



## **“Systemic Risk and the U.S. Insurance Sector”**

J. David Cummins and Mary A. Weiss

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Synopsis By John Thomas Seigfreid

This article investigates the U.S. insurance industry’s potential capacity to induce systemic risk events that cascade across other segments of the economy. The authors, J. David Cummins and Mary A. Weiss, analyze the relevant literature on systemic risk then present a detailed definition of systemic risk, which includes a distinction between the core activities of insurers and the noncore or banking activities engaged in by some insurers such as American International Group (AIG). The authors highlight primary indicators of systemic risk in conjunction with contributing factors that vex already-vulnerable economic conditions. The financial crisis of 2007-2010 has raised questions about whether the insurance industry represents a source of systemic risk. However, after a detailed analysis of the insurance industry, its role in the economy, and the interconnectedness<sup>1</sup> of insurers, the article concludes that the core activities of U.S. insurers do not pose systemic risk.

### **Introduction and Literature Review**

The recent financial crisis illustrates the detrimental consequences that systemic risk events can have on the economy. The systemic risk literature has presented academics with varying opinions that beseech further analysis. Two groups, Swiss Re (2003) and the Group of Thirty (2006), both conducted studies investigating whether reinsurers pose systemic risk. Their conclusions are in agreement: reinsurance does not pose systemic risk because primary insurers have adequate reinsurance diversification and reinsurers are not sufficiently linked to the banking sector or capital markets.<sup>2</sup> Bell and Keller (2009), Harrington (2009), and the Geneva Association (2010), all produced research that suggests insurers did not play a major role in the financial crisis aside from an insurers’ noncore activities.<sup>3</sup> Despite the prior conclusions, Cummins and Weiss believe there are several reasons to evaluate the issue with additional scrutiny. These reasons include recent market data suggesting underestimations in the interconnectedness of financial firms, a bias focus on the global compared to domestic reinsurance industry, and insurance industry sponsored systemic risk research.

### **Systemic Risk: Definition, Primary Indicators, and Contributing Factors**

Cummins and Weiss 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,” and they emphasize that “instigating or causing a systemic crisis is not the same as being susceptible to a crisis.”<sup>4</sup> The 2007-2010 crisis serves as a perfect example. As they state: “the spillover of the housing and mortgage problems into the broader credit market, the stock market, and the real economy is a classic example

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<sup>1</sup>“Interconnectedness, the second primary factor, refers to the degree of correlation among financial firms and the potential for contagion among financial institutions.”

<sup>2</sup>Swiss Re (2003) and the Group of Thirty (2006)

<sup>3</sup>Bell and Keller (2009), Harrington (2009), the Geneva Association (2010)

<sup>4</sup>Cummins and Weiss, p. 490 and p. 492

of systemic risk.”<sup>5</sup> In turn, a better understanding of systemic risk events requires a broad analysis of their primary indicators in addition to their contributing factors. The first of which signals systemically troubled markets and institutions. The latter, is useful in gauging the vulnerability of the market or institution to systemic events.

The authors define three primary indicators for systemic risk: (1) size of the exposures (2) interconnectedness, and (3) lack of substitutability.<sup>6</sup> Size of exposures could be measured in various ways. The volume of transactions or assets managed under a firm, if large enough, can potentially result in large spillover effects into the general economy. The term “too big too fail,” or TBTF previously identified firms under this criterion. Yet, as the authors argue there are gauges of size that are more relevant than conventional measures, such as assets or equity. Thus, TBTF is being replaced with SIFI – systemically important financial institutions. This acronym includes firms, which may have relatively little capitalization but maintain high levels of exposure with off-balance sheet (OBS) items. The second primary indicator, interconnectedness, alludes to the level of correlation among firms, as well as, the potential for institutional contagion. The authors define the third primary indicator, being the lack of substitutability, as “the extent to which other institutions or segments of the financial system can provide the same services that were provided by the failed institutions.”<sup>7</sup>

The authors outline four contributing factors that exacerbate vulnerability to systemic events. The first of the four is leverage, which can be measured in various ways, including the ratio of assets to equity or debt to equity. Alternatively, leverage can be generated through off-balance sheet positions, options, or buying securities on margin. A sharp decline in the value of a highly levered firm’s assets can corrode their net worth much more rapidly than their gross worth (total assets). Trying to sell assets after a price decline increases the firm’s losses. And if many institutions are affected simultaneously, “the quest to sell assets puts additional downward pressure on prices, generating a loss spiral.”<sup>8</sup>

The second contributing factor is liquidity risk and maturity mismatches. In financial distress, a firm will encounter funding difficulties if they possess a relatively large amount of illiquid assets. In similar circumstances, funding long-term assets with short-term financing places a firm in a vulnerable position. Complexity in a firm’s organizational structure, geographic locations and offered products represents the third contributing factor. Lastly, government policy and regulation can induce moral hazard and enforce capital requirements, ultimately vexing an already delicate financial climate. For example, AIG sold large volumes of CDS to European banks that used the contracts to minimize their required capital through regulatory arbitrage. Thus, regulation meant to enhance solvency actually incentivized subsidiaries to operate with excessive leverage.

### **Systemic Risk in the Core Activities of Insurers: An Empirical Analysis**

Cummins and Weiss gauge the systemic importance of insurance by determining the associated risk due to size. The authors consider size to be the volume of transactions or sources of investable funds for other economic sectors. The more central statistical comparisons have been compressed into Table 1 to highlight the difference in value added to GDP, total assets, and total liabilities between the financial services industry and insurance firms. Table 1 combines data the authors acquired, and illustrates comparative statistics between the insurance industry and the financial industry.

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<sup>5</sup>Cummins and Weiss, p. 493

<sup>6</sup>Cummins and Weiss, p. 493

<sup>7</sup>Cummins and Weiss, p. 494

<sup>8</sup>Cummins and Weiss, p. 495

**Table 1**  
**The Macroeconomic Importance of Insurance: Size Risk**

<b>Size as a Percentage of GDP in 2011</b>	
Financial Services Industry	7.70%
Insurance Industry	2.60%
<b>Assets in 2012</b>	
Insurers	\$7.5 Trillion
Commercial Banks	\$13.4 Trillion
<b>Liabilities in 2012</b>	
P-C Insurers: <i>Reserves</i>	78.90%
Life Insurers: <i>Reserves</i>	87.50%
Commercial Banks: <i>Deposits</i>	84.20%

The authors offer empirical evidence on the macroeconomic importance of insurance to determine if the industry poses a systemic risk due to size. Data indicate that the value added by the insurance industry (2.6% of 2011 world GDP) represent a relatively small component of the overall GDP.<sup>9</sup> The value financial services adds to GDP is not significantly bigger, however, this industry is arguably more integrated to the other functioning parts of the economy. Thus, despite representing a small portion of GDP, it was still able to trigger a systemic risk event as evidenced in the recent crisis.

Table 1 shows that the total assets of life and P-C insurers are about \$7.5 trillion, roughly 56% of insured commercial bank assets of \$13.4 trillion. Because insurers generally add less value to the overall GDP and hold fewer assets, they do not possess they same magnitude of economic exposure that non-insurance financial services and depository institutions possess. Moreover, loss and policy reserves account for 78.9% of liabilities for P-C insurers and for 87.5% of non-separate account liabilities for life insurers. This means that insurers are funded through long-term sources that cannot be withdrawn on demand. Banks on the other hand, have 84.2% of their liabilities representing deposits, which for the most part, are short term and withdrawable on demand. Thus, the authors show that commercial banks have a higher liquidity risk and maturity mismatch risk than insurers. As can be seen by these previous measures, the “insurance industry does not pose a systemic threat solely because of its size.”<sup>10</sup>

Cummins and Weiss posit that interconnectedness can also play a significant role in stimulating systemic events. In recent history, insurance firms have been insuring financial products, weaving their business practices in the finance industry. After thorough analysis, the authors discovered that life insurers and banks were overexposed to subprime mortgages by a proportionately larger amount than P-C insurers. Consequently, their failure rates were much higher.<sup>11</sup> Insolvency concerns were not however, a result of interconnectedness. Cummins and Weiss write, “except perhaps for life insurer affiliate problems, interconnectedness has not been a major cause of insurer insolvency.”<sup>12</sup> Moreover, insurers’ relatively low level of interaction with other financial institutions does not create contagion. However, the same cannot be said for the interconnection risk for core activities *within* the insurance market. For example, the reinsurance market has historically demonstrated vulnerability to *retrocession*

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<sup>9</sup>Cummins and Weiss, p. 497-498

<sup>10</sup>Cummins and Weiss, p. 498

<sup>11</sup>Cummins and Weiss, p. 505

<sup>12</sup>Cummins and Weiss, p. 507

*spirals*. “Whereby the failure of major reinsurers triggers the failure of their reinsurance counterparties, who in turn default on their obligations to primary insurers.”<sup>13</sup> Although reinsurers could potentially induce spillover contagion within the insurance market, the core activities of primary insurers are not sufficiently interconnected with noninsurance institutions to deem them as systemically significant as commercial banks.

The third primary indicator is substitutability. To pose a systemic threat due to lack of substitutability, it is mandatory that an activity lack substitutes and that it is essential to the functioning of the economy. In this way, insurers and banks differ. In the insurance market, competition is such that other economic players would replace the failure of a single firm. As a result, there is no risk apparent in the number of firms acting as a replacement in the event of one firm becoming insolvent. Cummins and Weiss write that, unlike insurance, “banks pose substitutability problems because of their role in the payment and settlement systems, in central banks monetary policy, and in providing liquidity and financing.”<sup>14</sup> In sum, to be systemically threatening requires one to prove that size, interconnectedness, or substitutability can result in contagion that would adversely affect the overall economy. However, Cummins and Weiss have shown that the core activities of insurance do not expose the economy to systemic risks based on the three aforementioned attributes.

Although insurers’ core activities generally do not create systemic risk, insurers also engage in a myriad of noncore activities, “some of which have the potential to create interconnectedness with other financial institutions and nonfinancial firms and thereby foster systemic risk.”<sup>15</sup> Insurers are active in trading derivatives, investing in CDS, ABS, and MBS vehicles. And as of late, insurance firms have entered into the securitization marketplace, which played a central role in the 2007-2010 financial crisis. Each of these investments promotes interconnectedness and heightens the potential for spillover contagion. Cummins and Weiss argue that the interconnectedness between insurers and other financial firms “is more likely attributable to the noncore or ‘banking-like’ activities of insurers.”<sup>16</sup>

To provide further research on the noncore activities of insurers the authors conduct a test comparing two sample groups. The first group is comprised of insurers identified as SIFIs in Billio et al.<sup>17</sup> The second group consists of insurers ranked below the top 50 systemic firms in Acharya et al (2010).<sup>18</sup> The results reveal that the systemic firms on average have larger derivatives holdings. Additionally, the authors found that systemic insurers invest more heavily in mortgages and ABS/MBS compared to nonsystemic firms. Albeit, there was no evidence suggesting that systemic firms are “more leveraged or have significantly lower levels of cash flow relative to benefits or surplus.”<sup>19</sup>

## Conclusion

This article explored the potential for the insurance industry to cause systemic risk events. Cummins and Weiss examined the primary indicators and contributing factors that exacerbate vulnerable economic conditions, as well as, the core activities of U.S. insurers. The authors conclude that the core activities of insurers do not create systemic risk. “In terms of the primary indicators, through their core activities insurers are not sufficiently large or interconnected with other firms in their economy to pose a systemic risk.”<sup>20</sup>

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<sup>13</sup>Cummins and Weiss, p. 510

<sup>14</sup>Cummins and Weiss, p. 516

<sup>15</sup>Cummins and Weiss, p. 518

<sup>16</sup>Cummins and Weiss, p. 519

<sup>17</sup>Billio, M., M. Getmansky, A. W. Lo, and L. Pelizzon (2012)

<sup>18</sup>Acharya, V. V., L. H. Pedersen, Philippon, and Richardson (2010)

<sup>19</sup>Cummins and Weiss, p. 523

<sup>20</sup>Cummins and Weiss, p. 523

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