Insurance Risks and Government Interventions

Dwight M. Jaffee
University of California, Berkeley

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I. Introduction

This paper discusses the welfare impacts of government interventions in insurance markets. I begin in Section II with a brief statement of three principles of insurance regulation. In the following sections, I discuss three “case studies” that illustrate these principles.

II. Three Principles of Insurance Regulation

1) Government Interventions in Insurance Markets are Regularly Requested

Insurance represents one of a limited number of goods and services that operate most effectively only when a large number of economic agents coordinate their participation. The reason is that the risk transfer carried out by insurance markets is most efficient when risk sharing embeds the law of large numbers. But it is also for this reason that governments are regularly asked to intervene in insurance markets when the markets fail to operate as desired.

2) Government Interventions can be Welfare Enhancing

The most evident class of interventions occurs when private markets fail to operate effectively. An obvious example occurs when private insurers refuse to offer a particular form of coverage, which occurs regularly with respect to catastrophe lines (such wind damage, floods earthquakes and terrorism). A second fundamentally useful role for government is to enforce contract structure and disclosures. Rules to make contract structure and terms understandable is

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1 See Jaffee (2015) for a discussion of the role of insurance and of government interventions in insurance markets.
important, given that insurance contracts must be technically precise in describing coverage. Finally, it has become a key role of government to regulate to oversee the safety and soundness of the institutions. This is particularly important for contracts with long-term payouts such as life insurance.

3) **Government Interventions can also Reduce Welfare**

Price controls are one possible source of welfare reducing government interventions. In the extreme, the market stops operating entirely as a result of the price controls. A second common form of dysfunctional government interventions occurs when the government becomes the actual insurer including setting premiums. Although such government plans regularly call for risk-based actuarial premiums, in practice it is almost invariable that these plans create subsidies, especially on higher risks, providing incentives for policyholders actually to take greater risks.

With this background, I now turn to the first example, namely the capital regulation of insurance firms.

### III. Capital Regulation of Insurance Firms

The need for, and specification of, regulatory insurer capital rules is complex and controversial. To start, it should be noted there is a case for no government capital rules at all. That is, in a friction-free world, policyholders and insurers could agree on the desired capital level. Premiums would discount for any insurer counterparty risk. Industry structures such as mutual, multiline, and monoline insurers, would also affect capital. Indeed, the laissez faire optimal outcome could be 100% capital, with the “Names” of the original Lloyd’s of London as an

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3 See Jaffee and Walden (2014) and GAO (2015) for discussions of insurer capital regulation.
example.

Of course, the more common case is that there are significant frictions, including double taxation at the corporate level, principal agent issues, and adverse selection. The result is an excess cost of capital for investors placing capital in an insurance firm. The implication is that insurers have incentive to conserve capital (below the friction-free level). Policyholders should then receive proper premium discounts to offset the insurer default risk. The case for laissez faire equilibrium carries over to friction worlds, even though insurer capital is limited.

The laissez faire equilibrium notwithstanding, regulators worldwide, impose capital requirements, accepting it as the government’s responsibility to ensure safety and soundness of insurance firms. This anticipates the outcome that when insurers default, policyholders will invariably ask why government did not take prior action. This may make sense given that policyholders may not be in a position to measure insurer risk effectively.

Setting regulatory capital requirements, however, is highly complex and difficult. Specifically, natural conflicts exit between insurers and regulators given varying risks and the excess cost of capital (which by itself gives insurers incentive to limit the amount of capital. These conflicts become most apparent with respect to risk-based capital requirements (RBCRs). The U.S. has long applied RBCRs to insurance firms, while the European Union is about to introduce its first sophisticated set of RBCRs as part of its new insurance rules call “Solvency 2” to be implemented in 2016; see GAO (2015). It seems fair to say that these RBCRs have been generally useful in maintaining the degree of insurer safety desired by policyholders.

Unfortunately, it must also be noted that a component of the U.S. RBCRs regarding mortgage-backed securities (MBS) failed during 2007/2008 crash; see Harrington (2009), GAO
The RBCRs required the insurers to reduce their capital accounts by the amount of the mark to market losses on their MBS positions at the same time they were required to increase their required capital amounts in line with the lower ratings now applicable to these securities. While this may appear a “double jeopardy, both raising the required capital and reducing the measured capital, it is economically correct. That is, the insurers did suffer a loss and the securities they held were now lower rated (in terms of further future losses)

In practice, however the insurers successfully argued that it was unfair to suffer both mark to market capital losses and higher RBCRs on the same securities. The result was a lowering of capital requirements on all MBS, and a near-zero requirement on residential MBS (RMBS). This standard continues in effect as of this writing. It appears that this near-elimination of capital regulations on RMBS was instrumental in bailout out the U.S. insurers with large MBS holdings. The use of RBCR levels for the bailout of insurers may be understandable in view of the limited tools available to the state insurance commissioners in the U.S. system, but it is more difficult to understand the failure to return the RBCRs to actuarially appropriate levels seven or more years after the 2007/2008 crisis.

Beyond this specific example, the capital regulation of insurance entities must be improved on other issues including their contribution (if any) to systemic risk, shadow insurance (whereby insurers create entities with the goal of regulatory arbitrage), and buffer capital which anticipates the mark to market losses in a format similar to that created for banks under Basel III. It is also noteworthy that the 2010 Dodd-Frank Act created a Federal Insurance Office (FIO) to make international insurance agreements, and created the Financial Stability Oversight Council (FSOC) with power to identify insurers as Systematically Important Financial
Institutions. Indeed, international negotiations are underway to synchronize U.S. and E.U. capital regulations for insurers and reinsurers operating in international markets.

IV. Auto Insurance in U.S. and California

California’s Proposition 103 was passed in 1988, creating new rating factor rules and requiring premium schedules to obtain prior approval. In one step, California went, arguably, from the least regulated to the most regulated state.\(^4\) In particular, Prop. 103 required insurers to apply the highest weights in their premium-setting equations to three factors (and in this order of importance): (1) driving record, (2) miles driven, and (3) years of driving experience. Certain secondary factors are also allowed: e.g. gender, marital status, and auto location (within limits). Other factors are not allowed: e.g. FICO scores.\(^5\) It appears most economists felt at the time that these restrictions would have negative consequences for auto insurance in California.\(^6\)

In fact, from 1999 to 2012, California had the steepest decline in auto premiums (-0.04%) relative to all other states (average of 43.2% increase); see Consumer Federation of American (2013). There are many possible explanations for this surprisingly good performance:

- California insurers must provide “safe driver” discounts; perhaps surprisingly, at the time many insurers did not offer explicit discounts, and thus drivers may have been unaware of the price incentive.

- California introduced and enforced strict seatbelt rules, leading to less costly claims.

- Fraudulent claims in California fell dramatically, arguably due to legal changes that become possible as a result of the passage of Prop. 103.

- Uninsured motorists declined significantly, also due to legal changes based on Prop. 103.

\(^4\) See Russell and Jaffee (1998 and 2002) for further discussion of Proposition 103.

\(^5\) FICO scores are arguably the single most predictive factor of future auto claims. Apparently this arises because the same individuals that do not maintain a high credit rating also commonly have high accident rates.

\(^6\) See Bradford (1998) and Cummins (1992)
The overall effect was that claims declined significantly, allowing insurer profitability and competition to be maintained; see (Consumer Federal of America 2013). One interpretation is Prop. 103 pushed California from a “bad equilibrium” to a quite good one.

The conclusion is thus that, at least as implemented in California, a significant degree of increased regulation actually had a beneficial impact on the drivers of California, and without adverse consequences for the insure.

V. Market Failures for Catastrophe Insurance

Catastrophe refers here to natural disasters (floods, wind damage, earthquakes), terrorism, and large industrial events. Private catastrophe insurance markets regularly fail in the sense that private insurers either refuse to provide coverage at all, or will only provide coverage with government support. Examples of failed private catastrophe insurance markets include flood insurance (now provided by the National Flood Insurance Program), Florida wind damage (now supported by the Florida Hurricane Fund), California Earthquakes (now primarily provided by the California Earthquake Authority) and Terrorism (now backstopped by the Federal government under the Terrorism Risk Insurance Act).7

There are a number of factors that create the private catastrophe insurance market failures:

- The excess cost of insurance capital makes it difficult to maintain sufficient capital.
- The cost of capital to cover tail risk is especially high.
- The premiums charged by insurers can far exceed what consumers believe is proper.
- These concerns apply to insurers and reinsurers alike.

The problem with government intervention in catastrophe insurance markets is that

governments commonly subsidize the insurance. Furthermore, there is commonly a cross-
subsidization whereby the lower risks subsidize the higher risks. The result is that the
government plans end up providing incentive for its citizens actually to take the highest risks.

Insurance-linked securitization is an interesting attempt to create a market solution to the
problem of funding catastrophe risks. The concept is to transfer the catastrophe risks directly to
capital market investors, with the investors presumably diversifying the portfolio with
relatively small holding and many different risks. Investors should find this asset class
attractive, assuming that the physical risks are well defined and that the correlation with stock
market movements is typically low. Catastrophe bonds are the main instrument used for risk
transfer under ILS; see Kunreuther (2002). Investors purchasing these bonds receive an interest
coupon equal to the risk-free rate plus the insurance premium. If the insured event does not
occur over the term of the bond, the investors receive back their initial principal. On the other
hand if the insured event does occur, then the issuing insurance firm receives the entire
principal, which can then use to pay off claims. Unfortunately, the insurance premium required
by investors on catastrophe bonds appears far greater than actuarial estimates of the true risk.
For example, a catastrophe bond with an actuarial expected annual loss of 1% could well
require an insurance premium of 3% to 5% annually. The result is that government remains the
main support for most catastrophe insurance lines.

VI. Government Intervention in Insurance: Conclusions

It is nearly inevitable that governments will intervene, quite often significantly, in insurance
markets. It is thus essential that the policy process leads to constructive interventions and
avoids dysfunction regulation. Among the most dysfunction policy action are price ceilings and
the failure to apply risk-based principles for both capital and premium setting. Functional
regulation does exist, but as my examples show, it is a delicate and complex enterprise to get it
right.
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