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# The Dodd-Frank Act, Solvency II, and U.S. insurance regulation

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## **Abstract**

This article discusses key issues that policymakers should consider when evaluating potential changes to U.S. insurance regulation in the aftermath of the financial crisis, including implications of both the Dodd-Frank Act and the Solvency II initiative in the European Union. Fundamental differences in the U.S. between banking and insurance are emphasized, including much lower systemic risk potential and greater market discipline in insurance, and why those differences favor capital regulation and policyholder guaranty systems that reflect the distinctive features of each sector.

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<sup>1</sup> This paper updates and expands papers presented at the Networks Financial Institute 7th Annual Insurance Reform Summit, Washington, D.C., 16 March 2011 (distributed as Networks Financial Institute Policy Brief 2011-PB-01) and at the Temple University conference on Convergence, Interconnectedness, and Crises: Insurance and Banking, 8-10 December, Philadelphia, PA. Some of the discussion draws from my September 2009 NAMIC Issue Brief, *The Financial Crisis, Systemic Risk, and the Future of Insurance Regulation* (edited version published as Harrington, 2009). The views expressed and any errors are mine and unrelated to organizations with which I am affiliated.

## Introduction

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 could have far-reaching implications for U.S. insurance regulation. Paralleling in many respects global initiatives of the G20 and the Financial Stability Board, the Dodd-Frank Act created the Financial Stability Oversight Council (FSOC) to oversee systemic risk, with the authority to identify systemically significant “nonbank financial companies,” including insurance companies, which will be subject to heightened supervision by the Federal Reserve. It also created the Federal Insurance Office (FIO) within the U.S. Department of Treasury to monitor all aspects of the U.S. insurance industry and negotiate, and enter into, international agreements concerning prudential matters for insurance and reinsurance. The FIO is required to study and report to the U.S. Congress on numerous aspects of insurance regulation, including systemic risk and capital requirements, regulation of insurance companies and affiliates on a consolidated basis, international coordination of insurance regulation, the degree of national uniformity of state regulation, the costs and benefits of federal regulation for different lines of insurance, and the potential consequences of subjecting insurance companies to federal resolution authority, including the effects on state insurance guaranty funds.

The FSOC has thus far promulgated rules for the identification of systemically important nonbank institutions, and the Federal Reserve is developing enhanced supervision procedures and additional capital requirements for systemically important nonbanks. The Federal Reserve has also proposed applying the Basel III bank regulatory regime to nonbank financial institutions that own savings and loans entities, including organizations that predominantly engage in insurance activities, and several insurance organizations have chosen to divest savings and loan subsidiaries.

As the implementation of the Dodd-Frank Act evolves, the National Association of Insurance Commissioners (NAIC) is exploring key issues in solvency regulation and supervision through its Solvency Modernization Initiative, including core principles, group solvency, capital requirements, corporate governance, international reinsurance transactions, and international accounting and regulatory standards. Debate over U.S. insurance regulation encompasses those efforts and the adequacy and effectiveness of the NAIC’s risk-based capital (RBC)

system. Possible alternatives to the NAIC RBC system in principle include the adoption of capital standards along the lines of the E.U.’s Solvency II initiative. Solvency II requires that non-E.U. countries’ insurance regulatory systems meet certain criteria in order for their capital, group supervision, and reinsurance standards to be deemed equivalent to those of the E.U. If deemed equivalent, E.U. supervisors will essentially rely on the home country’s supervision and treat insurers and reinsurers from that country the same as E.U. insurers and reinsurers.

This article discusses key issues that policymakers should consider when evaluating potential changes to U.S. insurance regulation in the aftermath of the financial crisis, including the implications of the Dodd-Frank Act and the Solvency II initiative. Despite some convergence, most U.S. financial institutions can be expected to specialize predominantly in either banking (and/or securities) or insurance for the foreseeable future. The article emphasizes fundamental differences between insurance and banking, including low systemic risk potential and stronger market discipline in U.S. insurance, and how those differences favor regulatory and policyholder guaranty systems that reflect the distinctive features of each sector.

The paper first reviews the insurance sector’s role in the financial crisis and the extent to which insurance poses systemic risk. It turns next to possible FSOC designation of one or more insurance entities as posing a threat to the financial stability of the U.S., and the potential consequences of such designation. I then discuss key issues that should be considered carefully in the policy debate over additional changes in U.S. insurance regulation, including whether the U.S. should move towards a banking model of insurance solvency regulation in general and a Solvency II approach in particular.

## The financial crisis and systemic risk

Prior to the financial crisis, many U.S. banks, investment banks, thrifts, hedge funds, mortgage originators, and mortgage borrowers assumed substantial risk in anticipation of continued housing price appreciation. If prices continued to climb, they would have achieved large returns. If prices fell, much of the resulting loss would be borne by others. Explicit or implicit guarantees of debt issued by a number of GSEs (Government Sponsored Enterprises) lowered financing costs and contributed to the housing bubble in general and rapid expansion of subprime

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lending in particular. Deposit insurance and implicit guarantees of banks' obligations likewise encouraged risky lending, especially as the U.S. Congress pressed banks and the GSEs to expand lending to low-income borrowers.

Some banks located significant amounts of leveraged investment in off-balance sheet vehicles. Investment banks helped spread the risk of housing price declines and mortgage defaults through securitization. The conversion from partnerships to corporate ownership very likely encouraged major investment banks to assume more risk in relation to capital, especially given expanded competition with investment bank affiliates of bank holding companies. The Securities and Exchange Commission's adoption in 2004 of consolidated supervision of the major investment banks allowed them to substantially increase leverage and take on more subprime exposure.

Many subprime mortgage originators were relatively new entrants with little reputational capital at risk and only modest participation in the risk of underlying mortgages. In tandem with growing speculation on housing prices, the Federal Reserve kept short-term interest rates at historically low levels, fueling demand for credit and housing, and it encouraged relaxation in historical underwriting standards. Regulators in the U.S. and abroad uniformly failed to anticipate the coming crisis.

#### **Government assistance**

The financial meltdown led to U.S. government assistance to several major insurance companies, including total federal commitments to provide assistance to just one major insurer growing to U.S.\$182 billion and assistance provided reaching over U.S.\$130 billion. The government's funding support was used predominantly to meet demands of bank and investment bank counterparties to credit default swap and securities lending transactions.<sup>2</sup>

Although securities lending activities contributed to significant problems and collateral calls, the original government assistance was precipitated by a liquidity crisis resulting largely from non-insurance activities, not core insurance operations, especially credit default swap activities that were not conducted by

regulated insurance subsidiaries. Otherwise, with the exception of a few specialty mortgage/bond insurers, the insurance sector withstood the crisis reasonably well. General property/casualty insurers and most life insurers avoided severe adverse consequences. It remains uncertain whether any insurance operating companies would have become insolvent if the government had not intervened.

The financial crisis reflected fundamental failures in U.S. and foreign banking regulation, including in the U.S., by the Office of Thrift Supervision (OTS), the Office of the Comptroller of the Currency (the regulator of federally chartered commercial banks), the FDIC, the U.S. Securities and Exchange Commission (SEC), and the Federal Reserve.<sup>3</sup> Banking regulation and supervision permitted high leverage, aggressive investment, inadequate capital for risky loans and securitizations, and complex and highly leveraged off-balance sheet vehicles, often financed by commercial paper.

Many credit default swap and securities lending counterparties were regulated by U.S. and foreign banking regulators. Because broad regulatory authority encompasses responsibility for monitoring an institution's relationships with counterparties, banking regulators also bear significant responsibility for not recognizing the risks of allowing regulated banking entities to (1) buy extensive amounts of credit protection from insurance companies, and (2) provide large amounts of securities lending collateral to them.

#### **Systemic risk**

In addition to motivating the adoption in the U.S. of regulation requiring the identification and enhanced supervision of systemically important nonbank financial institutions, the events of 2008 have stimulated substantial research and analysis of the extent to which insurance involves systemic risk. Although there is no uniform definition, the term "systemic risk" generally is used broadly to encompass the risk of any large, macroeconomic shock that affects financial stability, and the risk arising from extensive interconnectedness among firms, with an attendant risk

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<sup>2</sup> Congressional Oversight Panel (2010) provides a comprehensive review of the problems and government assistance. Also see Harrington (2009).

<sup>3</sup> Until the crisis, U.S. insurance organizations that owned savings and loan subsidiaries were subject to consolidated regulation and oversight by the OTS. The OTS, which was eliminated by the Dodd-Frank Act, was also responsible for regulating several large mortgage finance organizations that eventually failed and were merged with, or acquired by, other entities with Federal Deposit Insurance Corporation (FDIC) assistance.

of significant economic spillovers on the real economy.<sup>4</sup> There is a distinction between the risk of common shocks to the economy, such as widespread reductions in housing prices or large changes in interest rates, which have the potential to directly harm large numbers of people and firms, and financial risk that arises from interconnectedness and contagion. It often is difficult empirically, however, to distinguish any contagion effects from the effects of common shocks.

While there were elements of counterparty and information-based contagion, the driving factor underlying the general financial crisis was a common shock: the bursting of the housing bubble and declines in values of mortgage-related securities. Regarding the insurance sector, whether credit default swaps and securities lending presented significant risk of contagion remains uncertain, including the extent to which a major bankruptcy would have had significant adverse effects beyond counterparties, or the extent to which counterparties had hedged their exposure or otherwise reduced their risk. A failure by the U.S. government to channel hundreds of billions of dollars of assistance to those counterparties would have weakened their financial condition, forcing some to sell more assets and reducing their ability to invest, trade, and/or make loans. Some E.U. banking counterparties would have needed to raise more capital or reduce their risk exposure. Without federal government intervention, many more insurance policyholders might have terminated or declined to renew their policies. That by itself, however, would not imply contagion or that those customers would be significantly harmed.

Analyses generally conclude that the core activities of insurers pose little systemic risk, especially compared with banking, in part because many insurers hold relatively large amounts of capital in relation to their liabilities and have relatively little exposure to short-term liabilities, reducing their vulnerability to shocks [Swiss Re (2003); Harrington (2004a); Geneva Association (2010,

2012); IAIS (2011); Cummins and Weiss (2013)].<sup>5</sup> Shocks to insurers do not threaten the economy's payment system and short-term lending. Banking crises have much greater potential to produce rapid and widespread harm to economic activity and employment.

Differences in systemic risk between insurers and banks help explain historical differences in regulation across the sectors. Other things being equal, greater systemic risk favors stronger government guarantees of financial institutions' obligations to protect consumers and deter economically inefficient runs. Greater systemic risk also favors more stringent capital requirements. The issues are related. Stronger guarantees increase moral hazard: they reduce market discipline for financial institutions to be financially strong, increasing the need for more stringent capital rules. Thus, systemic risk strengthens the case for relatively broad government guarantees of bank obligations and relatively strict financial regulation, including capital requirements.

Because insurance activities pose much less systemic risk, there is less need for strict capital requirements and relatively broad guarantees to prevent inefficient runs that would destabilize the economy. Insurance guarantees in the U.S. have been appropriately narrower in scope than in banking, and, as is elaborated below, market discipline is reasonably strong. Insurers commonly have held much more capital than required by regulation and have not faced strong incentives for regulatory arbitrage and other evasion.

4 In their detailed review of the literature on systemic risk in insurance and reinsurance, Cummins and Weiss (2013) define systemic risk as "the risk that an event will trigger a loss of economic value or confidence in a substantial segment of the financial system that is serious enough to have significant adverse effects on the real economy with a high probability." They suggest that primary indicators of systemic risk at the firm level include size (volume of exposures), interconnectedness, and a lack of substitutability for a firm's services.

5 Based on their detailed literature and analysis, for example, Cummins and Weiss (2013) conclude that "the core activities of U.S. insurers do not pose systemic risk." In contrast to IAIS (2011), Cummins and Weiss conclude that "life insurers are vulnerable to intra-sector crises" and that "both property-casualty and life insurers are vulnerable to reinsurance crises arising from counterparty credit risk." Research on financial institutions' stock prices provides evidence of interconnectedness among insurers and other financial firms and develops new metrics for measuring systemic risk with stock price data. Billio et al. (2011), for example, use principal components analysis and Granger causality tests to analyze stock returns for insurers, banks, securities brokers, and hedge funds during 1994-2008. They find evidence of causal relationships between the sectors during 2001-2008 but not 1994-2000, and they identify several insurers as systemically important. Acharya et al. (2010) develop a measure of systemic risk (systemic or marginal expected shortfall) to reflect a firm's tendency to lose value when the overall market suffers large losses. Their analysis of stock returns for insurers and other financial firms during 2006-2008 suggests that insurance firms were the least systemically risky. Insurers with the largest systemic risk measures had significant activity in credit derivatives and financial guarantees.

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### The FSOC and systemic risk regulation

The FSOC is charged with (1) identifying risks to financial stability from “the material financial distress of large, interconnected bank holding companies or nonbank financial companies, or that could arise outside the financial services marketplace”; (2) promoting market discipline “by eliminating expectations on the part of shareholders, creditors, and counterparties that the government will shield them from losses in the event of failure”; and (3) responding to “emerging threats to the stability of the U.S. financial system.” The FSOC has 10 voting members from member agencies (including, among others, the Federal Reserve Chair, Treasury Secretary, SEC Chair, FDIC Chair, Comptroller of the Currency Director, and a presidential appointee with expertise in insurance) and five nonvoting members, including the Office of Financial Research Director, the FIO Director, a state insurance commissioner, a state banking commissioner, and a state securities commissioner.<sup>6</sup>

Section 113 of the Dodd-Frank Act provides the FSOC with the authority, by a two-thirds vote, to designate a nonbank financial company, including an insurance company, as systemically important (by imposing a threat to the financial stability of the U.S.) and subject to enhanced regulation and supervision by the Federal Reserve. The Federal Reserve is required to establish, with input from the FSOC, enhanced risk-based capital requirements, leverage rules, resolution standards, and other requirements for systemically important nonbank financial companies. Section 113 specifies factors the FSOC must consider in determining whether a company will be subject to enhanced supervision, including its leverage; off-balance sheet exposure; importance as a source of credit and liquidity for households, businesses, state and local governments, and low-income communities; the nature, scope, size, and interconnectedness of its activities; the amounts and nature of its assets and liabilities; the degree to which it is already regulated by one or more primary regulators; and “any other risk-related factors that the Council deems appropriate.”

FSOC regulatory rules and guidance for designating nonbank financial companies as systemically important set forth six broad risk categories for determining systemic importance:

size, lack of substitutes for the firm’s services and products, interconnectedness with other financial firms, leverage, liquidity risk and maturity mismatch, and existing regulatory scrutiny. The size, lack of substitutes, and interconnectedness criteria “seek to assess the potential for spillovers from the firm’s distress to the broader financial system.” The leverage, liquidity/maturity mismatch, and existing regulatory scrutiny criteria “seek to assess how vulnerable a company is to financial distress.”

The rules establish a three-stage process for determination of whether a nonbank financial company poses a threat to the financial stability of the U.S. Stage 1 employs publicly available information and information from member regulatory agencies to identify nonbank financial companies for more detailed evaluation in Stage 2. A company is evaluated further in Stage 2 if its global consolidated assets are U.S.\$50 billion or greater and it meets at least one of five additional quantitative thresholds. Stage 2 entails a review and prioritization of Stage 2 entities based on analysis of each company, using information available to the FSOC through existing public and regulatory agencies and information obtained from the company voluntarily. Based on this analysis, the FSOC notifies companies it believes merit further evaluation in Stage 3, including analysis of additional information collected directly from the company. The evaluation considers the company’s resolvability in the event of financial distress and includes consultation with the company’s primary regulator. Following Stage 3 analysis, a “Proposed Determination” of a company as systemically significant requires a two-thirds vote of the FSOC, followed by a hearing if the company requests, and, if so, a final vote. As of December, 2012, the FSOC had notified several insurance organizations that they are subject to Stage 3 evaluation.

I view Section 113’s provisions for identifying systemically significant nonbanks for enhanced supervision by the Federal Reserve as misguided. The large U.S. investment banks that survived the financial crisis became bank holding companies and are, therefore, regulated by the Federal Reserve, with enhanced supervision required by the Dodd-Frank Act (based on their size, as are other large banks). Arguments against designating specific nonbanks as systemically significant and subject to enhanced regulation include:<sup>7</sup>

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<sup>6</sup> The Dodd-Frank Act established the Office of Financial Research within Treasury to provide support to the FSOC through data collection, data standardization, long-term research, and development of risk-measurement and monitoring metrics.

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<sup>7</sup> I made these arguments in Harrington (2009).



- ▶ Greater capital requirements and tighter regulation for entities designated as systemically important raises the risk that they could face excessive burdens and costs that would disrupt competition and harm customers.
- ▶ The possibility of being designated as systemically important and subject to more stringent regulation creates uncertainty for large, nonbank financial companies that could likewise distort their financial and operating decisions in undesirable ways.
- ▶ Given the failure of regulators (and other professionals and academics) to anticipate the financial crisis, there can be little confidence that enhanced supervision of companies designated as systemically important will significantly reduce the likelihood of any future crisis.
- ▶ Most important, there is little reason to hope that “systemically important” will not translate as “too big to fail.” Regardless of legislative and agency assertions that creditors and shareholders of companies designated as systemically important will not be bailed out in the event of financial distress, there is a real risk that government assistance would be likely for companies identified as systemically important, which could ultimately worsen the moral hazard problem.<sup>8</sup>

These objections notwithstanding and as noted above, strong arguments can be made that the core activities of insurers do not pose systemic risk. With very few exceptions, reasonable application by the FSOC of the statutory criteria and/or six categories of factors in its rules and guidance should not result in designation of any U.S. companies that predominantly write property/casualty insurance as systemically important. Although some large life insurers may pose greater systemic risk than property/casualty insurers, reasonable application of the criteria should also exclude most if not all life insurers from designation as systemically important. If any insurers are so designated, the competitive dynamics of the insurance market will likely be affected in unpredictable ways.

### U.S. regulatory modernization

Key and related issues regarding the potential for additional changes in U.S. insurance regulation include: (1) whether federal regulation should be further expanded, (2) how to encourage robust market

discipline, (3) the appropriate design of policyholder guarantees, (4) the appropriate design of capital requirements, and (5) group supervision. These issues are all linked to the possible expansion of bank regulatory models to insurance. The last two are closely related to the E.U.’s Solvency II initiative.

### Federal regulation

Pre-crisis pressure in the U.S. for optional federal chartering or other fundamental changes in state insurance regulation focused on the costs and delays of regulatory approval of policy forms in over 50 different jurisdictions; the costs, delays, and possible shortrun suppression of rates below insurers’ projected costs associated with prior regulatory approval of insurers’ rate changes; and restrictions on insurers’ underwriting and risk classification.<sup>9</sup> The pricing and underwriting issues were primarily relevant for property/casualty insurers. Regulation of policy forms was the overriding issue for life insurers. Optional federal chartering was often viewed as a potential mechanism for achieving desirable regulatory change with suitable deregulation, including improved ability to deal with multi-jurisdictional issues within the U.S. and internationally.

The financial crisis fundamentally changed the debate as to whether expanded federal regulation is appropriate for dealing with systemic risk and solvency issues. While the scope is uncertain, the Dodd-Frank Act has the potential to significantly expand federal regulation of U.S. insurance through possible designation of systemically significant insurance organizations for enhanced supervision by the Federal Reserve. The application of the Basel III framework to insurance organizations that own savings and loans entities would likewise expand the reach of federal regulation.

One traditional argument against optional federal chartering of insurers is that the states have performed reasonably well in many respects, including regulating solvency and analyzing and revising regulation to deal with perceived problems (including, for example, the current NAIC Solvency Modernization Initiative).

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8 To quote one example of this view, Hubbard et al. (2009) write: “Identifying an institution as systemically important creates a moral hazard, since the market will view this designation as the equivalent of a bailout guarantee. A perceived bailout guarantee will decrease these institutions’ costs of raising capital.”

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9 I provided details in Harrington (2006). In contrast to the early 1970s and early 1990s, when temporary increases in the frequency and severity of insurance company insolvencies motivated optional federal chartering proposals, pressure for optional federal chartering from the late 1990s until the crisis was not motivated by solvency concerns.

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Another key argument is that the potential risks and costs of optional federal chartering are large compared with the uncertain benefits. In particular, the history of federal deposit insurance and “too big to fail” policy creates some risk that optional federal chartering could expand government guarantees of U.S. insurers’ obligations, undermine market discipline and incentives for safety and soundness, and increase the likelihood of future federal bailouts of insurance organizations.

In addition, even if optional federal chartering were to reduce the scope of insurance price regulation initially, it could ultimately produce broad restrictions on pricing and underwriting at the federal level, to achieve political or social goals (as has been illustrated by the health insurance rate review and minimum medical loss ratio requirements in the U.S. health-care reform law enacted in 2010). Such restrictions would increase cross-subsidies among policyholders, inefficiently distort some policyholders’ incentives to reduce the risk of loss, and increase risk to federal taxpayers if political pressure led to inadequate rates. Alternatives to optional federal chartering that might have the potential for improving insurance regulation with less risk include: (1) selective federal preemption of inefficient state regulations, such as prior approval rate regulation in competitive markets and inefficient impediments to nationwide approval of certain products, and (2) allowing insurers to choose a state for primary regulation with authorization to operate nationwide, primarily under the rules of that state.

The recent crisis and government bailouts did not establish the case for some form of federal chartering of U.S. insurers. In addition to the arguments against federal regulation of individual insurers designated as systemically significant, discussed above, it is not clear how the financial crisis fundamentally altered the potential benefits and costs of optional federal chartering. The problems that some firms experienced cannot be primarily attributed to any insurance regulatory failure. While disputed and subject to some uncertainty regarding the fungibility of capital among affiliates, it appears that state regulated insurance operating entities would likely have been able to largely or completely meet their obligations to policyholders without federal intervention, with state insurance guaranty funds serving as a potentially important back-up if they could not.

The alternative scenario – where insolvency of insurance operating entities had required multibillion dollar assessments under the state guaranty system – might have strengthened the argument for federal regulation. Even then, however, a strong case for federal regulation in response to the crisis would need to explain how pre-crisis federal insurance regulation would have mitigated the industry’s problems. That would not be easy in view of what happened at major bank and investment bank holding companies. There can be no presumption that federal regulation of insurance operations would have mitigated risk-taking, or that optional federal chartering, with or without mandatory federal regulation of insurers deemed systemically important, would mitigate any role of insurance in some future financial crisis.

#### **Market discipline**

A lack of market discipline represents a key underlying cause of the financial crisis. A simple explanation for much of the aggressive risk-taking by commercial banks, investment banks, savings and loans, mortgage originators, and mortgage borrowers was that the potential gains and losses were asymmetric. If housing prices continued upwards, participants could achieve large profits. If prices stabilized, or even fell, the losses would be borne largely by other parties, including taxpayers. The extended period of historically low interest rates further encouraged high leverage and fueled risky borrowing, lending, and investment.

A primary objective of additional legislative, regulatory, and administrative responses to the financial crisis should be to encourage market discipline, to promote safety and soundness in all types of financial institutions. A key, stated objective of the Dodd-Frank Act is to reduce the likelihood of future bailouts of financial institutions. Whether it is likely to achieve that goal is uncertain, but an overriding goal of its implementation, and of any future changes in financial regulation, should be to constrain “too big to fail” policy. As noted above, a potential downside to FSOC designation of an insurer as systemically important and subject to enhanced supervision by the Federal Reserve is that it could ultimately undermine market discipline if creditors, counterparties, investors, and/or consumers anticipate additional protection against the consequences of an insurer’s financial distress.

It is fundamentally important for policy to recognize that insurance markets generally have been characterized by relatively strong market discipline and correspondingly low insolvency risk.<sup>10</sup> Many, if not most, policyholders prefer to deal with financially strong insurers and are willing to pay the higher costs that greater financial strength require (even with limited state guarantees, see below). A variety of institutions, including the widespread use of insurance intermediaries (agents, brokers, advisors), private ratings of insurers' financial strength, and, for business coverages, knowledgeable corporate staff who oversee risk-management and insurance programs, help match risk-sensitive policyholders with financially strong insurers. In addition, insurance production and distribution often involve the creation of sizable franchise value, which could diminish or evaporate if an insurer experiences financial distress. Protection of those assets from loss due to financial difficulty, therefore, provides a significant incentive for adequate capitalization and other forms of risk management by insurers. Finally, many insurers in the U.S. issue debt, primarily at the holding company level. Until the events of 2008, that debt was effectively subordinated to policyholder claims, creating an additional category of stakeholders concerned with risk management.

#### **Policyholder guarantees**

Given the importance and scope of existing market discipline, policy should recognize the fundamental importance of avoiding any significant expansion of government guarantees of insurers' obligations and carefully consider the potential effects of possible federal regulation on the state guaranty system. In contrast to "too big to fail" policy, and consistent with lower systemic risk in insurance than in banking, protection provided by state guaranty funds is relatively narrow, which reduces moral hazard and helps preserve market discipline.

The policy debate will likely consider arguments that the state system of ex-post funding of guarantees is defective. That system, however, has several advantages. Coupled with potential borrowing by state guaranty associations, pre-funding is not necessary for the system to have substantial capacity, and ex-post funding helps provide incentives for financially strong insurers

to press for effective regulatory oversight. Some academics assume that pre-funding of guarantees would be preferable, in large part because they believe it would permit insurers to be charged accurate, risk-based premiums for guaranty protection, thus encouraging incentives for financial soundness. In practice, however, premiums would likely be based only crudely on risk. The adoption of pre-funded guarantees could yield its disadvantages without enough risk-rating to significantly improve incentives.<sup>11</sup>

Given that federal guarantees would likely be viewed by policyholders as stronger than state guarantees, a federal guaranty system for federally chartered insurers in a system of optional federal chartering might soon supplant state guarantees – so that most, or even all, insurers would end up being backed by a federal guaranty. As an alternative (and as has been previously proposed), federally chartered insurers could be required to participate in the state guaranty system. However, the longrun stability of such a system would be uncertain. If a federally chartered insurer operating in multiple states failed, there would likely be substantial criticism of any state differences in guaranty coverage. Failure of a state chartered insurer – with federally chartered insurers having to contribute – could likewise lead to substantial criticism of state guarantees and solvency oversight. A possible belief that the federal government would stand behind federally chartered insurers would distort competition between state and federally chartered insurers, especially if any insurer were designated as systemically important.

As a result, substantial pressure for federal guarantees could be inevitable, with optional federal chartering, perhaps by designing federal guarantees along the lines of existing state guarantees. The design of any government guarantees also might be tailored in principle, to help encourage additional market discipline. It should be recognized, however, that a monopoly federal guaranty program might ultimately ensue. That result could undermine market discipline, in principle requiring stricter capital requirements and regulation.

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<sup>10</sup> I discussed this issue in detail in Harrington (2004b). Epermanis and Harrington (2006) provide evidence of market discipline in U.S. property/casualty insurance. Eling (2012) provides a detailed review of market discipline in insurance and comparisons to banking.

<sup>11</sup> The Dodd-Frank Act adopted ex-post funding of the Orderly Liquidation Fund to repay possible borrowings from the Treasury by the FDIC, via "postevent" assessments on bank holding companies with U.S.\$50 billion or more in assets and any nonbank financial companies designated as systemically important (with graduated assessments to be proposed by the FSOC based on assets, risk, and other factors).

### Capital requirements and Solvency II

The effectiveness of the NAIC risk-based capital (RBC) system and possible alternatives, such as Solvency II, are important issues in the U.S. solvency modernization debate, including whether significant changes will be required if the U.S. is to achieve equivalence under Solvency II.<sup>12</sup> In contrast to the U.S. RBC system and associated solvency regulation, Solvency II is patterned after the three-pillar Basel II (and III) framework for bank regulation. It relies on market (consistent) valuation of assets and liabilities, in contrast to the U.S. reliance on statutory accounting valuation. Solvency II's quantitative capital requirements (Pillar 1) involve calculation of quantitative (stochastic) risk models. The "standard capital model" will employ a 99.5% value-at-risk metric for a one-year horizon in determining required capital. Moreover, and again borrowing from the bank regulatory model of Basel II, the Solvency II approach is viewed as principles-based rather than rules-based, including that it will provide an insurer with the opportunity to convince regulators that it needs less capital, based on its own (internal) capital model.

As part of its Solvency Modernization Initiative, the NAIC is considering changes to its RBC system that currently appear likely to retain its basic structure. The NAIC RBC standards have been criticized on a number of dimensions, including that the types of risk reflected, risk charges, and aggregation methods are ad hoc and unnecessarily crude, especially compared with more sophisticated stochastic risk models.<sup>13</sup> Some academic analyses have concluded that the U.S. should move in the direction of Solvency II's reliance on stochastic modeling and regulatory authorization/approval of internal models. Cummins and Phillips (2009) [also see Holzmüller (2009)], for example, recommend U.S. adoption of market valuation, stochastic risk modeling, and internal capital models.

Solvency II might well be appropriate for the European Union, and it has been designed with great study and effort. I am not convinced, however, that more sophisticated quantitative models to derive "value-at-risk" (or "tail value-at-risk") are appropriate for achieving

the objectives of insurance capital regulation in the U.S., given the potential benefits and costs involved, and the demonstrable failures of the Basel system leading up to the financial crisis.<sup>14</sup>

It almost always can be argued that capital standards, even those based on relatively complex formulas, such as the NAIC standards, are insufficiently rigorous and that additional refinements and analytical sophistication are warranted. But analytical sophistication invariably outpaces reliable, practical application with real-world data. While seemingly precise, mathematically sophisticated risk models need not be accurate when applied in practice. Their potential value in analyzing a firm's risk, conceptually and in providing guidance to its management, need not imply that they are an appropriate foundation for regulatory capital, especially through deference to a regulated entity's own model.

Some observers suggest that the relatively low levels of aggregate U.S. RBC compared to total industry capital indicate that the NAIC RBC formulas do not require sufficient capital. It is important for U.S. policymakers to consider, however, that relatively low levels of RBC in relation to actual capital for the bulk of insurers makes sense in an environment of significant market discipline. Current RBC standards in the U.S. have relatively little effect on the operating and financial decisions of a large majority of insurers, which hold much more capital than required by the standards. Even with refinements of risk measures, or changes in the basic modeling framework, to improve accuracy, any significant increase in the overall level of U.S. RBC could lead to undesirable distortions in decisions of many financially sound insurers. The effects could include reduced willingness to offer coverage, less appropriate investment strategies, and higher prices, especially following any large, negative shocks to insurer capital.<sup>15</sup>

In Harrington (2004a), I discussed this issue in detail and developed a simple model of the optimal stringency of capital standards in relation to the degree of market discipline when imperfect

12 Eling and Holzmüller (2008) and Cummins and Phillips (2009) compare NAIC RBC requirements and Solvency II. Also see Eling et al. (2007).

13 A variety of academic studies analyze the ability of the NAIC RBC requirements to predict U.S. insurer insolvencies [e.g., Cummins et al. (1995); Grace et al. (1998); Cummins et al. (1999); Pottier and Sommer (2002)]. The evidence generally indicates that NAIC RBC ratios lack predictive power compared with models that include other metrics.

14 Dowd et al. (2011), for example, provides a sharp and detailed critique of the Basel regime of bank capital regulation and its contribution to the financial crisis.

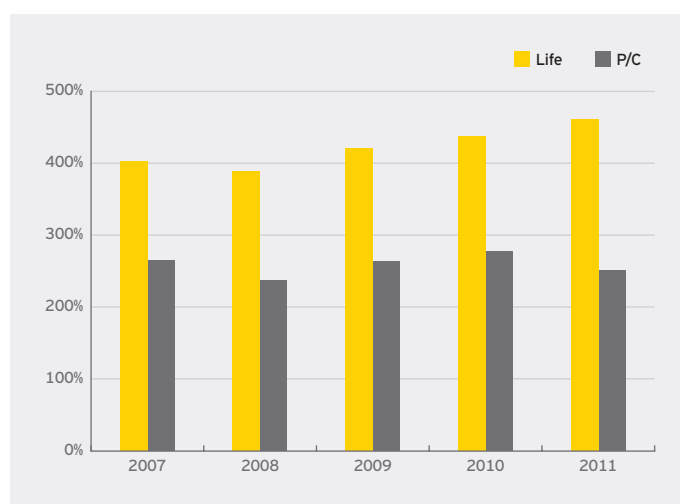
15 According to an early economic evaluation of U.S. RBC requirements, Cummins et al. (1993) stated that: "The insolvency record and the potentially severe adverse consequences of excessive risk-based capital charges provide substantial support for using a 'minimum threshold' approach to setting the stringency of risk-based capital. Under this approach, risk-based capital would serve as a minimum or floor on capital that would be expected to constrain only the weakest insurers." The importance of this point has been overlooked in some subsequent evaluations that build on Cummins et al. [e.g., Holzmüller (2009)].

information concerning capital adequacy results in costly Type 1 and 2 errors (i.e., failing to constrain some inadequately capitalized insurers and inefficiently distorting the decisions of some adequately capitalized insurers). The model formalizes the intuitive prediction that capital standards that minimize the total cost of Type 1 and 2 errors will be less stringent, the greater the proportion of insurers that would be adequately capitalized without regulation. The key implication is that optimal capital standards should not bind most insurers in a market characterized by strong market discipline.

The U.S. RBC system, where most insurers hold significantly more capital than the required minimums [see Harrington (2004a); Cummins and Phillips (2009)], is consistent with reasonably strong market discipline in U.S. insurance markets. For 2011, the median ratio of total adjusted capital to Company Action Level RBC was 526% for all life companies and 520% for all property/casualty insurers [NAIC (2012a,b): data reported for individual insurers].<sup>16</sup>

On average, U.S. RBC ratios decline with insurer size (assets). Figure 1 shows median RBC ratios by year during 2007-2011 for U.S. companies with more than \$10 billion of assets. The median ratios for life companies range from a low of 389% in 2008 to a high of 462% in 2011. The medians for property/casualty companies range from a low of 237% in 2008 to a high of 278% in 2010. About 97% of all companies in both sectors had total adjusted capital above their company action RBC level each year during 2007-2011.

Evidence suggests that Solvency II could be binding for relatively more E.U. insurers.<sup>17</sup> Regardless of whether that would be appropriate for the E.U., the case has not been made that tighter requirements would be appropriate for the U.S. A move towards a Solvency II model with an emphasis on sophisticated risk modeling in the U.S. could be accompanied by more stringent requirements



**Figure 1: Median RBC ratios for U.S. life and property/casualty insurers with assets above U.S. \$10 billion (2007-2011)**

Note: Ratios of total adjusted capital to company action level RBC.

Source: NAIC (2012a,b); author's conversion to company action level basis.

that unnecessarily distort the decisions of some financially strong insurers and do not pass a cost/benefit test. Yet, without additional stringency, the question would arise as to why the potential for modest improvements in the quantification of standards that are non-binding for most insurers would justify the large costs of substantially changing the U.S. system.

Some specific questions that should be explored carefully by policymakers (and in academic analysis) in evaluating whether it would be appropriate to move U.S. capital regulation toward a Solvency II model include:

- ▶ Does the magnitude of insolvency risk in U.S. insurance markets justify the large personnel and systems costs that would be necessitated by fundamental changes in capital requirements?
- ▶ To what extent would close regulatory oversight of capital decisions and regulatory discretion to impose additional capital charges under Pillar 2 of a Solvency II-type system risk excessive intrusion into management decision-making and de facto shadow management by regulators?
- ▶ Is stochastic modeling likely to enhance the accuracy of risk assessment significantly compared with less sophisticated and more judgmental approaches, given the potential for large

<sup>16</sup> Companies with total adjusted capital below the Company Action Level are required to submit plans for increasing capital to regulators.

<sup>17</sup> According to the Solvency II QIS5 report [EIOPA (2011, p. 25)], the median E.U. insurer among sample participants had a ratio of funds available to the calculated Solvency Capital Requirement (SCR) of between 150 and 200%. Fifteen percent of participants had insufficient funds to meet the SCR. Once Solvency II is implemented, companies with funds below their SCR will be required to increase capital. A number of studies have considered the extent to which the Solvency II standards will affect insurers' decisions, including investment decisions. Höring (2012) reviews some of the literature and provides evidence that, while required capital charges for the market-risk component under Solvency II exceed those of Standard & Poor's for a comparable value-at-risk benchmark, Solvency II's diversification and loss absorption adjustments cause the Standard & Poor's model to require 68% more capital for the same market risks. He concludes that the Solvency II requirements will not significantly influence insurers' investment strategies.

errors in estimating model parameters (such as value-at-risk inputs for particular risks and correlations between risks) and the reliance on some degree of judgment in selecting many parameters?<sup>18</sup>

- ▶ Would allowing the use of regulator-approved internal capital models serve a useful purpose when RBC standards are non-binding for most insurers?
- ▶ To what extent would allowing the use of regulator-approved internal capital models disadvantage smaller insurers, which lack sufficient volume to parameterize internal models and spread fixed costs of model development, implementation, and maintenance?
- ▶ To what extent would a Solvency II approach lead to greater uniformity of models used to assess capital adequacy by insurers, rating agencies, and other entities, thus reducing diversity and competition in risk assessment and increasing the risk of system-wide consequences from model errors?
- ▶ To what extent would arguably more-precise capital standards increase consumerist and political pressure for regulatory suppression of rates in some regulated lines of business and jurisdictions for insurers' with substantial "excess" capital?

As it stands, my overall assessment is that the insolvency record in the U.S., the design of U.S. capital standards compared with Solvency II, and the direct and indirect costs involved do not support fundamental change in U.S. RBC requirements.<sup>19</sup> Ongoing refinements in U.S. requirements should, instead, continue to recognize the distinctive nature of U.S. insurance markets.

As explained above, systemic risk in banking has encouraged broad government guarantees and capital requirements that constrain risk-taking by many institutions, in part to reduce moral hazard. Binding capital requirements generate pressure from banks to relax requirements, including by allowing the use of internal models. Insurance involves much less systemic risk and thus need for stringent capital requirements combined with

relatively broad guarantees of firms' obligations. Relatively strong market discipline favors capital requirements that generally are easily met by the bulk of insurers, reducing undesirable distortions of sound companies' operating decisions and incentives for evading the requirements. Less constraining capital requirements make costly attempts at greater precision less desirable.

#### Group supervision

State regulation in the U.S. has generally focused on individual insurers (legal entities), in contrast to insurance regulation in some non-U.S. jurisdictions and U.S. banking regulation, which focus more attention on consolidated supervision. A certain degree of coordination in U.S. insurance solvency regulation is achieved through deference to regulators in an insurer's state of domicile (or lead domiciliary regulator in the case of multiple domiciles) and through coordinated analysis and dissemination of financial metrics for larger, multistate insurers. State regulators and the NAIC have also relied on an elaborate statutory and administrative framework to deter holding companies that experience financial difficulties from draining funds or otherwise undermining the solvency of insurance subsidiaries.

Solvency II requires group-wide supervision of E.U. insurance entities and, as noted earlier, "equivalent" supervision by non-E.U. countries. In 2009, the International Monetary Fund's Financial Sector Assessment program recommended that U.S. regulators expand assessments of individual insurers to the group level. The NAIC is revising its model holding company acts, dealing with relationships between parents and state-licensed subsidiaries. It is also exploring enhanced methods for information sharing regarding holding company risk and solvency and the possibility of developing group-wide capital standards. Similar to Solvency II, the NAIC is proposing that groups conduct and provide regulators with "Own Risk Solvency Assessments" of their risks, capital needs, and capital adequacy on a consolidated basis. U.S. state regulators have also begun to participate in "supervisory colleges" of regulators from different countries, to share information about internationally active insurance groups, and the NAIC is working with the International Association of Insurance Supervisors on the ComFrame (Common Framework for the Supervision of Internationally Active Insurance Groups) initiative for enhancing oversight with greater consistency and coordination.

<sup>18</sup> Mitnik (2011) provides evidence that calibration of the Solvency II equity risk module is seriously flawed, by relying on a rolling window approach to expand the number of annual data points for use in calibration. He concludes (p. 37): "The results of this study strongly suggest that the implementation of the Standard Formula with its currently proposed equity-risk calibrations is imprudent, if not irresponsible."

<sup>19</sup> Nor do I find compelling, arguments that bank-type solvency regulation and capital requirements are needed for U.S. insurers, to discourage regulatory arbitrage.

When assessing possible changes in U.S. regulation with respect to group supervision, policymakers should carefully consider these efforts at greater coordination. A key goal should be to understand and assess the potential benefits of collaborative frameworks for multi-jurisdictional supervision that do not rely on federal insurance regulation in the U.S., in comparison with systems that would provide a greater role for federal regulation.

### Conclusion

Despite some convergence, most U.S. financial institutions can be expected to specialize predominantly in either banking or insurance activities for the foreseeable future. Insurance has fundamental differences from banking, including much lower potential for systemic risk and stronger market discipline. These differences favor regulatory and guaranty frameworks in the U.S. that reflect the distinctive features of each sector. They should be carefully considered by U.S. policymakers in the potential identification of systemically important insurance companies and the analysis of potential changes in insurance regulation, including any that would move U.S. capital and solvency regulation towards a Solvency II model.

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