.20)			
Stock x Log state regulatory budget		0.121**		
		(2.14)		
Stock x New York-based			0.310**	
			(2.27)	
Stock x State commissioner appointed				-0.087
				(-0.71)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	2,411	1,430	2,895	2,895
R-squared	0.388	0.398	0.385	0.385
Panel B: Complaint outcomes				
		Complaint success (%)		
Stock	0.115	-0.044	-0.030	-0.056
	(0.76)	(-0.41)	(-1.33)	(-1.10)
Stock x Log # state regulatory staff	-0.026			
	(-0.96)			
Stock x Log state regulatory budget		0.009		
		(0.29)		
Stock x New York-based			-0.054	
			(-0.52)	
Stock x State commissioner appointed				0.023
				(0.44)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	1,392	822	1,672	1,672
R-squared	0.240	0.248	0.241	0.241

Table 8. The Role of Regulatory Threshold of Financial Insolvency

The table reports the matched-sample regression results on the role of the regulatory threshold of financial insolvency in explaining the difference in insurer-level consumer complaints between the stock and mutual insurers. Panel A presents the results on the number of complaints and complaint outcome. Panel B presents the results on the different types of complaints, and Panel C presents results on the different reasons of complaints. The dependent variables are constructed in the same way as in Table 3 and 4 and measured in year t+1, and the independent variables are measured in year t. For variable definitions and details of their construction, see Appendix A. We include the same controls as in Table 3. All regressions include home state (i.e., state of domicile)-year fixed effects. Standard errors are clustered at the home state-year level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Complaint and outcome

	(1) Log consumer complaints	(2) Complaint success (%)
Stock	0.151***	-0.032
	(2.84)	(-1.37)
High insolvency risk	0.035	0.133
	(0.09)	(1.62)
Stock x High insolvency risk	0.827*	-0.168*
	(1.77)	(-1.84)
Controls	Y	Y
Home state-year FE	Y	Y
Observations	2,895	1,672
R-squared	0.391	0.242

Panel B: Complaint types

	(1) Marketing & Sales	(2) Underwriting	(3) Policyholder Service	(4) Claim Handling
Stock	0.021	0.006	0.096***	0.105**
	(1.09)	(0.19)	(3.21)	(2.05)
Low capital	-0.072	-0.177	-0.018	0.194
	(-1.39)	(-1.01)	(-0.10)	(0.50)
Stock x High insolvency risk	0.181**	0.589***	0.266	0.613
	(2.31)	(2.72)	(1.22)	(1.33)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	2,895	2,895	2,895	2,895
R-squared	0.210	0.329	0.285	0.333

Panel C: Nature of complaints

	(1) Policy termination	(2) Policy pricing & other terms	(3) Denial, delay & underpayment	(4) Misconduct	(5) Customer care
Stock	-0.011	0.014	0.105**	0.021*	0.094***
	(-0.41)	(0.53)	(2.22)	(1.82)	(3.25)
Low capital	-0.136	-0.065	0.199	-0.012	-0.061
	(-1.06)	(-0.55)	(0.54)	(-0.34)	(-0.44)
Stock x High insolvency risk	0.486***	0.316*	0.601	0.076	0.239
	(2.76)	(1.94)	(1.35)	(1.50)	(1.23)
Controls	Y	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y	Y
Observations	2,895	2,895	2,895	2,895	2,895
R-squared	0.284	0.273	0.335	0.137	0.300

Table 9. The Impact of Regulatory Requirement on Policy Rates

The table reports the matched-sample regression results on the role of the regulatory requirement on insurance policy rates in explaining the difference in insurer-level consumer complaints between the stock and mutual insurers. Panel A presents the results on the number of complaints and complaint outcome. Panel B presents the results on the different types of complaints, and Panel C presents results on the different reasons of complaints. The dependent variables are constructed in the same way as in Table 3 and 4 and measured in year t+1, and the independent variables are measured in year t. For variable definitions and details of their construction, see Appendix A. We include the same controls as in Table 3. All regressions include home state (i.e., state of domicile)-year fixed effects. Standard errors are clustered at the home state-year level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Complaint and outcome

	(1) Log consumer complaints	(2) Complaint success (%)
Stock	0.003	-0.016
	(0.04)	(-0.42)
% Rate regulated	0.180	-0.035
	(1.60)	(-0.57)
Stock x % Rate regulated	0.449***	-0.036
	(3.28)	(-0.52)
Controls	Y	Y
Home state-year FE	Y	Y
Observations	2,895	1,672
R-squared	0.394	0.242

Panel B: Complaint types

	(1) Marketing & sales	(2) Underwriting	(3) Policyholder service	(4) Claim handling
Stock	-0.011	-0.001	0.009	-0.054
	(-0.48)	(-0.03)	(0.23)	(-0.76)
% Rate regulated	-0.002	0.015	0.113	0.187
	(-0.06)	(0.20)	(1.64)	(1.63)
Stock x % Rate regulated	0.100**	0.073	0.237***	0.461***
	(2.24)	(0.84)	(2.94)	(3.63)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	2,895	2,895	2,895	2,895
R-squared	0.211	0.325	0.294	0.338

Panel C: Nature of complaints

	(1) Policy termination	(2) Policy pricing & other terms	(3) Denial, delay & underpayment	(4) Misconduct	(5) Customer care
Stock	-0.003	-0.026	-0.044	-0.003	0.022
	(-0.09)	(-0.80)	(-0.66)	(-0.24)	(0.56)
% Rate regulated	-0.015	0.093	0.182	-0.006	0.118*
	(-0.28)	(1.55)	(1.64)	(-0.34)	(1.85)
Stock x % Rate regulated	0.029	0.120**	0.437***	0.073***	0.189**
	(0.43)	(1.98)	(3.66)	(3.40)	(2.39)
Controls	Y	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y	Y
Observations	2,895	2,895	2,895	2,895	2,895
R-squared	0.279	0.275	0.340	0.139	0.307

Table 10. Complaint Wedge and State-level Bankruptcy Rates

The table studies how the complaint wedge between stock and mutual insurers relates to the personal bankruptcy rates at the state level. The dependent variable, *Bankruptcy rate,* is measured in year *t*+1, and the independent variables are measured in year *t*. For variable definitions and details of their construction, see Appendix A. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Bankruptcy rate (%)			
Complaint wedge	0.886**	0.786**	0.681**	0.670**
	(2.16)	(2.14)	(2.05)	(2.36)
Total complaint ratio		0.165	0.203	-0.132
		(0.79)	(1.09)	(-0.76)
Constant	0.245***	0.236***	0.235***	0.161***
	(39.54)	(17.76)	(19.75)	(11.00)
Year FE	N	N	Y	Y
State FE	N	N	N	Y
Observations	306	306	306	306
R-squared	0.038	0.040	0.245	0.909

Internet Appendix

(Not Intended for Publication)

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Table A1. Natural Disasters as Negative Profitability Shocks: First Stage

This table reports the results of complaint response in states hit by the natural disaster events. We obtain natural disaster events in the U.S. from SHELDUS and focus on six events, corresponding to the states (WI, CA, IA, OK, TX, and TN) that have a single local disaster with over $500 million loss in a year during the period from 2006-2010. Insurers underwriting in one or multiple of these states are defined as exposed insurers, and exposed insurers which underwrite more than 5% of their total policy premium in these six state(s) in the disaster year are defined as heavily exposed. Column 1 includes all insurers, which are either exposed or unaffected (i.e., those which do not underwrite in any of the hit states). Column 2 includes all exposed insurers, and column 3 and 4 include the heavily exposed insurers. *Pre hit* is a dummy variable equal to one for any of the six states mentioned above in the year prior to the disaster event. *Hit* is a dummy variable equal to one for any of the six states mentioned above in the disaster event year. The dependent variable is the natural logarithm of one plus the number of consumer complaints for a given insurer in a particular state in year t+1, and the independent variables are measured in year t. In other words, given a natural disaster event in year t, we study the consumer complaints in those six states in year t+1. For other variable definitions and details of their construction, see Appendix A. All regressions include insurer, state, as well as year fixed effects. Standard errors are clustered at the insurer level. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)
	Log state-level consumer complaints			
Sample	All insurers	Exposed insurers	Heavily exposed insurers	Heavily exposed insurers
Pre hit	-0.012	-0.001	0.002	0.001
	(-0.71)	(-0.05)	(0.05)	(0.03)
Hit	0.040**	0.048***	0.087**	0.100**
	(2.43)	(2.90)	(2.55)	(2.00)
Hit x Stock				-0.019
				(-0.39)
Log assets	0.016	0.003	-0.106***	-0.106***
	(0.68)	(0.13)	(-4.37)	(-4.36)
ROA	-0.048	-0.045	-0.012	-0.012
	(-0.76)	(-0.75)	(-0.30)	(-0.30)
Underwriting profitability	-0.001	-0.001	-0.001	-0.001
	(-0.41)	(-0.42)	(-0.42)	(-0.41)
State profitability	0.000***	0.000***	-0.000	-0.000
	(3.76)	(3.10)	(-1.59)	(-1.59)
Log state policy premium	0.028***	0.027***	0.026***	0.026***
	(13.56)	(11.61)	(7.90)	(7.90)
Log # states	-0.096***	-0.088***	-0.062***	-0.062***
	(-5.76)	(-5.28)	(-4.68)	(-4.65)
Constant	-0.246	-0.013	2.046***	2.046***
	(-0.54)	(-0.03)	(4.30)	(4.29)
State FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y
Observations	39,943	34,450	12,224	12,224
R-squared	0.541	0.510	0.528	0.528

Table A2. Full Sample Analysis

This table replicates Tables 4-9 in the main text using the full sample (except Table 5 where the research design requires stock and mutual insurers to be comparable in profitability before the disaster shock). For variable definitions and details of their construction, see Appendix A. Robust t-statistics are reported in brackets. ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Types of complaints (Table 4)

	(1)	(2)	(3)	(4)
	Log consumer complaints			
	Marketing & sales	Underwriting	Policyholder service	Claim handling
Stock	0.019	0.014	0.103***	0.122***
	(0.90)	(1.27)	(5.68)	(3.55)
Home state-year FE	Y	Y	Y	Y
Observations	9,116	9,116	9,116	9,116
R-squared	0.273	0.153	0.269	0.243

Panel B: Nature of complaints (Table 4)

	(1)	(2)	(3)	(4)	(5)
	Log consumer complaints				
	Policy termination	Policy pricing & other terms	Denial, delay & underpayment	Misconduct	Consumer care
Stock	-0.005	0.042**	0.118***	0.017***	0.085***
	(-0.31)	(2.42)	(3.64)	(2.72)	(5.05)
Home state-year FE	Y	Y	Y	Y	Y
Observations	9,116	9,116	9,116	9,116	9,116
R-squared	0.243	0.212	0.269	0.096	0.256

Panel C: The Role of Competition (Table 6)

	(1)	(2)	(3)	(4)
	Log state-level consumer complaints			
Stock x State Herfindahl index	-1.449***			
	(-2.68)			
Stock x Low concentration		0.083**		
		(2.40)		
Stock x Insurer presence			0.001	
			(1.47)	
Stock x High insurer presence				0.073**
				(2.24)
State-year FE	Y	Y	Y	Y
Insurer FE	Y	Y	Y	Y
Observations	159,652	159,652	159,652	159,652
R-squared	0.509	0.509	0.509	0.509

Panel D: Regulatory Strength (Table 7)

	Log consumer complaints			
	(1)	(2)	(3)	(4)
Stock	-0.485***	-0.187	0.139***	0.105
	(-2.91)	(-1.49)	(3.82)	(1.46)
Stock x Log # state regulatory staff	0.116***			
	(4.14)			
Stock x Log state regulatory budget		0.100***		
		(3.20)		
Stock x New York-based			0.194***	
			(3.19)	
Stock x State commissioner appointed				0.061
				(0.77)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	7,640	4,539	9,116	9,116
R-squared	0.321	0.315	0.326	0.326
	Complaint success (%)			
Stock	0.158*	0.036	-0.015	-0.041
	(1.95)	(0.58)	(-1.08)	(-1.39)
Stock x Log # state regulatory staff	-0.031**			
	(-2.10)			
Stock x Log state regulatory budget		-0.010		
		(-0.55)		
Stock x New York-based			-0.058	
			(-1.57)	
Stock x State commissioner appointed				0.026
				(0.81)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	4,484	2,658	5,379	5,379
R-squared	0.122	0.114	0.127	0.126

Panel E: Approaching Regulatory Threshold of Financial Insolvency (Table 8)

	(1) Log consumer complaints	(2) Complaint success (%)
Stock	0.132***	-0.019
	(3.83)	(-1.35)
Low capital	-0.092	0.007
	(-0.46)	(0.09)
Stock x High insolvency risk	0.591***	-0.019
	(2.87)	(-0.21)
Controls	Y	Y
Home state-year FE	Y	Y
Observations	9,116	5,379
R-squared	0.328	0.126

	(1) Marketing & Sales	(2) Underwriting	(3) Policyholder Service	(4) Claim Handling
Stock	0.012	0.008	0.098***	0.100***
	(1.09)	(0.38)	(5.27)	(2.95)
Low capital	-0.040*	-0.130	-0.020	0.011
	(-1.66)	(-1.53)	(-0.24)	(0.05)
Stock x High insolvency risk	0.062*	0.320***	0.133	0.478**
	(1.69)	(3.18)	(1.43)	(2.24)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	9,116	9,116	9,116	9,116
R-squared	0.153	0.274	0.243	0.272

	(1) Policy termination	(2) Policy pricing & other terms	(3) Denial, delay & underpayment	(4) Misconduct	(5) Customer care
Stock	-0.014	0.036**	0.097***	0.016***	0.080***
	(-0.86)	(2.04)	(3.04)	(2.63)	(4.68)
Low capital	-0.093	-0.042	0.028	-0.009	-0.007
	(-1.41)	(-0.78)	(0.14)	(-0.47)	(-0.07)
Stock x High insolvency risk	0.247***	0.155**	0.453**	0.027	0.115
	(3.10)	(2.12)	(2.22)	(0.99)	(1.16)
Controls	Y	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y	Y
Observations	9,116	9,116	9,116	9,116	9,116
R-squared	0.244	0.212	0.272	0.097	0.257

Panel F: Impact of Pricing Regulations (Table 9)

	(1) Log consumer complaints	(2) Complaint success (%)
Stock	-0.075	0.001
	(-1.37)	(0.04)
% Rate regulated	0.041	-0.002
	(0.56)	(-0.04)
Stock x % Rate regulated	0.562***	-0.043
	(6.65)	(-1.00)
Controls	Y	Y
Home state-year FE	Y	Y
Observations	9,116	5,379
R-squared	0.337	0.127

	(1) Marketing & sale	(2) Underwriting	(3) Policyholder service	(4) Claim handling
Stock	-0.040***	-0.076**	-0.021	-0.129**
	(-3.43)	(-2.31)	(-0.85)	(-2.49)
% Rate regulated	-0.048*	-0.076	0.030	0.050
	(-1.78)	(-1.43)	(0.59)	(0.69)
Stock x % Rate regulated	0.146***	0.253***	0.300***	0.608***
	(5.58)	(4.67)	(5.88)	(6.97)
Controls	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y
Observations	9,116	9,116	9,116	9,116
R-squared	0.156	0.276	0.254	0.285

	(1) Policy termination	(2) Policy pricing & other terms	(3) Denial, delay & underpayment	(4) Misconduct	(5) Customer care
Stock	-0.065***	-0.052**	-0.122**	-0.016**	-0.025
	(-2.76)	(-2.21)	(-2.47)	(-2.49)	(-1.05)
% Rate regulated	-0.073*	-0.004	0.059	-0.033**	0.016
	(-1.79)	(-0.08)	(0.83)	(-2.59)	(0.35)
Stock x % Rate regulated	0.165***	0.232***	0.580***	0.090***	0.268***
	(4.08)	(5.43)	(6.95)	(7.77)	(5.68)
Controls	Y	Y	Y	Y	Y
Home state-year FE	Y	Y	Y	Y	Y
Observations	9,116	9,116	9,116	9,116	9,116
R-squared	0.244	0.218	0.285	0.100	0.265