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A Post-Mortem of the Life Insurance Industry's Bid for Capital during the Financial Crisis

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Abstract

In this paper, we show that life insurance companies were under significant capital strain during the recent financial crisis. This was the case not just for the notable case of American International Group, or for life insurers within the largest life insurance groups who applied for government funds, but for life insurers across the entire industry. The ability to access government funds, the benefit of regulatory actions, and the large internal capital transfers received by life insurers from their non-insurance parents during the crisis combined to contribute significant amounts of reported statutory capital to life insurance companies. Moreover, capital contributions to life insurers from their parents are not limited to crisis periods; they also exhibit a business cycle pattern. This study provides evidence suggesting two important policy recommendations and calls for additional research on these issues: 1) insurance supervisors should have the ability to assess capital adequacy and availability beyond the level of the insurance operating company, including the ability to assess the capital adequacy of, and availability of capital from, holding companies not currently supervised by state insurance regulators, and these supervisors should take a consolidated view in monitoring the size, type, and direction of internal capital transfers when evaluating the viability of entity-level life insurers; and 2) life insurance supervisors would benefit from staff with expertise in understanding and forecasting the impact of macroeconomic and financial conditions on life insurers' balance sheets.

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Introduction

The 2008–2009 financial crisis was the most serious shock to the U.S. financial system since the Great Depression of the 1930s. A number of large financial institutions failed during the crisis. Many institutions that survived did so only because of extraordinary actions undertaken by company management to maintain solvency, or through the extension of extraordinary support by the federal government and the Federal Reserve System.

The impact of the financial crisis on the banking sector has been the subject of extensive research, discussion, and debate. Academic and policy researchers, as well as several government investigations, have examined the measures undertaken by bank managers, banking industry regulators, and governments in response to the crisis (Financial Crisis Inquiry Commission 2011, Stanton 2012). By comparison, relatively few studies have examined the experience of the life insurance sector during the crisis or the response of company managers and insurance regulators during the crisis period. This paper begins to fill that gap.

The near-failure and rescue by the U.S. Treasury and the Federal Reserve Bank of New York of American International Group (AIG) is the most spectacular example of an insurer experiencing financial difficulties during the recent financial crisis. The collapse of AIG was due at least in part to problems arising within that firm's life insurance businesses (McDonald and Paulson 2015, Schwarcz 2015), and its rescue required the extension of financial support totaling $182.3 billion dollars.

But was AIG unique? Or were financial difficulties within the U.S. life insurance industry more widespread? Harrington (2009) argues that, aside from AIG and firms in the mortgage insurance sector, insurance companies were on the sidelines. Baranoff (2015) provides data on the number of failures in the insurance sector during the crisis and points out that insurer failures were rare, at least when viewed in comparison to the number of failures of commercial banks. However, failure rates don't tell the whole story. Failure rates don't account for near

misses—instances in which a company might have become insolvent but for the timely or fortuitous actions of insurance and insurance holding company managers, or intervention by regulators, the federal government, or the Federal Reserve. Observed failure rates also provide limited insight about what might have transpired had actual events turned out differently. The crisis period involved a sharp decline in asset prices in 2008 and early 2009, followed by a sustained, rapid recovery in asset values thereafter. However, insurance company managers had no way to know during the crisis that the subsequent market rally would take place or that the rally would favor assets held by life insurers.

Section 1 of this paper examines external signals of the extent of solvency concerns in the life insurance sector during the crisis. We argue that such concerns were not limited to AIG or a small subset of insurers. Instead, solvency concerns were widespread. During the crisis period, credit default swap (CDS) spreads for the largest U.S. life insurers exceeded by several times the spreads for the largest U.S. commercial and investment banks. Several large insurers other than AIG sought and participated in government support programs, even though accessing those programs was not costless. Participants in government support programs often became subject to stricter regulatory oversight, and news regarding management's decision to apply for government programs or of a firm's acceptance into these programs can provide a negative signal to market participants concerning the financial strength of the firm.

Sections 2 and 3 of this paper examine the extent to which insurance regulators and company managers resorted to extraordinary measures to restore or enhance the reported statutory capital position of life insurers during the crisis. The intensity of the use by firms in the life insurance sector of accounting or financing measures to boost reported statutory capital provides an indication of the extent of solvency concerns among company managers and insurance supervisors. Actions taken by managers and regulators during the 2008–2009 crisis also provide insight into what measures managers and supervisors may employ if the life insurance sector again experiences widespread financial difficulties.

Section 2 analyzes the use of regulatory actions by insurance supervisors. During the crisis period, insurance supervisors adopted accounting rules that tended to improve the reported capital positions of firms in the life insurance sector. Some of these changes applied to all insurers, while in other instances favorable accounting treatments were allowed on a firm-by-firm basis. We show that the more lenient accounting practices allowed by some state supervisors during the crisis resulted in a meaningful increase in reported statutory capital levels for several large insurers.

Section 3 examines the extent of internal capital reallocation activity among holding company groups that contained at least one U.S.-domiciled life insurer. We find a sharp uptick in the amount of internal capital reallocation during the crisis period. We also document a reversal in the direction of intercompany flows during the crisis. That is, rather than insurance operating companies acting as a source of funds for the non-insurance parent holding companies, holding companies acted as a source of support for life insurance operating companies during the crisis. The rise in internal capital reallocation activity and the reversal of the direction of flows occurred both for firms that participated in or sought access to government support programs and for other firms in the industry. These results suggest that pressures on firms in the insurance industry were widespread. Our results also show that groups containing insurance firms were more likely to behave as consolidated entities during the crisis period than in earlier or later periods, and that life insurers' dependence on their non-insurance parents, entities outside the purview of the existing regulatory system, was substantial. We also find a cyclical pattern of parental support to life insurers, indicating that stress on life insurers' capital positions is related to business cycles.

The results of our paper are summarized in the concluding section. The concluding section also contains several observations regarding the relevance of our findings for the supervision of firms in the life insurance sector.

Section 1. Solvency Concerns in the Life Insurance Sector during the Crisis

Pressure on Life Insurer Balance Sheets

The financial crisis impacted both sides of U.S. life insurer balance sheets. The general account investment portfolios of U.S. life insurers are heavily weighted toward medium- and longer-term fixed income assets such as corporate bonds, residential mortgage backed securities (RMBS), commercial mortgage backed securities (CMBS), and commercial mortgage loans.[1] The prices of assets in each of these categories declined significantly during the crisis. As a result, insurers experienced significant realized and unrealized losses in their investment portfolios. A study by the U.S. Government Accountability Office (GAO) (2013) estimated total realized and unrealized losses on investments for U.S. life insurers in 2008 at $123.7 billion. AIG accounted for slightly less than half of this total. An analysis in Barclay's Capital (Klein 2009) of realized and unrealized investment losses by U.S. life insurers placed total losses during 2008 at $154.9 billion.[2] In comparison, at year-end 2007, the aggregate amount of statutory capital of all U.S. life insurers was $266.9 billion.[3] Using either the GAO or Barclay's estimate of losses, investment losses by U.S. life insurers in 2008 amounted to a substantial portion of industry capitalization.

Events during the crisis also stressed the liability side of life insurer balance sheets. This was particularly true for life insurers that were issuers of variable annuity (VA) contracts. Life insurers are required to maintain sufficient reserves to meet future obligations to the holders of insurance contracts. Reserves are a liability on insurance company balance sheets. Benefits that

[1] Assets held by U.S. life insurers are partitioned into those held in the insurer's separate account and those held in the general account. Insurers bear the investment risk on assets held in the general account. Customers bear the investment risk on assets held in separate accounts.

[2] Both the GAO study and Barclay's study likely provide a lower bound on insurer life investment losses in 2008. The Barclay's study includes a wider range of asset classes than does the GAO study. The GAO study is for the industry, while the Barclay's study includes only major insurers. Both rely on statutory filings; consequently, the estimates do not include additional losses that may have occurred at the holding company level.

[3] AIG's life insurance affiliates had $13.2 billion in statutory capital at year-end 2007. Excluding AIG, total statutory capital of the U.S. life insurance industry at year-end 2007 was $253.7 billion.

insurance companies are required to pay to VA contract holders are tied to the value of assets in an underlying investment fund. The investment fund is similar to a mutual fund. The level of payments that a VA contract holder is to receive when the contract is annuitized is tied to the value of the assets in the fund. However, insurers also offer contracts with provisions or riders that guarantee the contract holder a minimum level of benefits. Such guarantees provide protection to contract holders but also expose insurance companies to the risk of a decline in asset values. When asset values fell during the crisis, insurance companies that offered such guarantees were required to increase reserves for their future obligations to VA contract holders. The increase in reserves for obligations to VA policyholders put further pressure on life insurer capital levels. The aggregate impact of such guarantees on the financial position of life insurance companies was substantial. Sun et al. (2009) in a research report published by Milliman, an actuarial consulting firm, estimated that as of October 31, 2008, near the nadir of the crisis, the aggregate benefit value promised by U.S. life insurers to VA contract holders exceeded the underlying account values by $232 billion. However, Sun et al.'s estimate of the gap does not account for offsetting impacts from insurer hedging programs. But even at a 90 percent level of hedge effectiveness, the gap between account values and benefit obligations of VA issuers was substantial.[4] This estimate of the increase in liabilities, combined with the estimates of the decline in assets, implies a large squeeze on life insurers' capital and surplus.[5]

Solvency Concerns Emerge

The crisis brought about a dramatic revision of the assessment of the financial strength of firms in the life insurance sector. CDS spreads provide one indicator of investors' assessment of the financial condition of a firm.[6] The price of a CDS contract reflects the cost of protection against the risk of loss from the default of an obligor. Like other forms of insurance, prices for CDS

[4] The Milliman report estimates an average hedge effectiveness of 90 percent among client firms participating in their survey.

[5] Cummins and Weiss (2014) show that life insurers more involved in writing group annuity business are more likely to score higher on the market-based measure of systemic risk, SRISK, developed by Acharya et al. (2010).

[6] Prices for CDS contracts are quoted in basis points. The spread reflects the cost for credit protection relative to the face value of the underlying obligation. For instance, a CDS spread of 1000 basis points indicates that the party receiving protection has to pay $10 per year for protection on a bond with a face value of $100.

contracts reflect the cost to the contract buyer to obtain protection from the seller against the risk of loss. In the market for CDS contracts, prices reflect investors' assessments of expected loss on a bond—the combination of the probability that the issuer will default and the expected loss on the bond in the event of default. All else being equal, the higher is the probability of default or the larger the expected loss in the event of default, or both, the higher is the price for a CDS contract.

Figure 1 contains CDS spreads for six large, publicly traded insurers.[7] Three of the six firms in Figure 1—Prudential, MetLife, and Lincoln Financial—are primarily life insurers. Each of the three derived over 95 percent of its insurance revenues and held over 98 percent of its insurance assets in its life insurance businesses. The insurance businesses of the other three firms—AIG, Allstate, and Hartford Financial—were diversified. At year-end 2007, Hartford Financial's life business accounted for 74 percent of its U.S. insurance revenues, 86 percent of its U.S. insurance assets, and 56 percent of its U.S. general account insurance assets. AIG's business was more evenly split between its life segment and its property and casualty segment. Allstate had the smallest life business. As of year-end 2007, Allstate's life insurance business accounted for slightly over half of its general account insurance assets, but only 20 percent of the firm's U.S. insurance revenues.

The series in Figure 1 show a rise in the cost of credit protection for all six insurers starting in early 2008. Spreads continued to increase as the economy weakened in the second half of that year. Spreads on AIG CDS were higher than for other insurers. During the fourth quarter of 2008, the price of a CDS contract on AIG debt averaged 1386 basis points. But critically, AIG was not the only insurer for which CDS spreads had risen far beyond pre-crisis levels. The average cost of a CDS contract on Lincoln National in the fourth quarter of 2008 was 886 basis points, for Prudential it was 882 basis points, for Hartford Financial 702 basis points, and for MetLife 646 basis points. Spreads for Allstate increased only modestly during the crisis period.

[7] CDS pricing data are available only for those firms with actively traded contracts. The six insurers appearing in Figure 1 represent the set of insurers for which CDS data during the crisis period are available on Bloomberg.

Among the six insurers in Figure 1, Allstate had the least exposure to the life insurance sector. The sharp increase in CDS spreads in the second half of 2008 for firms in the life insurance sector suggests that solvency concerns in the sector were not limited to AIG. Instead, solvency concerns in the insurance sector were more widespread. These concerns would persist well beyond the initial stages of the crisis.

Solvency concerns in the insurance sector were acute in comparison with those for large firms in the commercial and investment banking sectors. Figure 2 contains the time series of CDS spreads for the six largest U.S. banking firms. For ease of comparison, the series in Figure 2 have been plotted using the same vertical scale as those in Figure 1. As the crisis unfolded, the cost of credit protection on the largest banks also rose. However, at no point during the crisis was the average cost of credit protection for the largest banks as high as for the largest insurers, even if AIG were excluded from the latter group.

Government Support for the Life Insurance Sector

During the crisis, governments and central banks provided several types of support programs to the financial sector. These programs were intended to recapitalize struggling firms, provide additional liquidity to the sector, or both. Depending on their circumstances, life insurance companies were eligible to participate in several of these support programs.

Participation in government programs is not costless. Participation in government or central bank support programs typically entails additional reporting requirements and may also subject a firm to heightened regulatory or legal requirements. News that a firm is participating in or seeking to gain access to government or central bank support programs may be interpreted by market participants as bad news: that the firm's financial situation or future prospects are worse than expected. Government bailout programs are often politically unpopular, exposing participating firms to negative media coverage.[8] It is reasonable to assume

[8] Ng, Vasvari, and Wittenberg-Moerman (2015) find that negative media coverage depressed stock prices of banks participating in the Troubled Asset Relief Program during the crisis.

that management teams would weigh the costs of accessing government or central bank support programs against the costs of obtaining additional capital or liquidity from private sources. The decision by company managers to participate in government programs may provide an indication that traditional sources of capital or liquidity are either unavailable or have become more costly. Rational managers would be expected to weigh the costs of participation against the firm's current financial need or the likelihood that the firm would need to avail itself of support programs in the future.

U.S. life insurance companies took advantage of, or sought access to, several government and central bank support programs. During the crisis, five life insurers with operations in the United States received capital injections from the U.S. and Dutch governments.[9] Several other firms with U.S. life insurance operations applied for access to government programs designed to recapitalize troubled institutions. In the United States, the main source of capital support came from the Treasury's Capital Purchase Program (CPP). The Treasury created the CPP using $250 billion in funds from the Troubled Asset Relief Program (TARP). AIG was the first insurer to participate in the CPP. On November 25, 2008, Treasury used $40 billion of CPP funds to buy AIG preferred stock and warrants. On March 2, 2009, the Treasury made a second purchase of $29.8 billion in AIG preferred stock and warrants. AIG also received support from the Federal Reserve and numerous other government programs during the crisis.

While AIG's participation in government support programs was the most significant among U.S. insurers, two other domestic insurers—Lincoln National and Hartford Financial—also participated in the TARP program. Hartford Financial received $3.4 billion from the CPP through the issuance of preferred stock and warrants. Lincoln National received $950 million from the CPP through the issuance of preferred stock and warrants. Two foreign insurers with significant U.S. life insurance operations received support from the Dutch government. ING

[9] Life insurer regulatory capital requirements in the United States are applied at the operating company level. Sections 2 and 3 of this paper examine the actions taken by insurance company managers to bolster reported statutory capital levels at the operating company level. Because the focus of these sections is on insurance operating companies in the United States, we include in the set of firms seeking access to support programs firms with substantial U.S. life insurance operations that received support from foreign governments.

Group NV, parent of Voya Financial, received EUR 10 billion (US $13.8 billion), and AEGON NV, the parent of Transamerica Life, received EUR 3 billion (US $3.7 billion).

Several other large insurance companies sought approval to access TARP funds. Among those insurers with significant life insurance activities, Allstate, Ameriprise, Principal Financial, and Prudential Financial each applied for and was approved for access to funds through the TARP program.[10] Because the TARP program was open only to bank holding companies, several insurers sought to obtain a bank holding company charter through the acquisition of a savings and loan. Three life insurers—Genworth, Phoenix Life, and Protective Life—were unable to complete the acquisition of a savings and loan institution and were thus ineligible to participate in the TARP program.

Participation in the TARP program entailed costs to these life insurers. The amount and form of TARP support received by participating firms were disclosed in reports issued by the Treasury. Participants were subject to additional reporting and recordkeeping requirements. Firms receiving TARP funds were also subject to limits on senior executive officer compensation and the extension of golden parachute payments to departing executives. Indeed, Bayazitova and Shivdasani (2012) show that restrictions on senior management compensation were a significant disincentive to participation in the CPP. While the Treasury did not disclose the set of firms applying or inquiring about possible TARP funding, public companies seeking support often disclosed this information in SEC filings or through other sources.

Insurance companies that were issuers of commercial paper could also gain access to the Federal Reserve's Commercial Paper Funding Facility (CPFF). The CPFF was created in October 2008 to provide liquidity to U.S. issuers of commercial paper. The program was open to life insurance company issuers of commercial paper so long as the paper was rated at least A-1/P-1/F1 by a major rating agency. Seven U.S. life insurers as well as AEGON and ING participated

[10] See Andrew Dowell and Jamie Heller, "U.S. Slates $22 Billion for Insurers from TARP," *Wall Street Journal*, May 15, 2009.

in the CPFF. Altogether, these firms issued $74.6 billion through the CPFF, of which $60.2 billion was issued by AIG.

At least 13 firms with significant U.S. life insurance operations either sought access to or participated in support programs during the crisis period. The 13 firms along with the total assets of their U.S. life insurance operating companies appear in Table 1. The combined assets of these firms at year-end 2007 were just over $2.3 trillion. These firms accounted for just under half of the total assets of the U.S. life insurance sector. As discussed above, access to and participation in government and central bank support programs were not costless. That the management teams of firms comprising over half of the U.S. life insurance sector determined that it might be beneficial to secure access to some form of government or central bank support is consistent with the notion that concerns regarding the financial strength of the sector were acute and widespread.

While several insurers found it beneficial to access government support programs, the evidence appearing in Table 1 does not definitively show that the choice to access such programs was motivated by financial difficulties within the industry. It might have been the case that some insurers opted to participate because support programs were a low-cost source of funds. Such a view is consistent with Harrington's (2009) assessment that, other than for AIG and certain firms in the mortgage insurance sector, solvency concerns in the insurance sector during the crisis were overblown. If solvency concerns in the sector were, indeed, overblown, then we would expect to see firms seeking access to support programs having little impact on investors' assessment of the likelihood of default.

The time series of insurer CDS spreads suggest that this was not the case. Instead, solvency concerns for most large insurers were significant, and access to support programs had a significant role in stabilizing the industry. Consider again the time series of CDS spreads on insurer obligations appearing in Figure 1. For most firms, the series exhibit two peaks—one in the second half of 2008 and a second in the first half of 2009. At the time that the Treasury

created the CPP, it was not clear whether insurance companies other than those deemed to be of systemic importance would be eligible to participate. As economic conditions deteriorated, investors became increasingly concerned about the financial condition of most major insurers. Figure 3 shows the time series of CDS spreads for five of the six insurers for which data are available for the first half of 2009.[11] Solvency concerns were particularly acute for Lincoln National, a firm heavily involved in the provision of VA contracts.

News that insurers would be considered for support through the TARP program caused market participants to significantly lower their assessment of the likelihood of default of most major insurance companies. While a final determination of which insurers would be able to participate was not made until May 2009, on April 8, 2009, the *Wall Street Journal* reported that the Treasury had decided to expand the TARP program to include firms in the life insurance sector.[12] As shown in Figure 3, CDS spreads for Lincoln National as well as Hartford, Prudential, and MetLife each narrowed significantly following this news. The decrease in spreads surrounding the announcement suggests that the ability to access TARP funding had a significant stabilizing effect on the life insurance industry as a whole, not just on AIG.

Section 2. Regulatory Actions

By late 2008, state insurance regulators were aware that the events surrounding the financial crisis were placing considerable stress on both sides of insurers' balance sheets, and regulators recognized the impact that these events would have on insurers' reported statutory capital levels. Life insurance companies and industry representatives also knew that the potential existed for capital stress. Wall Street analysts were expressing their concerns about the ability of life insurers to absorb not only the realized losses, but also the sizable unrealized losses in their investment portfolios (Goldman Sachs 2010, Daly and Russell 2009). In addition to the problems related to volatility in the securities markets, another cause of financial stress cited by some market participants came from life insurers' relatively high level of dependence on various

[11] Since AIG already received TARP funds in 2008, it is not included in this figure.

[12] See Scott Patterson, Deborah Solomon, and Leslie Scism, "U.S. to Offer Aid to Life Insurers," *Wall Street Journal*, April 2009.

funding mechanisms, such as letter of credit (LOC) arrangements, used to provide funding needed to write certain lines of business (Sidley Austin 2008).[13] As these sources of funding became less available, life insurers faced further capital strain (Sidley Austin 2008).

In the fourth quarter of 2008, the American Council of Life Insurers (ACLI) sent the National Association of Insurance Commissioners (NAIC) a set of proposals for variances (exceptions) to standard accounting requirements. The proposals were intended to provide life insurers "the necessary capital flexibility to operate in a highly volatile economic climate" (Society of Actuaries 2009). When the NAIC denied the ACLI's request to relax capital requirements, insurers then turned to their individual state insurance commissioner to request specific accounting exceptions.[14]

Some of these exceptions were granted by individual state insurance commissioners, which improved the statutory capital position of many life insurance companies.[15] Some insurance commissioners spoke out against allowing such exceptions to be used, supporting the NAIC's decision.[16] One commissioner in favor of these exceptions publicly commented that financial condition and credit ratings were considered before allowing more-relaxed accounting standards, and that these exceptions were not granted to "make a weak company look healthy."[17] Another insurance commissioner further argued that since such exceptions are disclosed in filings in the public domain, inappropriate exceptions "would face harsh scrutiny

[13] Traditional insurance companies can transfer risk to captive insurers, which usually have lower standards for accounting, capital, and regulatory oversight than traditional insurers. Captives are often subject to less-stringent accounting standards, capital requirements, and regulatory oversight than traditional insurers. LOCs are acceptable forms of collateral for captive life insurance subsidiaries and are used to back insurance liabilities transferred to a captive insurer. Products noted in this article include level premium term and universal life with secondary guarantees, both lines of business where captive transactions were involved. The Financial Stability Oversight Council's Annual Report (2014) outlines several regulatory concerns related to captives.

[14] "Regulators Deny Industry's Request to Lower Capital, Surplus Standards," NAIC News Release, January 29, 2009.

[15] See "Permitted Practices: How Accounting Changes May Affect Your Carrier's Appearance," Lifehealthpro.com, June 1, 2009.

[16] *Ibid.*

[17] *Ibid.*

from fellow commissioners."[18] The ACLI noted that their proposed changes "could provide balance sheet relief in a challenging economic environment, but they won't alter a company's ability to meet its financial obligations."[19]

Prior to granting individual insurer accounting exceptions, a state commissioner is required to provide advance notice to all other states where an insurer is licensed, with significant confidential disclosures; however, if states fail to provide this notice, the permitted accounting practice is still valid.[20] The GAO (2013), as well as various academics, characterized these exceptions granted during the crisis as "regulatory forbearance" granted to the insurance sector (Becker and Opp 2013).

There are two types of exceptions that state regulators can make to insurer statutory accounting standards—prescribed and permitted practices. Prescribed practices are applicable to all insurance companies domiciled in that state and are incorporated directly or by reference to state laws, regulations, and regulatory authority. Permitted practices are those granted on a case-by-case basis to the insurer seeking the exception (NAIC 2008). Our review of the prescribed and permitted practices granted during the financial crisis suggests that state regulators primarily granted exceptions to insurers on a permitted rather than a prescribed basis (NAIC 2008).

Two types of accounting exceptions used by many insurers relate to deferred tax assets (DTA) and reserves. DTA-related permitted practices accounted for about half of all the accounting forbearance granted. This type of exception provided insurers with relief from the significant write-downs related to impaired assets. On the liability side of the balance sheet, reserving exceptions accounted for about another third of all the prescribed and permitted practices

[18] The information is included in the notes to an insurer's annual statutory financial statements (Lifehealthpro 2009, as cited in footnote # 14 above) and includes the exception(s) used, and a reconciliation showing the impact on capital without the exception.

[19] Whit Corman, ACLI spokesperson, as quoted in Lifehealthpro (2009), referenced in footnote #14.

[20] See Anthony Roehl, "Some Insurers Are Receiving Permitted Accounting Practices Rejected by the NAIC," Morris, Manning & Martin, LLP, April 1, 2009. http://www.mmmlaw.com/media-room/publications/newsletter/statutory-accounting-standards-some-insurers-are-receiving-permitted-accounting-practices-rejected-by-the-naic

(NAIC 2008). Examples of such allowed exceptions include variances in mortality risk factors for life insurance reserves and modifications to asset adequacy testing for variable annuity reserves (see footnote #17).

In addition to permitted and prescribed accounting practices that impacted capital levels, state insurance regulators also changed the risk-based capital (RBC) valuation methods for certain invested assets—notably mortgage-backed securities. In 2009, in response to a request by the ACLI, the National Association of Insurance Commissioners (NAIC) changed the method for valuing RMBS.[21] During the crisis, historically high levels of failed mortgages had resulted in rating agency downgrades of a majority of these securities. The state regulators changed the valuation approach after concluding that the tranches of RMBS held by life insurers had not experienced the same level of losses as others, and therefore should maintain a higher credit rating (NAIC 2009).[22] These higher ratings resulted in lower capital requirements for some 60 percent of all insurer RMBS investments, equal to $7.3 billion of higher reported statutory capital for the U.S life sector at year-end 2009.[23] While Fitch noted that appropriate credit risk metrics for structured securities were being debated in the capital markets and that the NAIC RBC requirements for fixed- income investments did not differentiate between credit risk of corporate and structured securities, other observers have questioned the objectivity of this shift in valuation (Becker and Opp 2013).

Insurance companies are required to report the impact of the prescribed and permitted practices on statutory capital in their annual filings with state insurance commissions. The use of such

[21] See "NAIC Advances RMBS Modeling Process," NAIC News Release, November 24, 2009 and "Proposed NAIC Approach to Downgraded RMBS Unlikely to Impact U.S. Life Insurance Rates," Fitch press release, October 15, 2009. Fitch noted that the life industry held about $145 billion in non-agency RMBS at year-end 2008, with an RBC requirement estimated at $2 billion. Given the subsequent downgrades in 2009, Fitch reported that the industry estimated the capital requirement would increase to $11 billion, with slightly over half of this increase affecting the top 20 life insurers. Fitch also describes the shift in approach by the NAIC from a probability of default (PD) basis to an expected loss measure that could capture both PD and expected recoveries.

[22] See NAIC (2009) reference in footnote #20.

[23] See "Modelling of US Insurance Industry's Holdings in Non-Agency Mortgage-Backed Securities," *NAIC Capital Markets Special Report*, July 9, 2013.

practices increased dramatically as the crisis worsened.[24] Table 2 presents data on the net impact of prescribed and permitted practices on the capital levels of insurers that are known to have participated in or sought access to the TARP and CPFF (Table 1).[25] For the U.S. insurers in this group, the aggregate impact of prescribed and permitted practices on capital rose from $111 million in 2007 to $4.5 billion in 2008. This is a lower bound on the impact of exceptions on reported capital levels. The figures in Table 2 do not include capital benefits afforded by the RMBS capital valuation change, as such information is not reported in insurer statutory filings. As expected, the dollar impact of prescribed and permitted practices declined for most firms in 2009 and 2010 as the crisis subsided.

How significant were accounting allowances for the large life insurers seeking government support? Table 3 shows the percentage of capital reported in the annual financial statements of these companies that was attributable to the effect of prescribed and permitted accounting practices. For the U.S. life insurers seeking government support, prescribed and permitted practices accounted for just 0.1 percent of capital in 2007, rising to 4.1 percent in 2008. Including the foreign insurers receiving government assistance, the relative impact of prescribed and permitted practices on statutory capital rose from 2.9 percent of capital in 2007 to 6.1 percent in 2008. Among the firms with the largest relative impacts from allowances were two of the three recipients of TARP funds—Lincoln National and Hartford Financial.

The use of various forms of regulatory actions to respond to insurers' financial stress by state insurance regulators has been controversial. Such practices were sharply criticized by the GAO in their review of the handling by insurance regulators of the failure of four large life insurers in the early 1990s (GAO 1992).[26] The report cited statutory accounting and reporting practices that failed to ensure accurate financial statement disclosure of the actual magnitude of the

[24] Similar trends for the insurance industry as a whole were reported (GAO 2013).

[25] Data appearing in Table 2 are for life insurance groups. For accuracy purposes, we cross checked these data with the individual legal entity disclosures. Group-level impacts are computed by SNL Financial from filings by insurance operating companies.

[26] The report also highlighted issues with respect to asset valuation as well as lack of oversight of intercompany transactions, including intercompany loans and certain forms of capital relief, which we discuss in the following section of this paper.

deterioration of those insurers' financial condition.[27] In this regard, our findings provide similar evidence with respect to the relaxation of accounting and capital standards. In 2008, two of the firms appearing in Table 3 had their capital positions bolstered by more than 30 percent by prescribed and permitted practices. Others hypothesize that such regulatory behavior with respect to temporary relaxation of capital requirements may be viewed as a form of "macro-prudential regulation 'on the fly,' aiming to avoid macro-economic distress, and, in particular, to avoid the negative effects in insurance markets of insurance company failures" (Becker and Opp 2013). Capital relief afforded insurers through regulatory actions undertaken in response to the crisis provides support for this viewpoint. In 2012, state insurance regulators responded to the financial crisis by establishing a framework for examining their existing solvency regulation framework, the scope of which includes a review of capital requirements, statutory accounting and financial reporting, reinsurance, and governance and risk management. This initiative is ongoing. While the actions of regulators can offer temporary relief from short-term financial stresses and can allow insurers to rebuild capital buffers, such practices could also encourage insurers to delay actions that could enable them to fully recover, and permanent relief measures may encourage increased risk-taking (Abaza and Harris 2013, Becker and Opp 2013).

Section 3. Intragroup Transfers of Capital

Financial holding company structures allow institutions a degree of flexibility in the redeployment of capital from one affiliate to another.[28] Internal capital transfers within an insurance company group may allow managers of financial firms to bolster the capital levels of affiliates that otherwise would experience a capital shortfall. They also permit a means to

[27] The GAO report notes "regulators were ill-equipped and unwilling to act effectively in handling the four insurers' problems. Statutory accounting and reporting requirements prescribed by regulators failed to ensure the filing of financial statements that presented the true magnitude of the deterioration in the four insurers' financial condition. Reported surplus was inflated by the surplus relief accounting gimmick and loans from parent holding companies. Moreover, the approach to determining statutory reserves for troubled and nonperforming assets is flawed and delayed recognition of the insurers' mounting junk bond losses."

[28] Houston, James, and Marcus (1997), Ashcraft (2008), and Holod and Peek (2010) examine intragroup transactions in bank holding companies. Niehaus (2014) examines intragroup transactions within life insurance company groups.

channel funds from a parent to a troubled subsidiary. In this section, we examine how the magnitudes and patterns of intragroup flows changed during the crisis period. [29]

Life insurance holding company managers have several strategies they may pursue to obtain capital to inject into struggling affiliates. External funds could be raised at the holding company level and injected into struggling life insurers by their parents. Alternately, holding company managers may be able to obtain additional capital that could be sent downstream to life insurance subsidiaries by increasing the level of dividends paid to the parent by affiliates with excess capital. These affiliates may be healthy life insurance company affiliates, non-life insurance company affiliates, or affiliates outside of the insurance sector. Life insurance company managers themselves could reduce the dividends they typically would pay to their parents.

Parental Support in Times of Macroeconomic/Financial Stress

During the crisis, insurance company groups made widespread use of internal transfers to bolster the reported statutory capital levels of life insurance operating companies. Table 4 summarizes the impact on the level of capital of net internal capital contributions among different types of affiliates within insurance holding companies. In particular, the life insurance

[29] Insurance companies report transactions between group members on Schedule Y of their annual statutory filings. The schedule includes the name of the affiliate, the net amount of capital received or given during the year, the amount of dividends received or paid out, and an identifier if the affiliate is a U.S. insurance company. We construct a database of intragroup transactions for all U.S. life insurance companies. Thus, our sample of entity-level life insurance operating companies includes only those life insurers that were in an insurance holding company group during the 2000–2014 sample we considered. We use the NAIC code and other identifying information to classify each entity within an insurance holding company group appearing in Schedule Y as one of four mutually exclusive types of entities: (i) "U.S. Life Insurers;" (ii) "U.S. P&C Insurers;" (iii) "U.S. Health Insurers;" (iv) "Parents (Non-Insurance); and (v) "Other Non-Insurance Affiliates." For a given year, summing net internal capital transactions across all of these categories will sum to zero absent rounding error, with positive amounts representing contributions to and negative amounts representing contributions from particular categories of affiliates. For the following analysis presented in Tables 4 and 5, the "U.S. Life Insurers" category is further broken down into AIG's U.S. life insurance affiliates ("AIG Life Co's") and the group of U.S. life insurance affiliates seeking government support ex AIG ("Firms Seeking Support ex AIG"). Category membership is based on insurers' NAIC Codes as well as affiliates' Federal Employer Identification Numbers (FEIN or EIN), both of which are provided in the Schedule Y, Part 2, data. Additional information from Schedule Y, Part 1a, is utilized to help identify the parents of the U.S. life insurers in our sample. Additional details on dataset construction are available upon request from the authors.

group is broken down into the following mutually exclusive categories of affiliates: U.S. Life Insurers (column 2), U.S. P&C Insurers (column 5), U.S. Health Insurers (column 6), Parents (Non-Insurance) (column 7), and Other Non-Insurance Affiliates (column 8). Summing across columns 2, 5, 6, 7, and 8 for each year will yield a value of zero, absent rounding error, since this table fully describes the net capital contributions within groups for all insurance holding company groups with at least one life insurer. Positive numbers in a particular column represent capital inflows into that category of affiliates, and negative numbers indicate outflows of capital. As a result, it is possible to see the direction of capital contributions across the categories of affiliates identified in the columns of Table 4. Columns 3 and 4, AIG Life Co's and Firms Seeking Support ex AIG, respectively, are subcategories of column 2, provided for the sake of distinguishing differences among patterns of capital contributions apparent for AIG, the group of large insurers with direct access to government support programs ex AIG, and the remaining U.S. life insurance industry.

Column 2 of Table 4 contains the time series of net capital contributions to (positive numbers) and from (negative numbers) U.S. life insurance operating companies. In 2008 and 2009, contributions to U.S. life insurers, largely from non-insurance parents outside the purview of the state-based insurance regulatory system, totaled $48.8 billion (summing the entries for 2008 and 2009 in column 2). From which category of affiliates did these significant capital contributions to U.S. life insurers come? In total over 2008 and 2009, parents (non-insurance) of U.S. life insurers made $71.2 billion in capital contributions to their groups (summing the amounts for 2008 and 2009 in column 7), with U.S life insurance subsidiaries being the main beneficiaries during the crisis.[30] The magnitude of these capital contributions constituted nearly 25 percent of the total statutory capitalization of the U.S. life insurance sector.[31] There was little

[30] Parents (non-insurance) contributed about $48.1 billion in 2008 and $23.1 billion in 2009 (column 7 of Table 4), whereas other non-insurance affiliates, affiliates that were not U.S. life, health, or P&C insurers and also not parents of life insurers, received $8.3 billion in 2008, and an additional $14.9 billion in 2009 on net from the rest of their holding companies (column 8 of Table 4).

[31] In 2008, the total amount of statutory capital (and surplus) of all U.S. life insurance companies that were part of a holding company group but not not part of AIG was $263.9 billion (unconsolidated). The average across 2008 and 2009 was $288.5 billion (ex AIG, unconsolidated).

support to the life insurance holding company group from any affiliates other than non-insurance parents of life insurers during the crisis.

Capital injections were not limited to those large life insurance firms that sought or received government support (Table 1). AIG accounted for about 48 percent of the total internal capital contributions received by U.S. life insurers during the crisis, $23.6 billion (summing the 2008 and 2009 amounts in column 3 of Table 4). But significantly, other U.S. life insurers received large capital injections as well. Firms other than AIG seeking support received $13.3 billion (sum of 2008 and 2009 amounts in column 4), or about 53 percent of the amount received by all U.S. life insurers excluding AIG, but the rest of the U.S. life insurance industry received $11.8 billion during these crisis years (column 2, summing entries for 2008 and 2009, minus the sum of columns 3 and 4 for 2008 and 2009), a still significant amount. The extensive use of internal capital transfers within the life insurance sector during the crisis therefore suggests that pressure on the life insurance sector was pervasive and not limited to AIG or a small set of large insurers that were seeking government assistance.

There is also a notable cyclical pattern in these capital contributions to life insurers from their non-insurance parents. Over the years 2001 and 2002, life insurers received about $18.8 billion in internal capital contributions (summing the entries for 2001 and 2002 of column 2 in Table 4). Again, this came largely from their non-insurance parents, who were outside the purview of state insurance regulators, as parents contributed about $24.9 billion to their life insurance groups over the 2001–2002 recession and early recovery period (summing the amounts for 2001 and 2002 of column 7). Other non-insurance affiliates contributed $1.9 billion over this period (column 8). Unlike the experience in the most recent recession and financial crisis period, during this previous recession U.S. P&C insurers also received $7.0 billion from the life insurance group affiliates, primarily from non-insurance parents of life insurers (column 5).[32] Thus, over the past two business cycles, only life insurers were significant recipients of capital

[32] The 2001 and 2002 amounts for columns 2, 5, 7, and 8 sums nearly to zero, about $-1.0 billion, which is about the amount that U.S. health insurers received from capital contributions in 2001 and 2002 (column 6).

contributions from their groups, primarily from their non-insurance parents. This indicates that life insurers may be exposed to cyclical macroeconomic and/or financial shocks, contrary to the traditional depiction that life insurance companies are insulated from these types of shocks.

Conservation of Capital through Reductions in Dividends

In addition to providing downstream flows from a parent to its operating company, insurance company managers could conserve capital in times of stress by reducing dividends from the operating company to the parent. If U.S. life insurers manage to pay lower dividends to their non-insurance parents from one period to the next, they can effectively save capital. This is what U.S. life insurers did during the recent crisis.

Table 5 shows the aggregate amount of dividends paid to and received from insurance companies and other categories of insurance holding company group affiliates, and is organized like Table 4. The data in the table are again in levels, and present the net effect of these types of internal capital transactions on reported capital for the different categories of affiliates. The aggregate dividend payments from (negative numbers) and to (positive numbers) life insurance operating companies appear in column 2. In aggregate, U.S. life insurers tend to send dividends to their parents, as the entries in column 2 are all negative. There is a sharp annual decline in dividends during the crisis years, however, reversing the usual pattern of life insurers providing additional capital to their parents each year through dividends, as the annual changes in 2008 and 2009 for U.S. life insurers are positive instead of negative (column 2).[33] So, while they still paid dividends to their non-insurance parents (column 7), they reduced the amount paid, thereby conserving capital, instead of increasing the amount paid as they usually do.

[33] Whereas in Table 4, the levels of capital contributions for 2008 and 2009 were summed together, here the change in levels from 2007 to 2008 and from 2008 to 2009 are summed together and reported in the text. The annual changes are negative for the following years: 2001, 2004, 2005, 2010, 2011, 2012, 2013, and 2014, indicating that for these years, the amount of dividends paid by U.S. life insurers to their affiliates (largely their non-insurance parents) increased.

Aggregate dividend payments from life insurance operating companies declined 83.8 percent between 2007 and 2009, a decline of about $16.4 billion (column 2). A similar phenomenon occurred for U.S. P&C insurers, although the magnitude was smaller at $9.4 billion (column 5, a 61.8 percent decline). Parents (non-insurance), on the other hand, experienced a decline in dividends received of about $19.7 billion over the same period (column 7, aggregating the annual changes from 2007 to 2008 and from 2008 to 2009). Similarly, the other non-insurance affiliates experienced a total reduction in dividends received over this period of $3.9 billion (column 8).[34] This shows that U.S. life insurers also managed to preserve capital during the crisis by reducing the amount of dividends sent upstream, largely to their non-insurance parents.

AIG reduced dividends sent to its group from 2007 to 2009 (column 3). It went from contributing $2.4 billion in 2007 to receiving $0.3 billion in 2009, a conservation of about $2.7 billion in reported capital. The group of large life insurers other than AIG seeking government support also reduced dividends by about $5.8 billion (column 4) from 2007 to 2009. All U.S. life insurers (column 2) reduced their dividend issuances to their group by about $16.4 billion over this same period. Thus, as with capital contributions, there appears to have been an industry-wide effort to conserve capital by life insurers through dividend reductions: this phenomenon was not limited to AIG or the group of large life insurers listed in Table 1 that sought government support.

The annual changes in dividends for U.S. life insurers are greater than $1.6 billion only in the years 2002 and 2003 and in 2008 and 2009, at $6.4 billion (the change from year-end 2001 to year-end 2003) and $16.4 billion (the change from year-end 2007 to year-end 2009), respectively. This implies that it is not unusual for U.S. life insurers to save capital by reducing the amount of dividends they pay around business cycle downturns, while during normal times they spend their capital by increasing the dividend contributions to their non-insurance parents, suggesting

[34] Again, these amounts sum to almost zero, $2.2 billion, with the difference arising because U.S. health insurers also contributed about $2.2 billion on net to their group by increasing the dividends they paid to their group by this amount from 2007 to 2009.

that this is not just a practice employed during the recent financial crisis. Although not emphasized here, this phenomenon occurs for U.S. P&C insurers as well; the magnitudes for U.S. P&C insurers in 2002 and 2003 are about one-third of that for U.S. life insurers, and about 40 percent in 2008 and 2009.

The substantial decline in aggregate dividend payments from U.S. life insurers to their non-insurance parents and other affiliates during the crisis is consistent with life insurance company managers taking steps to conserve capital within their insurance operating companies. It is also consistent with the notion that financial difficulties in the life sector were extensive. The low level of dividend payouts by life insurance operating companies to their parents suggests that few life insurance operating companies had excess capital that could be used to bolster the capital levels of struggling life insurance affiliates within the group through intercompany transfers. In short, life insurance operating companies dried up as a source of capital for insurance company groups, and they instead saved capital by reversing their usual pattern of sending dividends upstream to their non-insurance parents.

Neither were non-life insurance affiliates a source of capital for the parents of life insurance companies. As shown in columns 5 and 6 of Table 5, dividends from P&C insurers to parents and other affiliates decreased during the crisis by about $9.4 billion, while dividends of health insurers changed little (an outflow of about $2.2 billion). Hence, it does not appear that parents were receiving much capital support from their non-life insurance operating affiliates during the crisis.

The widespread use of non-insurance parental support during times of stress suggests two implications for the supervision of firms in the life insurance sector. First, the results suggest that state insurance supervisors should have the ability to assess capital adequacy and availability beyond the level of the insurance operating company domiciled in their own state, including the ability to assess capital adequacy of holding companies, as well as the availability of capital transfers from holding companies, not currently supervised by any of the following:

individual state insurance regulators, their cross-state group supervisory entities, supervisory college efforts, or other non-insurance regulators.[35] Second, because the pattern of capital flows between insurer and parent is cyclical, supervisors should remain attuned to trends and developments in macro/financial conditions, as well as to developments within the insurance sector. It appears that U.S. life insurers, and not only AIG or those that are large and sought government support during the crisis, are exposed to macroeconomic and financial shocks, contrary to the conventional wisdom about the life insurance industry.

The change in the magnitude and pattern of intragroup capital transfers reveals that: 1) life insurers in aggregate were under duress during the crisis and 2) life insurers' use of internal capital transfers across different legal entities within their groups was an important tool for managers seeking to bolster the capital levels of life insurance operating companies. The extensive use of parental support across the entire life insurance industry is consistent with the notion that the capital stresses in the life insurance industry were not limited to AIG or to the group consisting of very large life insurers that sought government support. Instead, the pressure on life insurers' capital, and the means used by managers of life insurers to relieve this pressure, including relying on capital relief from parents outside the network of insurance regulation, was a phenomenon that extended thoroughout the life insurance industry.

It is worth noting that Biggs (2014) quotes the National Organization of Life & Health Insurance Guaranty Associations (NOLHGA) as claiming that they have the capacity to raise assessments on a yearly basis by about $10 billion a year in aggregate across all states in the event of insolvency among life and health insurers combined.[36] If all U.S. life insurers belonging to an

[35] Since state statutes in U.S. life insurers' state of domicile ultimately govern the regulation and supervision of U.S. life insurance operating companies in the current state-based regulatory system, this also opens up the question of whether life insurers should be regulated at the federal, rather than state, level. The answer to this question requires further research and goes beyond the scope of this paper.

[36] Biggs (2014) also states that NOLHGA estimates its 10-year capacity to deal with life and health insurance company failures at $100 billion. The purpose of these Guarantee Associations is to make good on policyholder claims up to some limit, which varies by state in the event of a life or health insurer's insolvency; this information on statutory limits on policyholders' claims is available on state insurance commissioner websites but cannot, by law, be published. This is a procyclical and ex post system, in that assessments are made on remaining insurers in the state to

insurance holding company group had not been supported by internal capital transfers from their non-insurance parents, with total support amounting to roughly $45.1 billion in 2008 ($20.3 billion ex AIG) and $20.1 billion in 2009 ($18.6 billion ex AIG), and instead had failed, they could well have tested the capacity of the state-level Guarantee Associations' ability to deal with life insurer insolvencies.[37]

Another means of internal capital management that improves the capitalization of operating subsidiaries is the use of internal or external reinsurance. This topic is beyond the scope of the current paper. However, some related papers address this topic; see, for example, Koijen and Yogo (2015) and Du and Martin (2014) for studies focusing on the life insurance industry, and Powell and Sommer (2007) and Powell, Sommer and Eckles (2008) for studies of the P&C insurance industry. There are also other types of internal capital transfers from Schedule Y that are not considered here; instead, our paper's focus is on the two types of internal capital transfers that exhibited the most significant changes during the financial crisis years of 2008 and 2009. [38]

Conclusion

This paper contributes to the nascent literature on the extent of solvency concerns in the U.S. life insurance sector during the 2008–2009 financial crisis. We have shown that such concerns were not limited to AIG or to only a few insurers, but instead, were widespread and applied to a large share of the life insurance industry by assets. Such concerns are manifested in the fact that CDS spreads for the largest U.S. life insurers exceeded the spread of those for the largest U.S.

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help satisfy the statutory limits of policyholders' claims once an insurer has failed, and assessments are not related to the assessed insurers' risk profile.

[37] These figures add the level of capital contributions from column 2 of Table 4 to the change in internal shareholder dividends from column 2 of Table 5 for the years 2008 and 2009 for the amounts for U.S. Life Insurers. To obtain the numbers ex AIG, one must similarly subtract out the level of capital contributions to AIG and the change in internal shareholder dividends from AIG from these totals for the U.S. Life Insurers' figures.

[38] The Schedule Y data include the net impact on capital from reinsurance recoverable (payable) on losses and/or reserve credit taken (liability), which has witnessed a substantial upward trend over time for life insurers; however, unlike capital contributions and internal shareholder dividends, these data did not show a marked reversal or change in pattern during the financial crisis or the previous recession.

commercial and investment banks. The concerns are also evident from the number of large insurers other than AIG that sought and participated in government support programs.

We have also documented the extent to which insurers took advantage of various federal government programs during the crisis and the degree to which insurance regulators took various actions that bolstered the capital position of life insurers by significant amounts. Last, we have analyzed the management behavior of the insurance firms and illustrated a dramatic change in their internal management of capital within life insurance holding companies, given the difficulty life insurers had in securing external financing during the height of the crisis (Klein 2009). In this regard, our findings show that during the crisis period insurance firms were more likely to behave as consolidated entities than in earlier or later periods. We also show that such behavior was not limited to AIG or the largest life insurers that may have needed government assistance.

During the financial crisis, the increased use of government assistance, regulatory forbearance, and internal capital transfers masked the true financial condition of many of the large life insurers in our group of large insurers that sought government support. These actions boosted statutory capital levels. These actions may have at least partly alleviated the concerns of industry analysts and investors, as well as policyholders. From a supervisory perspective, engaging in regulatory forbearance during periods of stress might be viewed as an expedient choice for an industry with significant long-term liabilities. Supervisors might also agree that reallocating capital to the parts of a holding company structure in greatest need can be seen as responsible management behavior, but it is concerning that support came largely from non-insurers, outside the purview of insurance regulators. This highlights the importance of supervisors having the ability to take a consolidated view in monitoring the size, type, and direction of internal capital transfers. It also highlights the need for supervisors to have

sufficient capacity to analyze and, if necessary, approve, the large number of intragroup transactions that would be expected to take place during crisis periods.[39]

Our paper also sheds light on the question of whether management's intragroup transfers of capital were a one-time occurrence. Our analysis suggests that internal capital flows in life insurance groups are cyclical. Our data on internal transfers exhibits the same pattern during the downturn period of 2001–2002, albeit with less intensity than during the crisis later in that decade. Our findings counter arguments that the life insurance business model has limited exposure to macroeconomic risks. Our findings also suggest that regulators supervising life insurers may benefit from staff with expertise in understanding and forecasting macroeconomic/financial conditions.

As we know, the story of the 2008–2009 crisis ended well, with financial markets opening up, so that neither insurance nor banking institutions were exposed to further stresses. We do not know the extent to which insurers would have been able to withstand a longer period of stress or the extent to which such continued relaxation of regulatory requirements and internal capital transfer actions could have masked a significant deterioration in their financial condition.

After the financial crisis, banking regulators determined that the consolidated capital requirements for banking institutions should be increased and took action accordingly, within their scope of supervisory authority. Within their supervisory purview, state insurance regulators are now also undertaking a review of capital requirements. In the absence of state regulators' ability to attest to parental support of their supervised entities, our analysis supports a recommendation for insurer capital standards sufficient to weather a future storm of significant macroeconomic and/or financial stress.

[39] As noted in Schwarcz (2015), the default is approval of all such internal capital transactions after a 30-day review period. It seems likely that, since insurance commissioners are notoriously under-resourced, particularly during a time when their review of such internal capital transactions would be most needed, as in a financial crisis, their ability to review such transactions in a timely fashion would be overwhelmed.

Tables and Figures

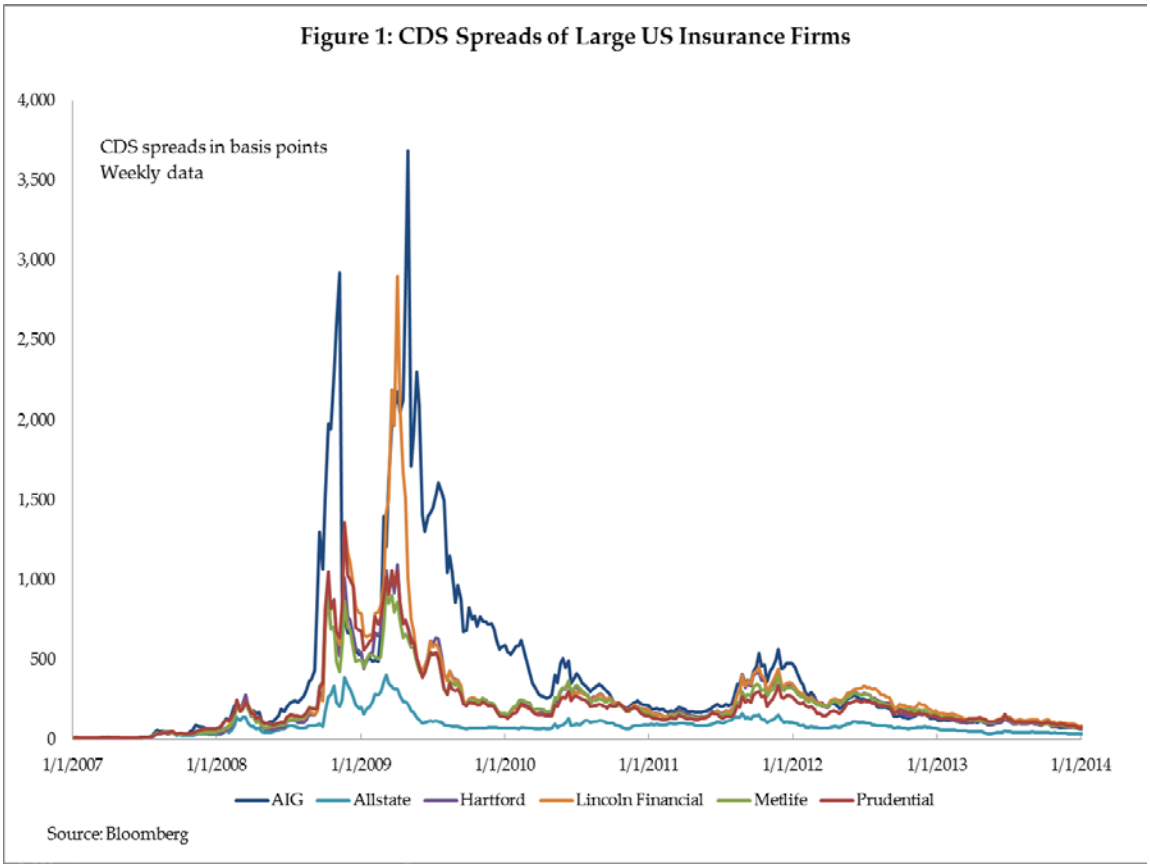
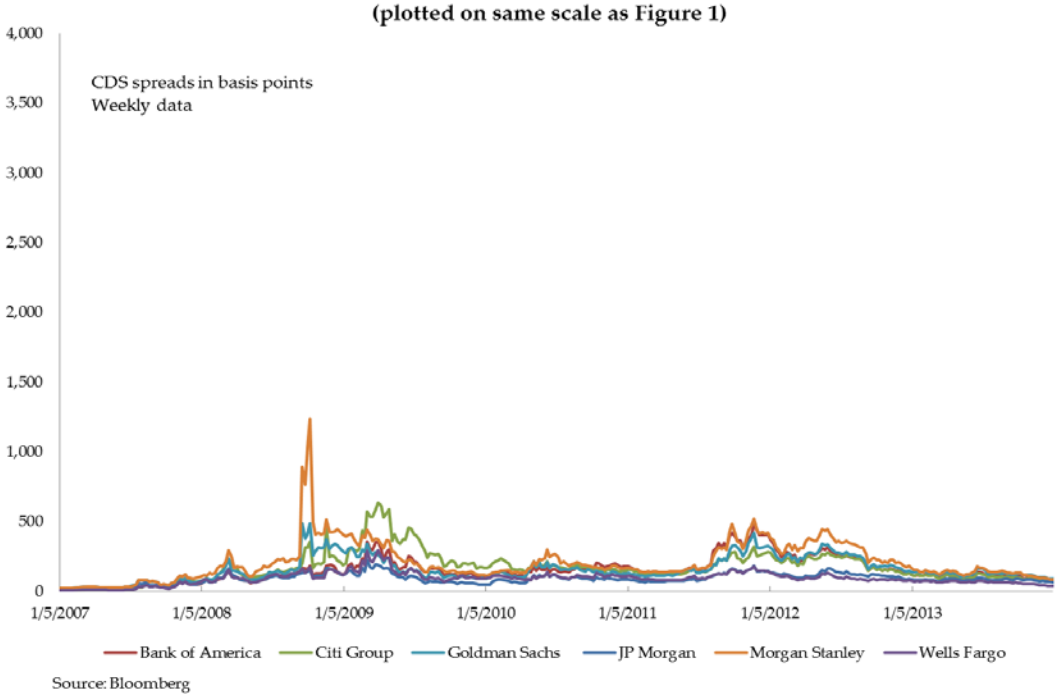
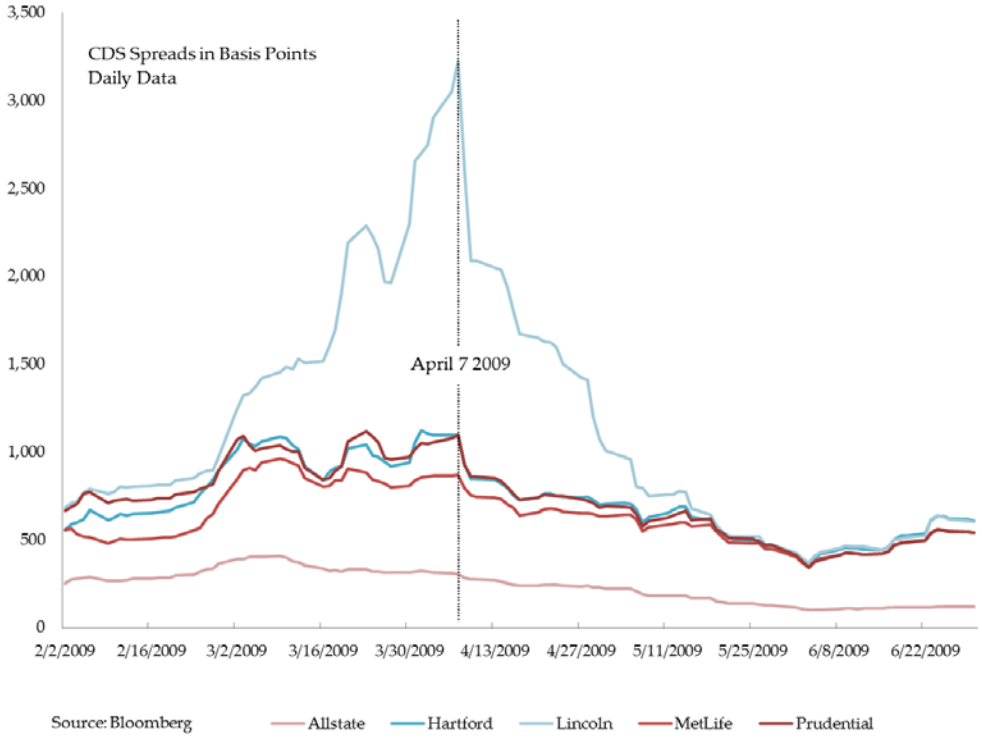


Figure 2: CDS Spreads of Large US Banks
(plotted on same scale as Figure 1)



Source: Bloomberg

Figure 3: Insurer CDS Spreads in Early 2009



Change in spreads around the appearance of the 4/8 WSJ story regarding TARP access for troubled insurers

	4/7	4/8	4/9	Pct. Decline 4/7 to 4/9
Lincoln	3224	2602	2090	-35%
Hartford	1094	928	850	-22%
Prudential	1094	928	862	-21%
MetLife	869	793	755	-13%
Allstate	305	287	275	-10%

Table 1: U.S. Life Insurers Seeking Access to Emergency Support Programs

Insurer [1]	Programs and Nature of Involvement [2]	US Llfe Insurance Assets ($billion) at YE2007 (Statutory Filings) [3]
Companies That Applied for U.S. Government Support Programs		
Allstate	TARP/CPP-Approved	86
American International Group, Inc	TARP/CPP-Participated, CPFF-Participated, Additional Credit Arrangements w/ FRB-NY and the U.S. Treasury	262
Ameriprise	TARP/CPP-Approved	85
Genworth Financial	TARP/CPP-Applied, CPFF-Participated	68
Hartford Financial Services	TARP/CPP-Participated, CPFF-Participated	264
Lincoln National	TARP/CPP-Participated, CPFF-Participated	155
MetLife	CPFF-Participated	556
Phoenix Companies	TARP/CPP-Applied	22
Principal Financial Group	TARP/CPP-Approved, CPFF-Participated	136
Protective Life	TARP/CPP-Applied	26
Prudential Financial	TARP/CPP-Approved, CPFF-Participated	387
Companies with U.S. Operations Obtaining Assistance from Foreign Governments		
Transamerica (AEGON NV)	Capital contribution from Dutch government, CPFF-Participated	74
Voya Financial (ING Groep NV)	Capital contribution from Dutch government, CPFF-Participated	191
Total		2,309
Total US Life Industry at YE2007		4,986

TARP/CPP=Troubled Assert Relief Program/Capital Purchase Program; CPFF=Commercial Paper Funding Facility.

Applied=institution applied for access but was either denied or the application was withdrawn; Approved=institution received approval but did not take part in the program; Participated=institution received funds or guarantees under the program.

Sources: Company SEC filings, SNL Financial, various news sources.

Table 2: Impact of Prescribed and Permitted Practices on Life Insurer Surplus at Year-end
Net Increase (Decrease) in Capital Levels ($000) Relative to NAIC Statutory Accounting Principles
TARP Recipients in Bold

Firm	2007	2008	2009	2010
Allstate	0	1,384,000	0	0
American International Group	**(164,515)**	**(171,494)**	**(142,629)**	**(128,780)**
Ameriprise	0	(33,733)	0	(17,117)
Genworth	0	0	0	4,459
Hartford Financial Services	**360,068**	**1,551,086**	**878,999**	**2,938,726**
Lincoln National	**221,866**	**961,665**	**310,450**	**294,193**
MetLife	(451,390)	409,657	736,093	540,334
Phoenix Companies	0	0	-	0
Principal Financial Group	236,360	387,378	246,077	244,862
Protective Life	(9,292)	11,839	(868)	(177,562)
Prudential Financial	(81,745)	22,131	25,460	18,051
Subtotal: U.S. Firms	111,353	4,522,530	2,053,582	3,717,168
Transamerica (AEGON NV)	3,722,858	2,928,186	2,643,831	2,938,726
Voya Financial (ING Groep)	0	179,820	(1,003,715)	(5,630)
Total: All Firms	3,834,211	7,630,537	3,693,699	6,650,263

Source: SNL Financial

Table 3: Permitted Practices as a Percentage of Policyholder Surplus at Yearend
TARP Recipients in Bold

Firm	2007	2008	2009	2010
Allstate	0.0%	35.7%	0.0%	0.0%
American International Group	**-0.6%**	**-0.7%**	**-0.5%**	**-0.4%**
Ameriprise	0.0%	-1.2%	0.0%	-0.4%
Genworth	0.0%	0.0%	0.0%	0.1%
Hartford Financial Services	**2.8%**	**12.5%**	**5.6%**	**17.7%**
Lincoln National	**3.7%**	**17.3%**	**4.3%**	**3.9%**
MetLife	-1.6%	1.7%	2.8%	2.0%
Phoenix Companies	0.0%	0.0%	-	0.0%
Principal Financial Group	6.4%	8.0%	5.3%	5.5%
Protective Life *	-0.5%	0.7%	0.0%	-6.8%
Prudential Financial	-0.9%	0.2%	0.2%	0.2%
Subtotal: U.S. Firms	0.1%	4.1%	1.6%	2.7%
Transamerica (AEGON NV)	33.6%	37.4%	30.7%	36.5%
Voya Financial (ING Groep)	0.0%	2.5%	-13.3%	-0.1%
Total: All Firms	2.9%	6.1%	2.6%	4.4%

Source: SNL Financial

* Includes only the surplus of Protective Life Insurance Company, the main subsidary of Protective Life.

Table 4: Net Capital Contributions to and from U.S. Life Insurance Operating Companies

amounts in $million

Year	All U.S. Life Insurers	AIG Life Cos.	Firms Seeking Support ex. AIG	P&C Insurers	Health Insurers	Parents (Non-Insurance	Other Non-Insurance Affiliates
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2000	-1,997	347	-2,886	-4,838	0	2,728	4,107
2001	7,128	151	6,938	2,105	800	-10,963	930
2002	11,663	2,534	3,380	4,926	199	-13,977	-2,812
2003	3,756	619	1,603	8,464	-173	-10,620	-1,426
2004	7,229	408	3,958	544	-36	-9,374	1,637
2005	-7,412	55	-3,510	2,575	23	-4,077	8,890
2006	-2,530	-12	-2,793	-529	-683	-4,478	8,220
2007	1,879	2,049	-854	-1,210	-190	-5,932	5,452
2008	38,750	22,642	10,423	832	210	-48,074	8,283
2009	10,048	995	2,920	-2,060	276	-23,129	14,865
2010	-1,665	497	-239	-13,351	-686	-26,408	42,109
2011	-1,603	1,186	-5,011	-1,603	-545	-4,721	8,472
2012	4,116	5,803	-3,544	-2,627	1,132	-16,200	13,579
2013	-1,678	475	-2,075	-8,984	677	-12,071	22,056
2014	-5,152	0	-6,777	-13,805	437	9,389	9,131

Source: SNL Financial. Note: Net capital contribution is the net amount each affiliate type either receives from (positive number) or contributes to (negative number) the rest of its insurance holding company system.

Net capital contribution is the amount contributed less any notes retired or redeemed.

Table 5: Shareholder Dividend Payments to and from U.S. Life Insurance Operating Companies
amounts in $million

Year (1)	All U.S. Life Insurers (2)	AIG Life Co's (3)	Firms Seeking Support ex. AIG (4)	P&C Insurers (5)	Health Insurers (6)	Parents (Non-insurance) (7)	Other Non-Insurance Affiliates (8)
2000	-5,607	-389	-1,469	-9,860	0	11,884	3,583
2001	-11,216	-618	-6,807	-5,120	-293	10,835	5,793
2002	-8,634	-400	-2,026	467	-886	8,388	665
2003	-4,857	-678	-824	-2,334	-1,358	8,857	-308
2004	-11,523	-386	-4,569	-4,195	-1,920	16,590	1,049
2005	-21,284	-1,174	-10,229	-1,513	-2,996	23,363	2,429
2006	-19,665	-743	-8,631	-8,795	-3,395	31,033	822
2007	-19,599	-2,378	-6,953	-15,233	-4,869	38,553	1,148
2008	-13,281	-294	-4,144	-8,896	-5,533	30,796	-3,085
2009	-3,184	304	-1,197	-5,826	-7,071	18,870	-2,788
2010	-16,347	269	-6,685	-7,036	-2,725	27,992	-1,885
2011	-17,433	-1,807	-5,425	-10,556	-4,163	37,407	-5,254
2012	-19,834	-6,807	-5,093	-10,416	-5,620	41,906	-6,037
2013	-22,162	-4,738	-6,390	-16,678	-5,029	42,861	1,009
2014	-23,930	-9,523	-5,503	-7,500	-6,478	50,380	-12,472

Source: SNL Financial. Note: Shareholder dividend is the net amount each affiliate type either receives from (positive number) or contributes to (negative number) the rest of its insurance holding company system.

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