WHY (RE)INSURANCE IS NOT SYSTEMIC

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ABSTRACT
The traditional model of (re)insurance lacks the elements that make a financial institution systemically important: risks are effectively pulverized; liabilities tend to be prefunded, which eliminates most of the leverage in the traditional sense; and active asset-liability management reduces most of the liquidity mismatch that traditionally propagates systemic risk. (Re)insurers that have stuck to this traditional business model have successfully weathered the crisis, even playing a stabilizing role. Unfortunately, this is not sufficiently recognized in the current IAIS/FSB debate on assessing systemic risk in the (re)insurance sector.

BY THEIR VERY NATURE, (RE)INSURER FAILURES POSE VERY LIMITED SYSTEMIC RISK
The failure of a (re)insurer is a relatively rare event, and when it does actually occur, it poses very limited systemic risk. Many fears focus in particular on the supposed systemic nature of a reinsurer’s failure. However, between 1980 and January 2011, only 29 individual reinsurers failed (IAIS, 2012b), while in the third quarter of 2009 alone, 50 American banks went bankrupt according to the Federal Deposit Insurance Corporation (FDIC) figures. Although relatively more frequent, primary insurer failures are not systematically important events and have never generated a financial crisis, whereas bankruptcies and bank runs are more commonplace in the landscape of financial crises. As put by Diamond and Dybvig (2000), “Bank runs are a common feature of the extreme crises that have played a prominent role in monetary history.” For example, in the United States alone, about 10 banking panics occurred during the 1873–1933 period (Wicker, 1996). Although not all of them spurred a widespread economic crisis, some of them were truly systemic, with knock-on effects on the asset and product markets. Since the establishment of the FDIC, no insured bank has failed because of massive deposit withdrawals, but aborted runs still happen periodically in

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IAIS: International Association of Insurance Supervisors, FSB: Financial Stability Board.
the United States (Diamond and Dybvig, 2000, p. 1). Recently, in Europe, huge queues of worried depositors formed in front of such respected establishments as Northern Rock, for example (Song, 2008). Conversely, no (re)insurer has ever caused a systemic crisis. This situation is reflected by the language used in such cases: there is no such word as “insuranceruptcy,” for example.

The main reason explaining why (re)insurer failures rarely spread to the rest of the financial and economic system is the way in which (re)insurers fail. Indeed, the failure of an insurer is, in general, an orderly and lengthy process that stands in sharp contrast to a typical bankruptcy, which is declared within a few days after the generating event. In fact, a failing (re)insurance company does not interrupt its contracts overnight but continues settling the claims. In most cases, the portfolio is sold to another (re)insurer, with multiple buyers generally being easy and quick to find. Claims continue to be settled in an orderly manner, which precludes any disrupting effects on the insureds. In some cases, the company might be placed in run-off, often several years before formal wind-up takes place. Some companies even specialize in managing run-off business. This shows that the market usually perceives a failing (re)insurer as a still valuable asset, rather than a worthless one. The length of the process, along with regulatory provisions, cause supervisors to intervene early on in the process, in order to protect the policyholder. This is further facilitated by the fact that policyholders are the only holders of liability.

Another crucial point is that the settlement of claims is guaranteed by the (re)insurer’s assets, with (re)insurers being required to hold reserves against the claims, so that corresponding assets can be sold to meet them. Regulatory requirements and core professional practices compel (re)insurance companies to hold assets of sufficient quality and liquidity to match cash outflows generated by the company’s liabilities. The payment of claims is thus largely ensured by the long maturity of liabilities.

Furthermore, liabilities are not redeemable on demand like bank deposits, but require a triggering event, the probability of which is independent of the state of the economy—earthquakes are not more frequent in a recession, for example, but bank runs are. Once the triggering event has occurred, the corresponding claims are paid over many years—in the reinsurance industry the average is 5 years, with the World Trade Center (WTC) taking 11 years, according to the Geneva Association (2010).

More importantly, claims can normally be paid by asset sales since the maturity mismatch is of limited size, compared to that generally found in banking. Indeed, (re)insurers deliberately aim at composing their asset portfolio according to the duration of their liabilities so as to minimize the duration mismatch. This is mainly because contrary to a traditional bank, an insurer’s core business does not imply maturity transformation.

Moreover, in some jurisdictions, a proportion of assets must be “tied” so that they are invested securely, in amounts that precisely match the reserves. The insurance laws of most states in the United States require that a percentage of the required minimum capital and surplus of the insurer/reinsurer be invested in minimum risk
investments, such as government bonds, etc.\textsuperscript{2} In Europe, many national regulations implement the prudent person principle,\textsuperscript{3} extensively developed in the Solvency II Directive: “Member States shall ensure that insurance and reinsurance undertakings invest all their assets in accordance with the prudent person principle . . . . All assets, in particular those covering the Minimum Capital Requirement and the Solvency Capital Requirement, shall be invested in such a manner as to ensure the security, quality, liquidity and profitability of the portfolio as a whole. In addition the localization of those assets shall be such as to ensure their availability. . . . Assets held to cover the technical provisions shall also be invested in a manner appropriate to the nature and duration of the insurance and reinsurance liabilities (Article 132, Paragraph 2 of the Solvency II Directive).”

Some may object to the above arguments by pointing out that they better fit the property and casualty (P&C) universe, since life insurance is more like banking, where the insurer takes on deposits and invests them, thus incurring a risk of untimely withdrawal or a “run” on deposits.

But life contracts are long-term savings, held over several economic and financial cycles, which means that lapse rates do not tend to increase too sharply during periods of financial distress. Early redemption is further discouraged by surrender charges and the tax system, while liquidity covenants may enable the insurer to suspend surrenders in cases of distress. And finally, in many countries life insurance guarantee funds provide further protection to the policyholder. This is the case in the United States, where state guarantee funds are grouped within the National Organization of Life and Health Insurance Guarantee Associations (NOLHIGA) and to a large extent in the European Union, where 13 out of 27 members have established fully-fledged Insurance Guarantee Schemes (European Commission, 2007).

There is very little room for systemic risk in (re)insurance because the failure of a (re)insurer is usually a well-controlled process rather than a sudden and chaotic catastrophe that takes everyone by surprise. Another important reason for that is the way in which insurers, reinsurers, and retrocessionnaires are interconnected.

\textbf{The Hierarchical Structure of (Re)insurance Markets Has Stabilizing Virtues}

Indeed, systemic risk usually arises because a localized shock propagates to the rest of the financial system through interconnectedness. One of the major channels of propagation is the interbank market, where different banks operate within a dense network of interdependencies. In the interbank market, risk is strongly concentrated due to a network of very short-term, bilateral exposures, which are significant compared to bank equity (Upper, 2011). Hence, the failure of a single bank can generate multiple bankruptcies. Most banks are indebted to the very same banks to which they have granted loans. Thus, when a single bank or group of banks fail, other banks may fail in turn, which creates a cumulative spiral of losses.

\textsuperscript{2}See Section 22 of NAIC (2004) and as a specific example: Section 1402 of the New York Insurance Law.

\textsuperscript{3}French example in article R332-10-2 of Codes des Assurances
In contrast, the structure of the (re)insurance market is different: it is hierarchical in the sense that primary insurers cede a single risk to many other reinsurers, which in turn often cede it to different retrocessionnaires. But insurers and reinsurers do not usually take back the risks they have ceded: cases of feedback spirals, where reinsurers pass a single claim back and forth, thus amplifying its original size, tend to be isolated events (IAIS, 2012b). A rare instance of a retrocession spiral, called the LMX spiral, particularly affected the London catastrophe reinsurance market in the 80s and in the 90s, and was due to the particularities of the structure of Lloyd’s, as well as to a relative ignorance by underwriters and risk managers of the possibility of a retrocession spiral (Bain, 1999). Following these events, regulatory changes were implemented in order to increase transparency in reinsurance and retrocession contracts and force (re)insurers to retain a portion of the ceded risk, in order to mitigate the very behavior that led to the LMX spiral (IAIS, 2012b, p. 18). Thus, the occurrence of such an event is highly unlikely nowadays, although not improbably of course, since it would constitute an anomaly rather than the result of the normal functioning of the (re)insurance market.

The hierarchical structure of the (re)insurance market, where risks ceded at one level of the market are rarely taken back, stands in stark contrast to the interbank market, where the failure of one bank can cause that of many others. But it also illustrates another fundamental characteristic of (re)insurance: risk pulverization.

(RE)INSURERS TEND TO EFFECTIVELY PULVERIZE RISKS

Indeed, the essence of (re)insurance is to pulverize risk: systemic domino effects in (re)insurance are more of an exception than a standard situation. In the insurance market, risk is pulverized through a number of different mechanisms, risk sharing being the main one: the losses of a few are paid for by the premiums of the many. Indeed, a (re)insurer’s portfolio is primarily made up of a large number of uncorrelated risks, which are underwritten so that only a fraction will occur simultaneously. Large and rare catastrophes triggering an accumulation of many small losses (e.g., an earthquake setting all the houses in an area on fire) are usually confined to a local area. Therefore, in order to be efficient, a (re)insurer’s risk sharing must incorporate strong geographic diversification.

The benefits of risk sharing are amplified by diversification, with risks taken across a wide variety of countries, activity sectors, and types of insured agents. Active moral hazard mitigation is also undertaken by (re)insurers via contract design and postcontractual monitoring, in order to limit the amount of avoidable claims.

Second, risk is pulverized through reinsurance and retrocession: by ceding parts of their risk, insurers benefit from strong diversification, with the largest risks split into tranches and ceded to several different reinsurers, which are strongly diversified both geographically and by risk type. Reinsurance and retrocession thus help to deepen risk sharing and diversification effects. It should be noted that Solvency II, by taking into account diversification effects, further encourages ceding to multiple (re)insurers, thus limiting the concentration of reinsurance recoverables (European Insurance and Occupational Pensions Authority, 2011, p. 5). Once again, one should bear in mind that the presence of reinsurers does not create an interbank type of
interconnectedness, because of the hierarchical nature of relationships between the cedant and the reinsurer/retrocessionnaire, further supported by the above-mentioned regulatory changes designed to prevent contracts that might lead to a reinsurance spiral.

Of course, reinsurance and retrocession create interconnectedness among insurance institutions. A failure of one or several reinsurers might, in theory, trigger the default of primary insurers. In practice however, reinsurance failures are not a cause of direct insurers’ difficulties: during the period spanning 1969–2009, only 3.2 and 2 percent, respectively of nonlife and life direct insurers’ financial impairments were caused by reinsurance failures (IAIS, 2012b, p. 12). This is because the consequences of interconnectedness are mitigated by the above-mentioned hierarchical structure of ceding behavior and by the fact that claims are not paid overnight, as often happens in the interbank market, but over long periods of time (see the example of the WTC discussed previously). In fact, as seen already in the wake of 2001 events, reinsurance as a whole has stabilizing virtues for the insurance market (Swiss Re, 2003).

The third method of risk pulverization consists of cat bonds, which are used by (re)insurers as a means of protection against large catastrophic events. Through cat bonds, losses are spread over multiple bondholders belonging to different activity sectors and geographical locations. The bonds are fully collateralized: proceeds from bond sales are invested in safe assets, which can be readily liquidated to pay claims. Thus, there is no margin call phenomenon in the case of cat bonds: in the event that the insured event occurs, the proceeds of bond issuance are fully available to pay out the claims. Although a rapidly developing market (US$1 billion issued in 2000 and US$4 billion in 2011) (Guy Carpenter, 2012), cat bonds are only a small portion of the insurance and reinsurance premiums ceded (US$225 billion) (IAIS, 2012b, p. 12).

Finally, insurance pools cover exceptional risks such as nuclear catastrophes, terrorist attacks, and environmental liability.4 Claims triggered by these exceptional events are shared by all members of the pool, with governments often providing guarantees above certain thresholds.5

(Re)insurers Keep Most of Their Risks on Their Balance Sheet

In (re)insurance, risks are kept in general on the balance sheet; there is very little of the moral hazard generated by the dissociation of origination and distribution activities that has recently bedeviled many banks. Indeed, in the run-up to the crisis, some

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4A prominent example of an insurance pool is that of Nuclear Pools, grouping 26 national nuclear pools. A presentation is available on the institutional website http://www.nuclearpools.com.

5For example, the terrorism insurance pool in the United Kingdom, Pool Re, benefits from the government’s guarantee in the event that a claim large enough exhausts the available reserves. This guarantee comes at the cost of a regular premium paid to the government and, if activated, must be repaid from future pool’s income. Details can be found at http://www.poolre.co.uk.
large U.S. banks engaged in off-balance sheet activities such as mortgage securitization. This was a considerable source of moral hazard, since the originators of the risk, not being the ultimate risk holders, had no incentive to correctly screen and monitor it. Thorough risk screening was consequently discouraged, leading many institutions to distribute loans to low-quality borrowers, whose solvency proved too low for the loss absorption capacity of the banking system.

Conversely, insurers always retain a portion of the risks they originate, and core insurance activities usually stay on the balance sheet. One should bear in mind that reinsurance/retrocession always involves only a partial cession of risk, with an average of more than 90 percent of the risk staying on the ceding (re)insurer’s balance sheet (cession rates may be higher for some risks, but are always lower than 100 percent) (Geneva Association, 2010, p. 25). Consequently, (re)insurers carefully and thoroughly screen each and every risk before accepting it.

Once accepted, the risk is monitored, and usually considerable efforts are deployed to mitigate postcontractual moral hazard. Those insurers who did have material off-balance sheet exposures were actually undertaking banking activities, such as the writing of credit default swaps (CDS).

Some might object that the growing use of derivatives by the profession could have destabilizing effects, comparable to the large investment banks during the recent crisis. However, this argument misses an essential difference between the derivatives activity of banks and (re)insurers. Indeed, there is a tendency by many regulators to provide (re)insurers with a powerful incentive to use derivatives mainly for hedging purposes. Regulations in the United States generally state that (re)insurers may utilize derivatives subject to a filed and approved derivative use plan. The plans are most often put into place for hedging purposes but derivatives can also be used for income generation, subject to certain limitations. For example, the Model Act limits the aggregate investments in income-generating derivatives, for example, covered calls, to 10 percent of admitted assets.6

In Europe, the Solvency II Directive states that “the use of derivative instruments shall be possible insofar as they contribute to a reduction of risks or facilitate efficient Portfolio management” (Article 132, Paragraph 4 of the Solvency II Directive). Moreover, most derivatives used by (re)insurers are traded and cleared through exchanges, unlike over-the-counter (OTC) derivatives, which can create significant counterparty exposure. (Re)insurers can also trade OTC derivatives, but the latter are limited by regulators in terms of both range and quantity. In Europe, national regulations request OTC derivatives to be kept to prudent levels (see, e.g., for France, Article R332-10-2 of the Code des Assurances), which is reflected in the Solvency II Directive: “Investment and assets which are not admitted to trading on a regulated financial market shall be kept to prudent levels” (Article 132, Paragraph 4 of the Solvency II Directive). Hence, they neither represent a material exposure nor are part of the core (re)insurance business model.

6See Paragraph C of Section 18 and of Section 31 of the NAIC Investments of Insurers Model Act (NAIC 2004) for limitations on the use of derivatives for income generation purposes.
Traditionally, banks are highly leveraged institutions. They finance their assets by borrowing from the markets (investment banks) or from depositors (commercial banks). This makes them particularly vulnerable to the confidence shocks that freeze financial markets from time to time, rendering it impossible for a highly leveraged institution to roll over its liabilities. In such cases, a bank has to liquidate its assets at a price potentially well below their fundamental value. It thus creates a negative externality, since other banks holding the same assets also incur a loss. If the distressed institutions are numerous, then a fire sale phenomenon might emerge, where cash-thirsty banks try to liquidate their assets at extremely low prices and thus contaminate other relatively healthy institutions.

To a certain extent, (re)insurers could also be considered as leveraged institutions, since their assets are only partially self-funded. Indeed, the bulk of a (re)insurer’s funding comes from the reserves, which correspond to the part of premiums collected that are set aside to meet current and future claims. Since these reserves are in some way “borrowed” from the insureds until the claims are made, the ratio reserves/equity can be viewed as leverage.

However, the leverage in question differs in nature from that used by most banks to fund their assets. Indeed, contrary to deposits and wholesale market funding, reserves are not instantaneously puttable and thus cannot be redeemed on demand by policyholders, so that the (re)insurer is no longer able to refinance its activity. The withdrawal of funds from the (re)insurer (i.e., claims disbursement) is conditional on an external triggering event, not on the policyholder’s free will.

Of course, this is not really the case for life insurance, which may be viewed under some circumstances as a savings product with puttability features. However, as argued above, many mechanisms limit the extent to which a life insurer could experience a massive and sudden withdrawal of funds. Moreover, reserves are usually longer term than the interbank or wholesale market liabilities typically used by banks. Thus, a (re)insurer that carries out its reserving activity correctly has enough time to find alternative sources of funding or to resize its activity to adapt to new market conditions.

Mergers and acquisitions (M&A) and capital structure management may entail some leverage in the classical sense, but core insurance activities, which are funded through premium and investment income inflow, do not in the traditional sense.

Finally, (re)insurers following the traditional insurance business model do not resort to wholesale market funding (e.g., asset-backed commercial papers) to meet claims and redemptions, instead using long-term capital to fully back the risks that they accept.

**There Is Very Little Liquidity Mismatch in Core (Re)Insurance Activities**

The very nature of (re)insurance ensures that there is very little liquidity mismatch. By contrast, banks, which borrow short term and lend long term, are extremely vulnerable to market liquidity suddenly drying up. Most importantly, in banking,
deposits are redeemable on demand. Banks of course hold reserves in order to face withdrawal demands, but in our fractional deposit banking systems, the reserves usually fall short of the total value of deposits, most of the time by a huge margin. On the asset side, bank loans are overwhelmingly long term and illiquid, so they cannot be easily liquidated to meet sudden cash needs. Moreover, banks may engage in the trading of highly leveraged securities, which can generate substantial margin calls in times of distress and lead to bankruptcy beyond a certain threshold level.

The story is totally different in the case of (re)insurers. Indeed, the maturity of their assets usually closely matches that of their liabilities: (re)insurers have a long liquidity position. This means that future claims can be estimated with a relatively high degree of accuracy, using actuarial techniques that determine the amount of reserves to be held. (Re)insurers practice asset-liability management, where assets and derivatives are bought to replicate the maturity of future claims. Asset-liability management and positive cash flows ensure that claims normally can be met without resorting to wholesale market liquidity: (re)insurers are in fact long in liquidity. Moreover, (re)insurers hold highly diversified portfolios and have a relatively limited risk appetite in their asset management—the proportion of equities in (re)insurers’ asset portfolios has dropped over the past decade and is now quite low (15 percent in 2008 for European insurers) (Geneva Association, 2010, p. 37).

THE TRADITIONAL (RE)INSURANCE MODEL PASSED THE RECENT CRISIS STRESS TEST

Thanks to the strengths of its traditional business model, the (re)insurance industry weathered the financial crisis of 2007–2010 with far greater success than other financial institutions. During the crisis, overall insurance losses were several times smaller than those of the banks, which had to raise nine times more capital than insurers (US$1,470 billion for banks vs. US$170 billion for insurers). In relative terms, this represents 58 percent of shareholders’ equity for the banks, compared to just 16 percent for insurers (Geneva Association, 2010, p. 13). With regard to Troubled Assets Relief Program (TARP) funds, US$44 billion of these were allocated to just three insurers (one of them accounting for US$40 billion), compared to the US$245 billion received by 600 banks (Harrington, 2009).

It should be noted that the insurers that did suffer significantly during the crisis had business models widely different from those of traditional insurance. American International Group (AIG), which had significant investment banking activities, with a high proportion of leveraged products, accounted alone for 58 percent of new capital raised in the insurance sector in the aftermath of the crisis. More than 90 percent of public rescue funds given to the U.S. insurance sector were channeled to insurers with material banking activities (Harrington, 2009).

Another breed of insurers, the monolines, also paid a high price for deviating from the traditional lore of risk diversification. Monolines insured undiversified and highly

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7 Cumulative worldwide amounts, from 2007 to mid 2010. Capital includes equity and preferred share capital raised, from states and through the capital markets. It does not include asset relief or lending.
leveraged credit risk portfolios, which were concentrated on structured products, that is, miles away from the traditional (re)insurance business model.

In contrast to the above-mentioned specific categories of insurers, (re)insurers with traditional business models incurred limited losses and played a stabilizing role in the crisis. (Re)insurers’ stable cash flows from their diversified operations enabled them to maintain positive asset investments, thereby stabilizing the markets, while banks and other financial institutions had to engage in massive fire sales of securities.

**The Specificities of the Traditional (Re)Insurance Business Model Should Be Better Recognized**

Projected IAIS/FSB methodology for assessing systemic risk in the (re)insurance sector (IAIS, 2012a) runs the risk of failing, to a certain extent, to fully apprehend the specificities of the traditional (re)insurance business model. Even though it appears that fundamental business model differences between banks and (re)insurers will be recognized, too much emphasis is likely to be placed on the absolute size of institutions, which is a problem because what actually generates systemic risk is not size per se but undiversified size. Crude size measures ignore (re)insurance specificities such as geographically and economically diversified exposures and effective risk pulverization mechanisms. More consideration should be given to the way in which a single reinsurer pulverizes its risks through retrocession, securitization and an able diversification strategy across sectors and countries. Moreover, the IAIS/FSB methodology should not neglect the timing factor. The speed of propagation is key in terms of generating systemic risk, which means that the long-term nature of reinsurance activities is a highly mitigating factor that should be fully taken into account.

Aside from the shortcomings of the methodology used to assess the degree to which an institution is systemically important, designating systemically important financial institutions (SIFIs) in the insurance industry would be counterproductive. In fact, publishing a list of SIFIs could constitute an obvious source of moral hazard—institutions declared SIFIs would be considered by the markets as having received a “certificate of bail-out,” which would provide an incentive to take unreasonable amounts of risk. Moreover, focusing on institutions is misguided, since core insurance activities are not generators of systemic risk. Regulators should rather shift their focus toward specific activities that lie outside the scope of traditional insurance. Finally, imposing a capital surcharge would be impractical, because a typical (re)insurer already holds capital well above the minimum requirement, and because there is no single global capital benchmark for insurers. Even in the framework of Solvency II, a (re)insurer’s capital requirement can be determined either with the standard formula or the company’s internal model, which can deviate to some extent from the former.

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8See, for example, FSB (2011) for a common report on SIFIs by the Financial Stability Board and the Basel Committee. For the insurance side, see IAIS (2012b).
CONCLUSION
There is a legitimate desire on the part of the regulators to prevent a reoccurrence of the kind of systemic event we experienced a few years ago. However, regulators should resist the temptation to put (re)insurers in the same basket as banks and other financial institutions. It should be recognized that neither insurance nor reinsurance companies, insofar as they operate within their traditional business models, create significant systemic risk, and that ongoing improvements to insurance and reinsurance regulation will add further stability by themselves. Creating SIFIs would actually generate competitive distortions and reduce insurers’ and reinsurers’ profitability at the expense of solvency.

Instead, the focus should be placed on better monitoring of noncore activities and on increased cooperation between regulators.9

REFERENCES

9Since this text was written following Denis Kessler’s speech at Temple University on December 9, 2011, the IAIS has issued two consultation papers on Global Systematically Important Insurers (G-SIIIs) (on May 31, 2012 and October 17, 2012), respectively, on the assessment methodology and the policy measures. The IAIS’s proposed assessment methodology involves three steps—the collection of data, an indicator-based assessment of that data, and a process of supervisory judgment and validation, with 18 indicators under five categories: size, global activity, interconnectedness, nontraditional insurance, and noninsurance activities, and substitutability. The proposed framework of policy measures consists of three main types of measures: enhanced supervision, effective resolution, and higher loss absorption capacity. According to the IAIS, an initial list of G-SIIIs is expected from the FSB in the first half of 2013.


