International Association
of Insurance Supervisors

Insurance and Financial Stability

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1. Introduction and executive summary

1. **This paper presents a supervisory perspective on the (re)insurance sector and on financial stability issues.** It analyses the sector's role in the financial markets, including its interaction with other financial institutions, and its impact on the real economy. In addition, the International Association of Insurance Supervisors (IAIS) endeavours to clarify the rationale of its proposed methodology to identify any institutions "whose disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruptions to the wider financial system and economic activity."[1]

2. **The business model exposes insurers to unique risks, which are not typically found in banking**. Unique in insurance underwriting are, for example, mortality, morbidity, property and liability risks. Insurers are, however, also exposed to risks found in other financial institutions including credit risks, operational risks, and market risks related to equity investments as well as movements in interest rates and exchange rates. While these risks are not unique to insurance, they can arise in unique ways as result of the specific business model.

3. **The financial crisis of 2008/09 has shown that, in general, the insurance business model enabled the majority of insurers to withstand the financial crisis better than other financial institutions.** This reflects the fact that insurance underwriting risks are, in general, not correlated with the economic business cycle and financial market risks and that the magnitude of insurance liabilities are, in very broad terms, not affected by financial market losses.[2] Moreover, insurers' investment portfolios, which are selected largely to match the underlying characteristics of insurance liabilities, were able to absorb sizeable losses. Similarly, the nature of insurance liabilities, and the fact that payments to policyholders generally require the occurrence of an insured event, makes it less likely for insurers engaged in traditional activities to suffer sudden cash runs that would drain liquidity. While impacted by the financial crisis, insurers engaged in traditional insurance activities were largely not a concern from a systemic risk perspective.

4. **However, insurance groups and conglomerates that engage in non-traditional or non-insurance activities are more vulnerable to financial market developments and importantly more likely to amplify, or contribute to, systemic risk.** Examples of non-traditional and non-insurance activities include credit default swaps (CDS) transactions for non-hedging purposes or leveraging assets to enhance investment returns. In addition, the continually evolving marketplace is resulting in products and activities that blur the lines between traditional insurance and bank-type (or investment bank-type) activities. The recent

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[1] This adopts the FSB definition given in: "Reducing the moral hazard posed by systemically important financial institutions", Financial Stability Board (FSB), October 2010. The methodology to determine the potential systemic importance of insurance-focused groups and conglomerates will likely differ from the banking approach to reflect the specific nature of the insurance business.

[2] The exception being special lines, such as Lenders Mortgage Insurance, Directors & Officers (D&O) coverage, Credit Insurance and Trade Credit Insurance, or certain activities defined as non-traditional in section 3.2 of this paper, such as Financial Guarantee Insurance (FGI), which by their nature are closely related to the business cycle and to financial market volatility.

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financial crisis has revealed that even financially strong insurance groups and conglomerates operating on a core of traditional lines of business may suffer significant distress and become globally systemically important when they expand significantly in non-traditional and non-insurance activities. In this context, it is important to distinguish between those activities that are regulated as insurance and those that are not.

5. **Insurance markets are competitive**. While the insurance business is considered to be predominantly local, competition in most lines of business, especially in traditional insurance, tends to be strong. The larger groups are exposed to global competition only in the context of large risk covers. These dynamics suggest that substitutability, or the continuation of supply of insurance coverage after a failure of a single entity, is likely a less material issue in insurance than in banking.

6. **Exceptions may arise through high supplier concentrations in certain market niches**. In monopolistic or oligopolistic market niches the failure of a dominant insurer could create temporary distortions materialising in the unavailability of cover and sharp price increases. However, such distortions tend to be limited to local markets and they are generally of short duration (see the case study on HIH in appendix A10). Considerable price fluctuations in non-life insurance have been observed also after capacity losses caused by large natural catastrophes. But capacity tends to be restored quickly. The restoration of capacity tends to occur to a large part through the inflow of new capital, since barriers to market entry tend to be low in many lines of business. The restored supply capacity exerts downward pressure on prices, and in most cases they return to previous levels (see also discussion in point 42 below).

7. **Insurers connect to the financial markets through their investment, capital raising and debt issuance activities.** In Europe, insurance groups hold a sizeable portion of their investments in securities issued by other financial institutions, predominantly debt instruments, and to a very small degree, equity securities.[3] The ability – and willingness – of insurers to make such investments provides an important contribution to the financial soundness of banks and more broadly to financial stability.[4] In a similar fashion insurers are also allocating capital to the real economy by purchasing debt securities of industrial companies or through real estate investments. These activities underscore the importance of a financially sound and stable insurance sector. In turn, investment activities expose insurers to the volatility of the sectors in which they invest.

8. **Just as the insurance business model is different from the banking model, the impact of insurance failures on other financial institutions and the real economy is different.** The reasons for the differences in impact reside in the particulars of the insurance business model; in the disciplined implementation of a predominantly liability-driven investment approach; in the nature of insurance claims that in many cases allow the management of cash outflows over an extended period of time (from weeks to months to years, depending on the line of business); and in the high degree of substitutability, allowing for a comparatively ease of market entry into most lines of business.

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[3] "Systemic Risk in Insurance, An analysis of insurance and financial stability," Geneva Association 2010.

[4] This point was taken up in a study by the Basel Committee on the Global Financial System (CGFS); see: "Fixed income strategies of insurance companies and pension funds," *CGFS papers*, June 2011. It should be noted that the holdings of debt securities issued by other financial institutions varies considerably between jurisdictions.

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9. **The answer to the question whether insurers could cause systemic risk is ultimately an empirical issue.** However, based on information analysed to date, for most lines of business there is little evidence of traditional insurance either generating or amplifying systemic risk within the financial system or in the real economy. Of course, empirical assessments about the systemic importance of insurers and insurance groups may change over time. A benign record in the past does not ensure the absence of a systemic risk potential in the future. That is why the IAIS is committed to reviewing the pace of innovation and changes in insurance business models as well as in the complex interactions within insurance groups at regular intervals. It will also continue to analyse the role of reinsurers in the context of financial stability.

10. **The differences between insurers and banks in the impact of failures suggest *inter alia* that requirements for loss absorbency and resolution regimes for insurers should accept these salient differences and propose solutions that differentiate accordingly.** In most jurisdictions supervisors already command a wide range of options for the monitoring and enforcement of capital and provisioning requirements for traditional insurers and they have well-established methodologies for supervising insurers in resolution. In the near future, the impact of non-insurance and non-traditional business activities in insurance groups will be analysed in more detail. If deemed necessary, the results of the analysis will be reflected in IAIS Standards relating to resolution regimes and, where appropriate, recommendations will likely be made for loss absorbency.

11. **In recent years, the IAIS has stepped forward to promote group-wide supervision.** As part of the revisions of the Insurance Core Principles (ICPs), which were first published in 2003, the IAIS has enhanced its supervisory material addressing the supervision of insurers on a group-wide basis, including material relating to cooperation and coordination on both a cross-border and cross-sectoral basis as well as the treatment of unregulated entities in group-wide supervision. The revised ICPs were adopted on 1 October 2011.

12. **The IAIS has also launched work to building a common framework for the supervision of internationally active insurance groups (ComFrame).** ComFrame is directed at about 50 insurance groups that meet the criteria for internationally active insurance groups (IAIGs) as defined by the IAIS. It is designed to make group-wide supervision operational by addressing the risks these institutions are exposed to. ComFrame addresses also both the group-wide and host supervisors' perspectives by defining roles for cooperation and interaction, including the establishment of supervisory colleges.

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2. Salient insurance characteristics

2.1 The insurance business model

13. **The traditional business model of insurance builds on the underwriting of large diversified pools of mostly idiosyncratic and uncorrelated risks** (see the treatment on p. 10 ff. for the differences between traditional and non-traditional as well as non-insurance business activities). Based on such a business model, traditional insurance is unlikely to become a source of systemic risk. The arguments in support of this derive mainly from the nature of insurance liabilities and the fact that in the normal course of business insurers do not use excessive leverage, while investments are funded in general by premium income and are held-to-match liabilities.

2.2 The funding model

14. **One characteristic of the insurance business is its inverted production cycle**. Policyholders pay premiums upfront, and contractual payments are generally made only if and when an insured event has occurred. This means that the large majority of insurance liabilities are not prone to sudden withdrawals. One example of an exception is related to certain life insurance products with demand deposit features. However, an important feature of many life insurance products is that they come with surrender penalties that dampen the incentive for policyholders to cash in their policies prematurely.[5] The appendix presents an exceptional case where life insurers suffered temporary runs on their business caused by a loss of confidence in the financial strength of the institution (AIA in the Hong Kong and Singapore markets). In these cases the runs on the affected life insurance companies were of limited duration and scope. They did not cause significant liquidity stress, and no discernible contagion effects were observed on policyholders, other insurers, or the financial system as a whole.

15. **The inverted production cycle and the contractual premium payments of policyholders allow for a stable cash flow to insurers.** In fact, the operating activities of insurers tend to generate sizeable positive net cash flows. Traditional insurance businesses generally do not depend on short-term funding to finance liquidity or parts of their business operations.

16. **In traditional insurance, liquidity risk is typically an operational rather than a strategic issue**. This is observed also after large catastrophes, for which claims tend to get settled over an extended period. Figure 1 shows that it took seven quarters for the settlement of the reinsurance claims attributed to the loss of hurricane Katrina (2005) to reach 60% and 11 quarters for the settlement of the losses of the World Trade Center (2005) to reach the

[5] It is important to note that there are also products where this is not the case. In certain markets, single premium investment-linked policies are such an example. An initial fee may or may not have been levied, but there are no surrender penalties in later stages. Usually the backing investments are liquid, but there can also be exposure to relatively illiquid assets, such as property and infrastructure investments. Moreover, there are other reasons for not surrendering a life insurance policy, such as loss of cover, which may be difficult or expensive to replace.

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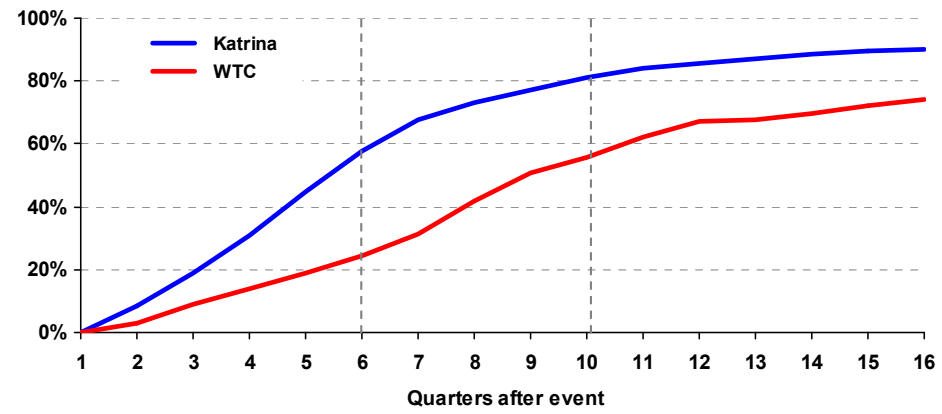
same threshold. And it took approximately another three quarters for Katrina-related payouts to reach 80%, while WTC claims took a total of 24 quarters to reach 80% of the ultimate payouts. The extended claims payment period gives insurers and reinsurers time to plan the necessary funding. During this period, insurers and reinsurers typically continue to receive premium income, which further dampens the need for urgent liquidity measures through the fire sales of financial assets.

Figure 1: Catastrophe reinsurance loss payments in per cent of ultimate losses



Source: Reinsurance Association of America; assumed reinsurace losses

17. **The historical evidence of insurance runs is limited.** In the appendix we present the experience of one life insurer in Asia that came under pressure at the time of the financial crisis. The facts underscore that the percentage of actual surrenders and redemptions against the total number of policies in force was small and that the company did not face liquidity constraints.

18. **In traditional insurance the risk of a liquidity shortage is small.** Cash outflows (or claims payments) are tied to the occurrence of an insured event. In the case of large catastrophes these payments tend to be stretched out over an extended period (as noted earlier). However, the case may be different with respect to non-traditional or particularly risky funding strategies as the securities lending programme of one large American insurance group has revealed (see appendix A8). That said, the financial crisis of 2008/09 has shown that liquidity can dry up unexpectedly and very rapidly. Quite often it is driven by abruptly changing market conditions, which then can pose particular challenges in the presence of large asset-liability maturity mismatches and in those situations where maturity transformation has become an important part of non-traditional or non-insurance business activities.[6] Furthermore, cross-border activities of groups and conglomerates may give rise to special liquidity issues. Particularly in those cases where national regulations and other legal restrictions constrain the transfer of liquid funds, a group or its parent may not be able to access otherwise available liquid funds in a timely manner.[7]

[6] See Marc Philippe Radice: "Assessing the potential for systemic risks in the insurance sector", *FINMA Working Paper,* June/2010.

[7] See M. Radice (2010), op cit.

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2.3 The insurance balance sheet

19. **An insurance balance sheet is essentially the result of current and past underwriting activity.** Under normal conditions the sound underwriting of policyholder risk creates a steady premium flow, with future claims tied to the occurrence of an insured event. Cash inflows from premiums not immediately used to pay policyholder claims are invested in various assets to match the technical provisions for the payment of future claims. Claims (other than surrenders and early withdrawals) [8] typically materialise only in connection with an insured event. Such events tend to be idiosyncratic and are generally not related to the business cycle or financial market developments. Exceptions are various forms of credit risk insurance, trade risk insurance and financial guarantee insurance (see also paragraph 3 and the related footnote). Financial market impacts are also seen to some degree in the dependency on interest rates in life insurance.

20. **The insurance business model requires a careful actuarial modelling of technical provisions to meet claims and unexpired risk.** The technical provisions constitute the largest block of insurance liabilities (see figure 2). Providing accurate actuarial estimates of provisions and ensuring the quality and safety of invested assets in support of these provisions comprise the core functions of the traditional insurance business. Under the model, insurers often pursue also an appropriate duration matching of assets to liabilities (see also section 5.1 on the investment function in traditional insurance).[9]

21. **Insurance regulation requires technical provisions and capital on an insurer's balance sheet to be sufficient to withstand severe yet plausible events.** In addition, supervisors employ a variety of tools to monitor the financial health of insurers and provide an early warning of financial difficulties. In general, such requirements and monitoring of ongoing changes help ensure a sufficient time horizon for identifying and addressing the problems of potentially troubled firms, while promoting an efficient allocation of capital commensurate with the risk of failure. The technical provisions and capital regulation regimes in traditional insurance are therefore designed to provide sufficient loss absorbency capacity and reduce the negative externalities associated with insurance failures.

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[8] See the box on AIA in the appendix for a discussion of surrender issues at the time of the financial crisis.

[9] In practice, one observes a wide variety of ALM approaches. In many cases it may simply not be possible to match very long-term liabilities with assets of equal long duration. In other cases an insurer may deliberately choose to invest in short durations. The crucial point is however that supervisors will require an appropriate capital buffer against the risk of an asset-liability mismatch.

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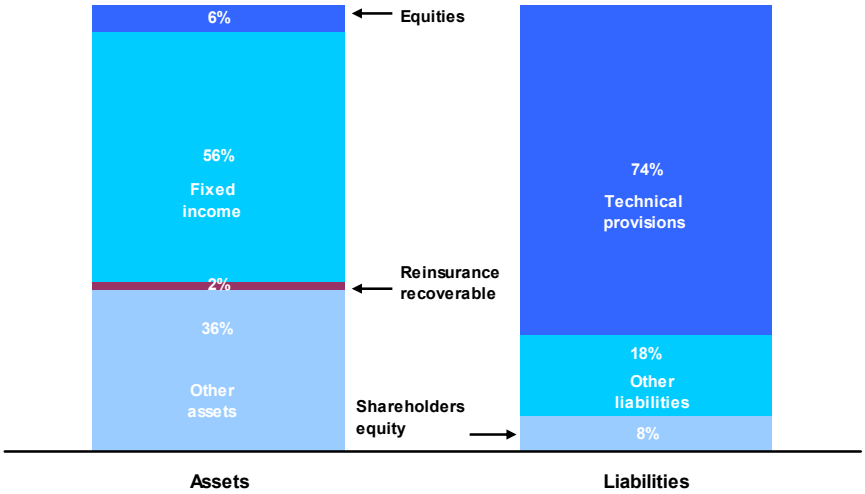
Figure 2: Synthetic balance sheet for European life/non-life insurance groups



Companies selected

- Allianz
- Aviva
- AXA
- Generali
- Prudential
- Zurich

Source: Company reports for 2010 aggregated by IAIS

22. **Size and geographical diversification generate diversification benefits.** The larger an insurer's balance sheet, the more options are available to underwriting a variety of idiosyncratic risks.[10] In general, insurers endeavour to operate on a balance sheet where risks diversify over lines of business, geographies, and time. Specifically, large international insurance groups may gain diversification benefits that are not available to smaller firms whose range of business is limited to national boundaries. Thus, size in insurance can be a driver of increased capital efficiency. When calculating capital requirements, due consideration will have to be given to such benefits, especially geographical diversification benefits.

23. **Insurers are, of course, not immune to failure**. As a proxy for failure we provide in figures 3 and 4 a summary of the major factors to cause financial impairments[11] of US life and health insurers and US non-life insurers over a 40-year period. For non-life insurers neither investment losses, which could stand as proxy for financial market exposure, nor reinsurance failures, a proxy for potential systemic interconnectedness, top the list of primary impairment causes. While reinsurance failures also do not factor significantly in the life and health insurance segment, investment losses are clearly more important, reflecting the larger investment portfolios held in that segment.

Perhaps more interestingly, two major impairment factors both for life and non-life insurers are deficient loss provisioning and inadequate pricing – the most important causes in both segments – and rapid growth, which in many cases was coupled with deficiencies in

[10] This argument abstracts, of course, from the recognition that size may also be the result of risk concentration.

[11] The data is based on A.M. Best's annual financial impairment studies. In the studies, insurers are designated "as a Financially Impaired Company as of the first official regulatory action taken by an insurance department, whereby the insurer's ability to conduct normal insurance operations is adversely affected; capital and surplus have been deemed inadequate to meet legal requirements; and/or general financial condition has triggered regulatory concern." The definition of financial impairment is also given in A.M. Best: "Best's Impairment Rate and Rating Transition Study – 1977–2009", p.3, May 2010.

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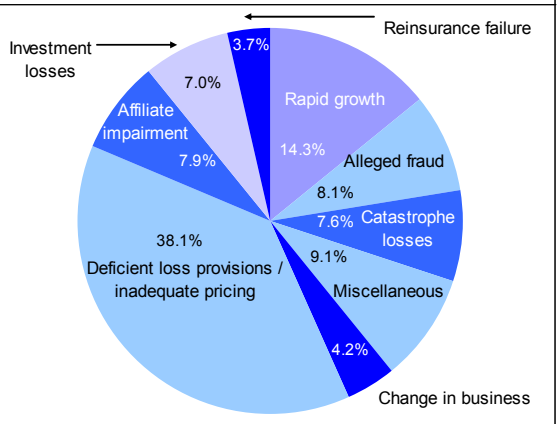
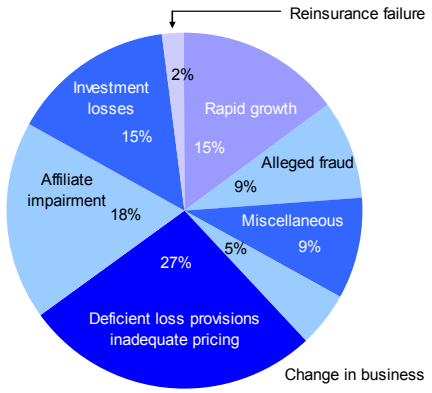
risk management as well as in sound and balanced governance. These causes tend to be interrelated. Inadequate prices, either as result of poor actuarial work or in the wake of aggressive pricing in order to compete for market share, materialise often in deficient reserving.

Figure 3: Primary causes of financial impairments
US non-life companies, 1969 - 2009



Source: A.M. Best Co

Figure 4: Primary causes of financial impairments
US life and health companies, 1969 - 2009



Source: A.M. Best Co

The appendix discusses three cases illustrating insurers in financial distress. The first case on Equitas relates to the London market in the early 1990s, which struggled to meet pay-outs due to large catastrophes, such as Piper Alpha and Hurricane Andrew, and a rising tide of asbestos claims. The second case discusses Equitable Life, which was found to have inappropriately managed products with terminal bonuses. As a consequence, it was inadequately reserved and unable to meet its obligations to policyholders. And the third reports on HIH, whose poor underwriting, chronic under-reserving and under-pricing, abuse of reinsurance, and severe deficiencies in corporate governance contributed to the largest insurance failure in Australia. These cases underscore why supervisors tend to stress – and monitor – the adequacy of provisions in order to ensure appropriate loss absorbency under a variety of adverse scenarios.

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3. The business spectrum of insurers and insurance groups

3.1 The traditional insurance business

24. **The insurance business builds on the premises of insurability**.[12] Among other criteria insurability requires losses to be well defined. They must be accidental, i.e. not controlled by the insured, they must occur randomly, and they must be subject to the law of large numbers. The pooling of a large number of similar or homogenous exposures is essential to the technique of insurance. It allows the insurer to manage risks and offer a valuable proposition to its policyholders. The notion of insurability may evolve over time. What was uninsurable in the past might be insurable today, and what is insurable today might become uninsurable in the future. Also, what is uninsurable in the view of one firm may well be insurable for another carrier.

25. **Insurance accounting accommodates the uncertain and often long-term contractual obligations in the insurance business.** Especially in life insurance, but also in certain lines of non-life insurance, there may be a long time between the receipt of premiums and the payment of claims. This is a major difference in comparison with other industries, and it creates the need for a special accounting treatment. The sector-specific insurance accounting uses actuarial estimates of future liabilities to render an appropriate picture of solvency and profitability. Although this approach is not exclusive to insurance, it covers *inter alia* also industry-specific needs with respect to the recognition of premiums, claims, reserving (or provisioning), and commissions, such as deferred acquisition costs in life insurance.

26. **Insurance laws refer in many cases to the notion of insurable interest.** Insurable interest can be defined as an interest in a person or a good that will support the issuance of an insurance policy; an interest in the survival of the insured or in the preservation of the good that is insured.[13] The notion of insurable interest dates back to the Middle Ages and it was English common law until the Life Assurance Act of 1774. In that Act the Parliament of Great Britain sought to prevent the abuse of life insurance and differentiate it from gambling or purely speculative behaviour. It specifically "prohibited the making of any policy on the life of a person by anyone with no interest in the insured life or for gaming or wagering purposes."[14] Today, the speculative behaviour that the Act of 1774 sought to prevent is often associated with financial derivatives that are wrongly equated with insurance. Financial derivatives are not considered insurance for regulatory purposes.

27. **Hence, traditional insurance is a business concerned with interests that meet at least the principles of insurability based on insurance techniques and that is subject to insurance accounting.** The majority of life and non-life insurance business lines

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[12] A standard reference is Baruch Berliner: "Limits of Insurability of Risks", Prentice-Hall, 1982.

[13] This definition is owed to the Princeton WordNet.

[14] See the 2006 proceedings of the Society of Actuaries under the title "You Bet Your Life." In that session new forms of life insurance – such as Investor Owned Life Insurance (IOLI), an investment vehicle involving an insured life, a life insurance company, a lender, and investors – were discussed in which insurable interest is either *de minimis* or entirely absent.

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– such as mortality and morbidity risk in life insurance or automobile and fire risk in non-life insurance – meets these criteria. They comprise the core of the insurance business. The bulk of traditional insurance risks are idiosyncratic. They tend not to be correlated with each other and, more importantly, they are in general not correlated with the economic business cycle and financial market developments. These are salient features that set insurers apart from other institutions in the financial sector.

3.2 Non-traditional and non-insurance business activities

28. **In contrast, there are business activities that either deviate from, or miss entirely some of, the criteria mentioned above**. In life insurance, for example, non-insurance features, such as different types of guarantees or the absence of penalties for early surrenders, have been added to traditional products. These non-traditional features materially change the risk profile of the combined product. Similarly, life insurance products with savings and investment features are characterised as non-traditional by a number of supervisors. As for reinsurance, the underwriting of reinsurance contracts is a traditional function. However, reinsurance contracts with limited or no risk transfers can change the risk profile, making at least part of the insurance business non-traditional or even non-insurance.

29. **Over time a number of insurance-based groups have become engaged in activities with no direct connection to insurance.** Conceptually, the various activities can be allocated to two broad categories – insurance (including traditional investment and funding functions, but sometimes mixed with non-traditional features and thus called non-traditional insurance business), and non-insurance. It should be clear from the outset that there can be no clear-cut assignments of activities to the various fields.

30. **While the separation of insurance from non-insurance activities may be comparatively easy, the demarcation between traditional and non-traditional lines of business (or products) can be blurry**. Different jurisdictions may allocate different activities to different fields. For example, a number of jurisdictions would classify variable annuities closer to traditional life insurance, while others, in light of the dominant investment component in these products, would see them closer to non-traditional insurance activities. That said, it should also be understood that in many jurisdictions solo insurance companies are confined to traditional insurance activities, or only to very limited non-insurance activities. Table 1 on the next page provides an illustrative allocation of various business activities, while trying to capture the many shades of grey between traditional and non-traditional insurance activities.

31. **Certain non-insurance activities were revealed systemically relevant**. This was certainly true for the large volume of credit default swaps underwritten by a non-insurance subsidiary of AIG in combination with a significant leverage of the group and its large investments in illiquid securities. However, it is important to underscore that non-insurance activities are not necessarily of systemic importance. This is the case in particular for third-party asset management. In most jurisdictions it is not subject to insurance regulation or insurance accounting, two characteristics that put third-party asset management into the non-insurance category. [15] Aside from considerations with respect to operational risk, it should be readily

[15] However, in many jurisdictions third-party asset management is reflected in the approach to group-wide supervision.

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apparent that third-party asset management does not put the equity capital of insurers at risk. This is in contrast to the investment function arising from the insurance business, which is supported by a risk-based allocation of capital. Hence, the likelihood for the third-party asset management activity to trigger a shock of systemic proportion is limited to non-existent.

Table 1: Illustrative allocation of activities conducted by insurance-focused groups[16]

		Traditional ➡		⬅ Non-traditional
Insurance	**Underwriting**	• Most life and non-life (re)insurance business lines	• Life insurance and variable annuities with additional guarantees • Mortgage guarantee insurance • Trade credit insurance	• Alternative risk transfer (ART), incl. Insurance-linked securities (ILS) • Financial guarantee insurance • Finite reinsurance
	Investments and funding	• Proprietary investment function (ALM) • Hedging for ALM purposes • Funding through equity and debt issues; also securities lending	• Proprietary and derivatives trading (non ALM) • Property management (related to investment portfolio)	• Purely synthetic investment portfolios • Cascades of repos and securities lending • Scope and scale of activities beyond insurance remit
Non-insurance		• CDS/CDO underwriting • Capital market business • Banking, incl. investment banking and hedge fund activities • Third-party asset management • Industrial activities		

32. **One lesson of the financial crisis was that the systemic relevance of insurance groups is correlated with the influence of activities outside of the traditional insurance business field**. Moreover, the systemic importance may increase to the extent that entities on the traditional insurance business side have committed to supporting either explicitly or implicitly activities in the non-traditional and/or non-insurance side. One example was the CDS business written in a non-insurance subsidiary of AIG, which made the world's largest insurance group a source of global systemic risk (see also appendix for a summary of the

[16] The allocation of activities is illustrative and the list is not meant to be exhaustive. A number of activities would be allocated differently by different supervisors. Further differentiation may be called for when assessing the methodology for identifying global systemically important financial institutions (G-SIFIs) and related measures.

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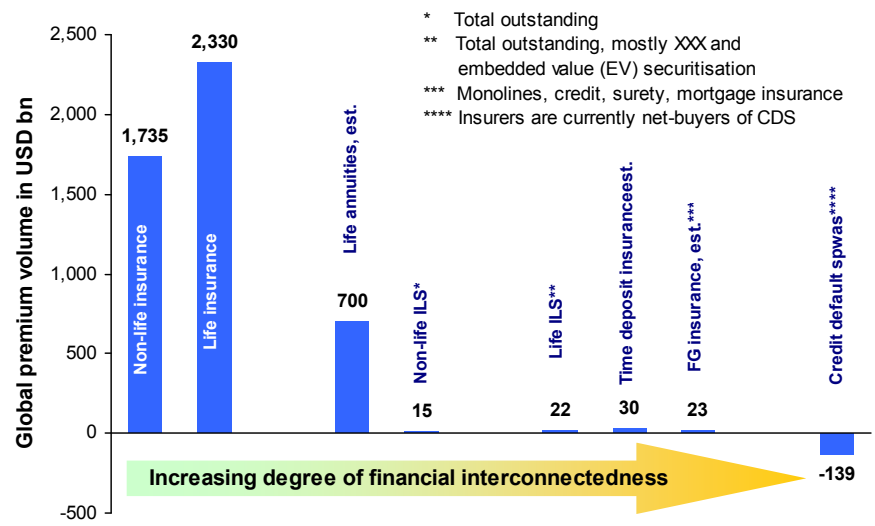
AIG case). Other examples, although with a lower degree of systemic importance, were bond insurers such as Ambac[17] and MBIA, whose loss of AAA status created problems for the holders of municipal bonds and were one of the many contributing factors leading to the collapse of investments known as auction rated securities.[18] In light of severe losses and subsequent rating downgrades, the US Financial Stability Oversight Council concluded that "the future viability of the financial guarantee segment (monoline insurers) remains uncertain, with only one monoline group actively writing insurance."[19]

33. **Figure 5 provides an illustrative example of activities possibly undertaken in an insurance group or insurance conglomerate.** Non-life insurance marks the traditional pole of the spectrum; capital market activities (such as CDS transactions) mark the opposite end (note that insurers are currently net buyers of CDS). Moving along the horizontal axis

Figure 5: Insurance activities and financial market interconnectedness



Source: BIS, Sigma, IAIS calculations; data for 2009

from left to right leads to higher degrees of financial interconnectedness and, to a certain extent, presumably also to a higher degree of potential systemic relevance. However, the diagram does not capture investment activities and the complexity of insurance products. (Again, this statement is illustrative and not based on exact quantification; to draw robust conclusions one would have to monitor changes in various business models over a longer period.) Life insurance tends to be more prone to financial interconnectedness than non-life insurance due to much larger investment portfolios and certain product characteristics such as the embedded options inherent in almost all products. Similarly, due to the inherent characteristics of embedded value (EV) and Regulation (A) XXX securitisation, securities linked to life insurance tend to be more exposed to financial market risks than securities linked to non-life insurance. However, the total return swap underlying most ILS transactions can

[17] Ambac filed for bankruptcy protection under Chapter 11 of the US Bankruptcy Code on 8 November 2010.

[18] "The Financial Crisis Inquiry Report", Washington, January 2011, pp 277–278.

[19] Financial Stability Oversight Council: "2011 Annual Report", Washington, DC, 2011.

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potentially expose both vehicles to financial interconnectedness.[20] Measured by premium volume (nominal notional outstanding for CDS) it becomes clear that the core traditional products in life and non-life insurance make up the dominant bulk of the business undertaken by insurers.

34. **Bankassurance can present yet another form of closer interrelation between insurance and banking.** [21] The combination of banking and insurance activities may generate, in principle, risk diversification benefits. While such benefits were observed in some countries during the recent financial crisis, the case study on bankassurance (see appendix A3) shows that they were not present in the Netherlands. Against a backdrop of severe stress and an overall loss in confidence in financial markets, the banking side had become vulnerable to the risk of large withdrawals of deposits, and both banks and life insurers sustained a sharp decrease in the value of investment portfolios, which in turn led to declining solvency ratios. In order to strengthen financial buffers and secure continued access to financial markets, the Dutch government eventually decided to recapitalise a number of these institutions.

35. **The loss of confidence in insurance groups or conglomerates could possibly spill over to other financial institutions and the real economy.** In the heat of the financial crisis it became difficult for the Dutch supervisory authority to ascertain whether the source of systemic contagion was located in the banking or insurance activities. In the end, the Dutch government feared that problems residing in the insurance segment could spill over too and result in a loss of confidence in the banking arm and subsequently in the group as a whole. It should be underscored however that the Dutch experience appears to have been unique. No systemic spillovers were observed in other jurisdictions with an active bankassurance sector.

[20] This was driven home after the collapse of Lehman Brothers, which had been counterparty to four total return swaps guaranteeing four different ILS transactions. Industry practice with respect to collateralisation has materially changed since.

[21] There are various definitions of bankassurance. By focusing on production, a bankassurer can be defined as a financial group or conglomerate that includes both bank credit origination and insurance underwriting. But bankassurance can be limited to distribution agreements only in which a bank merely distributes third-party insurance products in a contractual agreement with an insurer and does not own the underwriting factory.

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3.3 Interim conclusion

36. **The characteristics of the insurance business model including insurance techniques make it very unlikely for traditional insurance to be systemically relevant.** While traditional insurers can suffer episodes of distress and failure, their business model builds on stable financing and adequate loss provisioning. In the past, runs on (life) insurance companies have been the exception rather than the rule. And in those few locations where in the wake of the financial crisis insurance runs were observed, they turned out to be of short duration. The liquidity outflows and the number of affected policyholders were small; there was little or no contagion; and the runs had no systemic implications.

37. **However, today's business reality is more complex.** Over the years non-traditional and/or non-insurance activities with potentially increasing systemic features have emerged. Without appropriate regulation, they may turn those parts of the groups and other parts of the groups that are supporting the non-insurance business – as AIG illustrated – into systemically important activities. The systemic relevance will likely depend on the size and scope of the non-traditional and/or non-insurance activity and whether the business dimensions are local or global.

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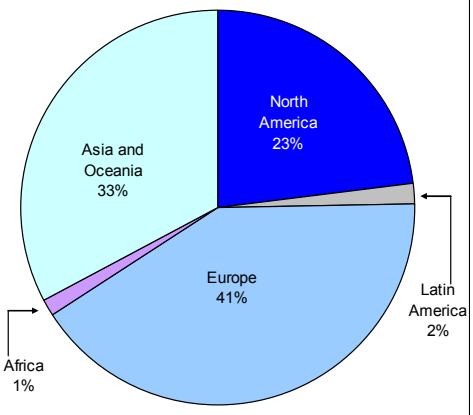
4. Market structure and industry size

4.1 Market structure

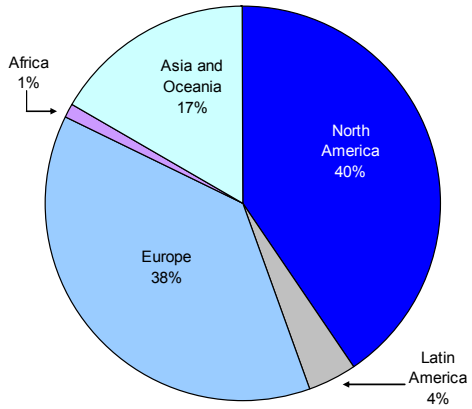
38. **In 2009, global insurance markets reported annual premiums of USD 4.1 trillion (see figures 6 to 9).** Of this total 70% was recorded in the mostly advanced economies of Europe and North America. More than half of the premiums came from life insurance (USD 2.3 trillion); USD 1.7 trillion from the non-life insurance segment. With total premiums of USD 197 billion, global reinsurers comprise a relatively small market. On average, less than 5% of global primary premiums were ceded to reinsurers. In life insurance the cession rate was 2%; in non-life insurance it amounted to 9% of primary premiums. [22]

Figure 6: Global view of the life insurance market - USD 2.3 trillion



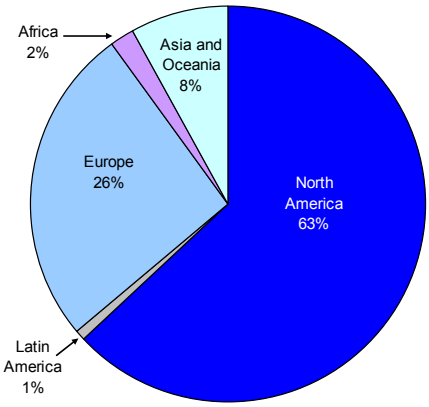
Source: Sigma 2/2110

Figure 7: Global view of the non-life insurance market - USD 1.7 trillion



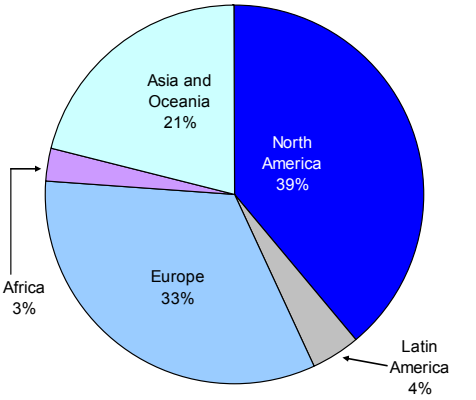
Source: Sigma 2/2110

Figure 8: Global view of the life reinsurance market - USD 45 billion



Source: Sigma 2/2110

Figure 9: Global view of the non-life reinsurance market - USD 152 billion



Source: Sigma 2/2110

[22] Premiums are not an ideal metric to measure the size of the non-life (including reinsurance) sector. A single year's premium may not capture risks associated with catastrophe covers, or financial and mortgage guarantee covers.

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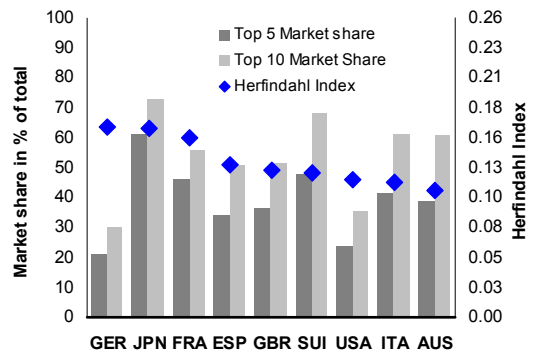
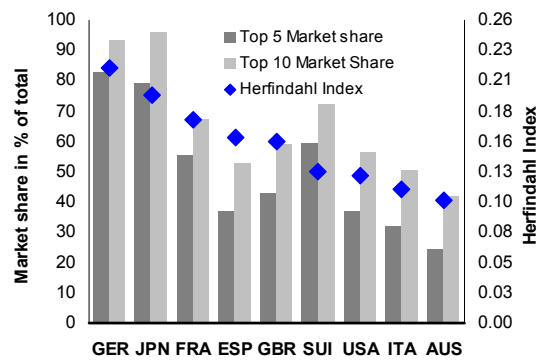
39. **In general, non-life insurance markets tend to be fragmented and competitive.** For focus we concentrate selectively on nine markets in advanced economies. Figures 10 and 11 show industry concentration rates in these major markets. Concentration rates for the top five non-life insurers are relatively small with the exceptions of Japan, France and Switzerland. However, the Herfindahl index[23] numbers indicate a comparatively high degree of competitiveness even in these markets.

Figure 10: Non-life insurance market concentration rates



Source: National data; IAIS calculations

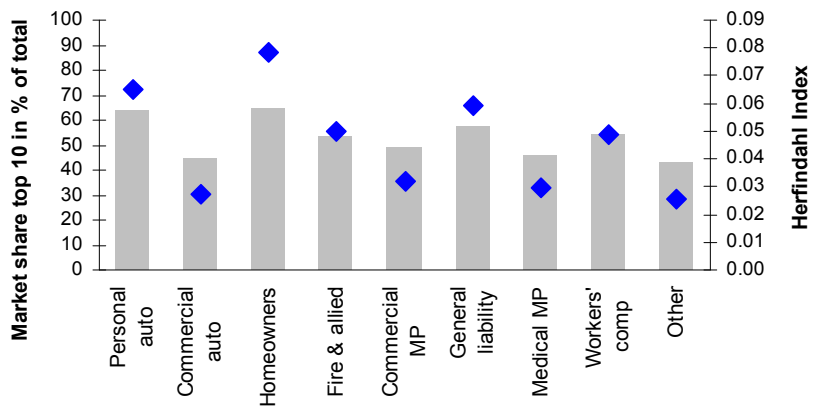
Figure 11: Life insurance market concentration rates



Source: National data; IAIS calculations

40. **Market concentration rates are slightly higher in life insurance.** This is particularly true for Germany, Japan, and Switzerland where the top five competitors achieve cumulated market shares of 60% and more and where also the Herfindahl indices point to a slightly elevated degree of concentration.

Figure 12: Concentration rates in the US non-life market



Source: Robert Klein (2011)

[23] The Herfindahl index measures the distribution of market shares reflecting the existence of dominant market players. Its values range from 0 to 1. They increase with increasing market power and the concomitant decrease in competition.

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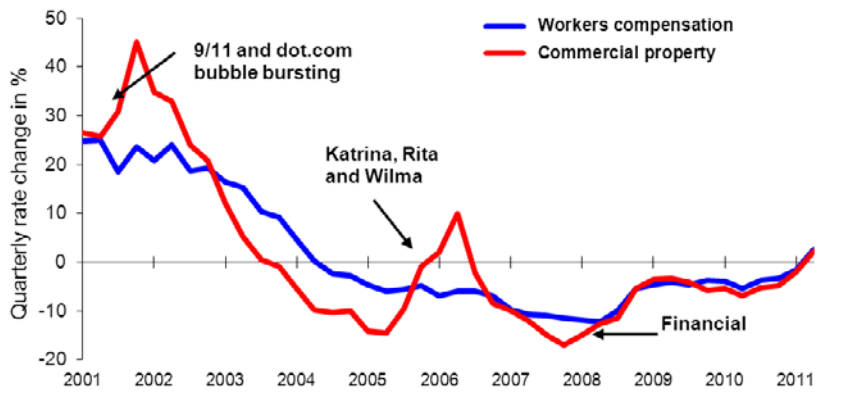
41. **Even more indicative is a market concentration analysis by lines of business.** Figure 12 (above) reports the situation in the US non-life sector for nine lines of business.[24] These markets are quite competitive. In 2006, more than 1,200 companies were active with several hundred insurers competing in each line of business (LOB). In line with the aggregate numbers reported for Europe (see figures 11 and 12) the LOB market shares of the 10 largest US non-life insurers range between 40% and 50%, with the peaks reaching 65%. However, Herfindahl index values are lower than 0.09, which is well below the level that would indicate market power.[25]

42. **The high degree of competition supports the finding that a loss of insurance capacity (due to catastrophes, for example) tends to be replaced quickly.** A loss of non-life insurance capacity may lead to rate increases in certain lines of business (so-called market hardening). The higher rates tend to attract new capacity quickly as barriers to market entry tend to be low in most lines of business. This drives down rates (contributing to a market softening), making rate spikes in most cases of rather short duration. This pattern is visible in figure 13, which depicts quarterly rate changes in two US commercial business

Figure 13: Average US commercial rate change by line



Source: The Council of Insurance Agents and Brokers

lines. Since 2001, the general trend has materialised first in declining and then negative rate changes for both commercial property and workers compensation. In commercial property, the soft market was interrupted only in the aftermath of the exceptional hurricane season 2005, which inflicted three major hurricanes on the US Gulf coast (Katrina, Rita, and Wilma – KRW). However, the subsequent period with positive rate changes lasted for only two quarters, ending in the third quarter 2006. The trend reversal can be explained with the inflow of new capital. According to industry estimates, the reinsurance sector was able to replace more than 80% of the estimated KRW losses with new funds coming in the form of equity, start-ups, or sidecars and catastrophe bonds.[26] While the absolute magnitude of negative

[24] Robert W. Klein: "Principles for Insurance Regulation: An Evaluation of Current Practices and Potential Reforms", *The Geneva Papers on Risk and Insurance*, GPP/IIS Awards Edition, June 2011.

[25] Klein (2011) reports that the U.S. Department of Justice and the Federal Trade Commission consider markets with Herfindahl index values lower than 0.15 to be not concentrated. These type of concentration thresholds appear to be market-specific. A more detailed analysis would be required to ascertain whether markets in Europe, for example, are more or less concentrated than US markets.

[26] Communication to the RTG, July 2011.

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rate changes has diminished beginning in 2008, signs of a slightly hardening market (i.e. positive quarterly rate changes) have become visible in the second quarter of 2011. The overall finding however remains unchanged that, in general, even an exceptional loss of insurance capacity will be replenished quickly. Lack of substitutability does not appear to be an issue in the insurance industry. To some extent, this finding is also supported by the HIH case study presented in appendix A10.

43. **These admittedly few and selective examples support nevertheless the conclusion that insurance markets tend to be competitive.** The number of suppliers is often quite large, and many markets, particularly on the LOB level, tend to be fragmented. The large number of suppliers and the high degree of competition suggests that substitutability does not appear to be an issue in most national insurance markets, and probably even less so in global markets. That said, substitutability issues cannot be ruled out in certain market niches to be served by one insurer with a very high or even a monopolistic market share. Examples of such special niches could potentially be found in export credit insurance, aviation coverage, and certain reinsurance lines of business.

4.2 Industry size by assets and market capitalisation

44. **Total insurance assets represent approximately one third of the banking industry's assets, and a similar relation holds for industry-wide capitalisation numbers.** One striking point of figures 14 and 15 is that the top three banks are as large as the top ten insurers if measured by total assets. By market capitalisation, the largest bank is almost as large as the top ten insurers together. The reinsurance sector is comparatively small. By assets, the ten largest reinsurers are smaller than the one top primary insurer, and by market capitalisation the whole reinsurance sector equals the two top primary insurers.

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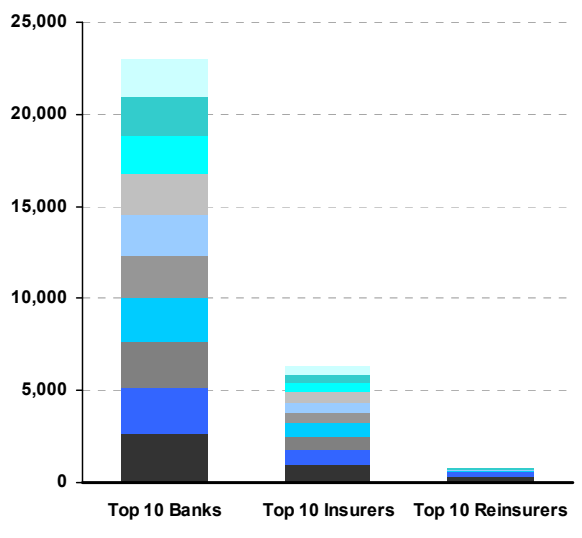
Figure 14: Total assets; USD billion (2010)

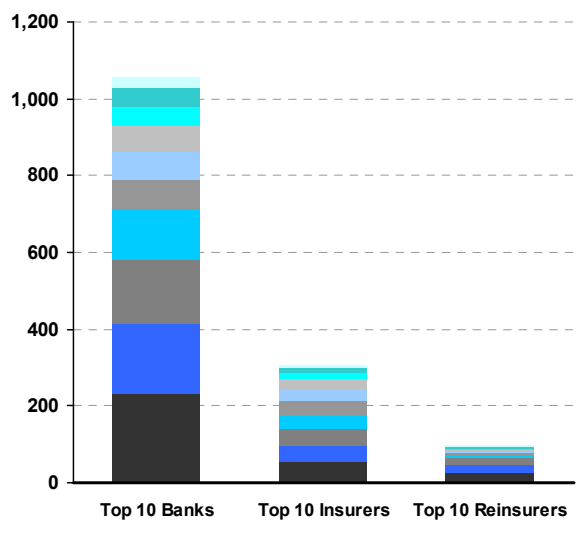


Source: Company reports, IAIS calculations

Top 10 insurers: ING, AXA, Allianz, Metlife, AIG, Aviva, Generali, Prudential, Legal & General, Aegon

Top 10 reinsures: Munich Re, Swiss Re, Hannover Re, QBE, Scor, Reinsurance of America, Partner Re, Everest Re, Transatlantic, Alterra

Figure 15: Market capitalisation; USD billion (2010)



Source: Bloomberg

Top 10 Banks: BNP Paribas, Deutsche Bank, HSBC, Barclays, RBS, Bank of America, Mitsubishi, Crédit Agricole. JP Morgan, ICBC (China)

45. **The 25 largest insurers in the world combine USD 10.7 trillion in total assets.** The total of insurance assets is about one quarter of the USD 44.3 trillion that the world's 25 largest banks combine on their balance sheets (see figures 16 and 17). The size of banks appears to be more homogenous than the size of insurers. BNP Paribas, the largest bank is about three times larger than Commerzbank, the number 25 bank in our sample. In insurance, however, AXA is more than five times larger than Ping An, the smallest in the sample of the world's 25 largest insurance groups.

46. **The compact size distribution (relative to insurance) in the banking sector accounts also for the fact that insurers play a minor role in the global ranking of large financial institutions.** The three largest insurance groups AXA, Allianz and MetLife would rank among the world's 35 largest financial institutions (all with balance sheets in excess of USD 700 billion) on positions 26, 29 and 34, respectively.[27] And if we extend the sample to the world's 50 largest financial institutions, only six insurance groups would be added – AIG, Aviva, Generali, Prudential, Legal & General, and Aegon. This underscores the considerable scale difference among the world's largest bank and insurance groups.

[27] These numbers do not include off-balance sheet items. If one were to include them for banks and insurance groups, the size difference between the cohorts of the largest banks and the largest insurers would be even bigger.

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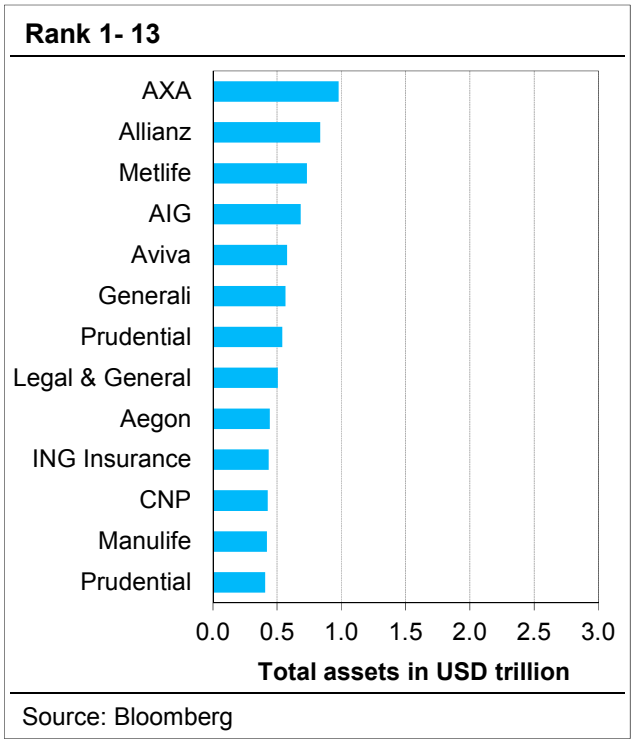
Figure 16: The top 25 global insurance groups (listed companies only)



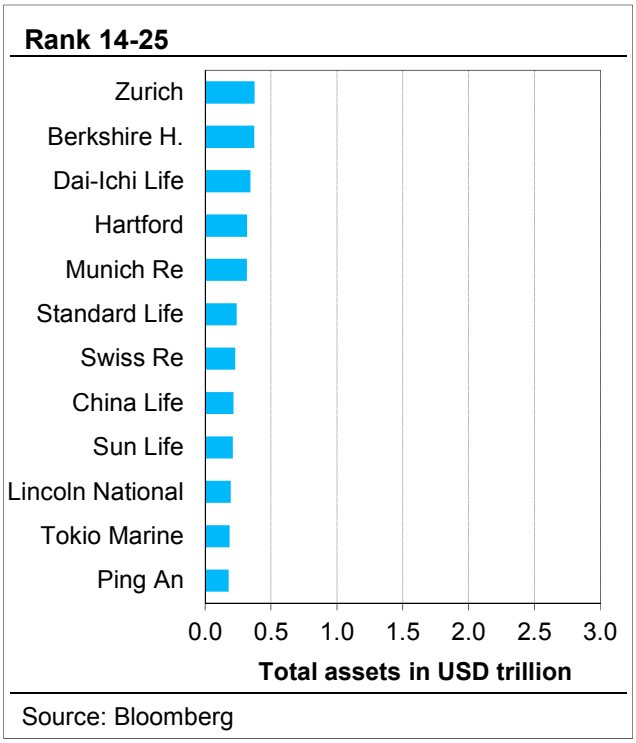
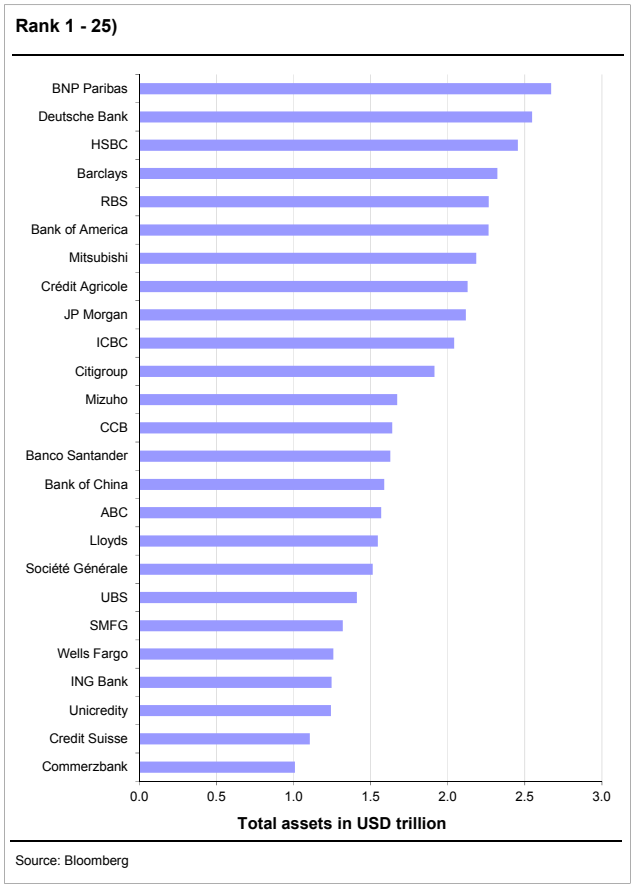
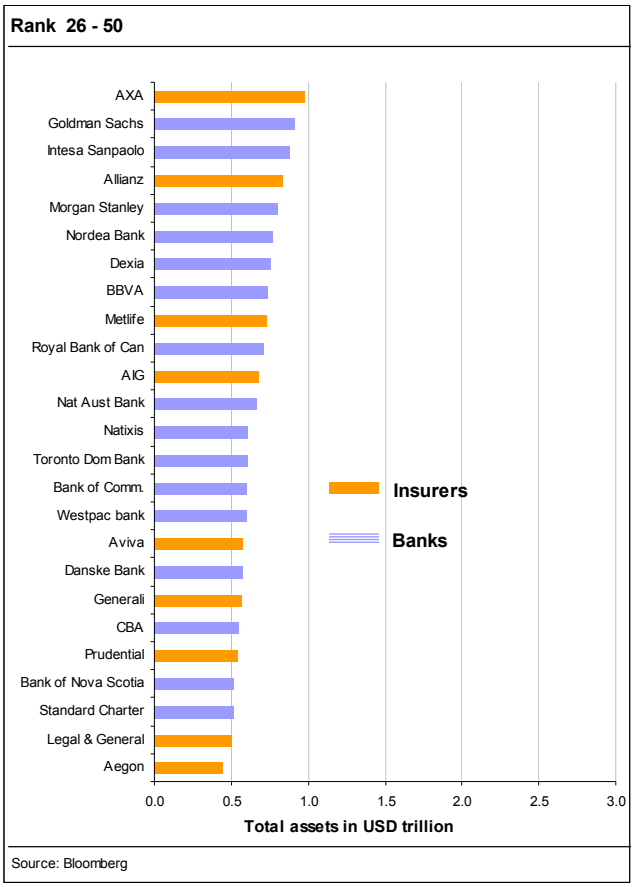


Figure 17: The top 50 global financial institutions





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5. Insurance in the financial system

5.1 The investment function

47. **The insurance sector is one of the largest institutional investors in the world with invested financial assets of nearly USD 24 trillion**. Insurance assets account for 12% of all global financial assets, which places insurers in the same category as pension funds and mutual funds. This strong market presence makes the insurance sector an important player in the financial system. Particularly in light of the large proportion of fixed income securities on their balance sheets, one would expect insurers as a whole to play an elevated role as predictable and stable providers of long-term funds for the primary fixed income market. And indeed a summary statistic for the five largest European insurance groups shows that these groups were net buyers of financial assets in the period 2007 to 2009.[28] This would suggest that the insurance sector exerted a stabilising effect on financial markets – at least at the margin – at a critical and highly unstable time.

48. **The bulk of insurance investments is in life insurance.** With nearly USD 19 trillion, life insurers hold almost five times the financial assets of non-life insurers (see figures 18 and 19 for investments by insurers domiciled in Asia, Europe and the Americas). Roughly three quarters of insurance investments are held in Europe and the United States.

49. **In considering the investment function in insurance companies, one must emphasise the relevance of asset-liability management (ALM)**.[29] Insurance investments must cover the provisions for expected claims and policyholder benefits. In many cases, and especially in life insurance, these liabilities are longer-term in nature and thus help to insulate insurers from short-term shocks to the financial system. The longer time horizons, however, do not imply that insurers pursue mere buy-and-hold strategies. ALM is more nuanced, and insurers may choose to make investments that are not subject to strict ALM practices.

50. **The starting point for any asset-liability management consists in determining the optimal asset mix to manage key risk factors on an insurer's balance sheet**. In a perhaps more narrow liability-driven investment (LDI) approach the insurer can choose either matching liabilities with assets whose cash flows are identical (cash flow matching) or matching the interest rate sensitivities of assets and liabilities (duration matching). Such strategies differ substantially from strategies pursued by asset managers who endeavour to exceed the returns of a given benchmark. One more recent development is that financial innovation has offered a broader range of tools to facilitate the ALM task. These tools include mostly swap and hedging operations to mitigate inflation, volatility, currency and counterparty risk that transfer insurance and/or market and credit risk to third parties and in certain circumstances allow for the enhancement of expected investment return.

51. **The large investment portfolio and associated hedging activities expose insurers to financial market and credit risk and make them recipients of financial market**

[28] Based on annual reports of Allianz, Aviva, Axa, Generali and ING.

[29] See also Committee on the Global Financial System (CGFS): "Fixed income strategies of insurance companies and pension funds," pp. 13–16, June 2011.

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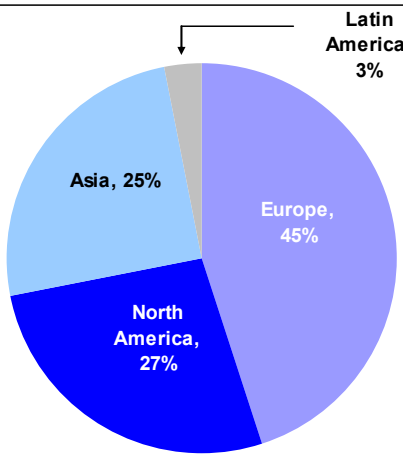
shocks. In figure 20 we show that European insurers hold nearly one third of their assets in various exposures to other financial institutions. While the bulk of these financial sector assets is held in investment-grade bonds, severe market dislocations will undoubtedly have an adverse impact on insurers.

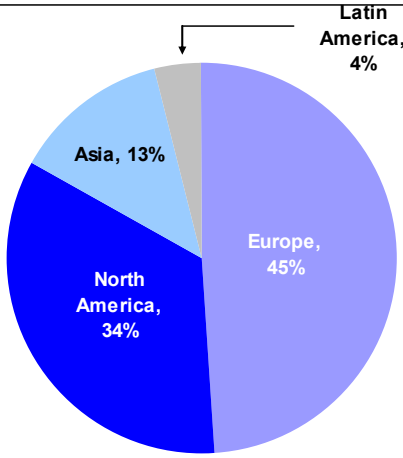
52. **In light of their investment portfolios, it is not surprising that insurers can be affected by financial shocks.** The sharp and sizeable declines in asset prices experienced during the financial crisis had an appreciable impact also on insures. Fortunately, the adverse impact turned out to be temporary. Over the course of 2009, financial markets in advanced economies recovered, at least partly, and so did the balance sheet and solvency of most insurers. Most entities engaging in traditional insurance activities weathered the shocks caused by the financial crisis relatively unscathed.

Figure 18: Global view of life insurance investments - USD 18.7 trillion



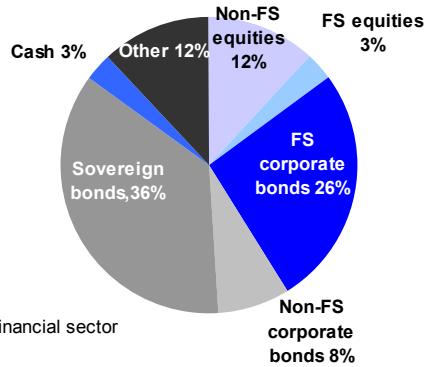
Source: Sigma 5/2010

Figure 19: Global view of non-life insurance investments - USD 3.9 trillion



Source: Sigma 5/2010

Figure 20: Investment portfolio of European insurance groups



FS = financial sector

Source: Oliver Wyman

53. **Another question is whether the investment behaviour of the insurance sector as a whole could create adverse spillovers for other financial institutions.** In the appendix we report the results of an event study looking at the interlinkages between UK banks

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and life insurers at a time of stock market distress in the 2001 to 2003 period. It concluded that, in general, there was no materially significant contagion between insurers and banks. However, to the extent that minor contagion was observed, it turned out to be linked to concentrated bank investments in the life insurance sector and to direct ownership of life insurance businesses by UK banks.

5.2 Reinsurance

54. **Reinsurers provide insurance for primary insurance companies.** They apply the same business model as primary insurers, and they are subject to the same principles of provisioning and asset-liability matching. Like primary insurers, reinsurers endeavour to exploit the benefits of diversification over time, geographies and between different lines of business. While diversification reduces the overall risk, the law of large numbers makes variations in the pattern of actual losses more predictable.

55. **One key difference in the business model is that reinsurers provide services to professionals only.** It is a business-to-business (B2B) or wholesale relationship, which may impact behaviour. The scope of services offered can go beyond the services offered by primary insurers. Offerings by reinsurers to primary insurers may also include consulting support for portfolio optimisation.

56. **Reinsurers were first to develop models for the securitisation of insurance liabilities and insurance assets.** In light of the low correlation between some of the securitised insurance liabilities (e.g. property catastrophe risks) and financial market risks, institutional investors have shown growing demand for these instruments. While primary insurers have now also begun to offer ILS instruments, the market for insurance-linked securities (ILS) continues to be very small in comparison to other securitisation markets and, in general, it does not generate additional underlying risks. ILS markets serve as distribution mechanism for parts of insurance risks for which (re)insurers remain ultimately liable. (Re)insurers continue to have "skin in the game." This adds a risk governance component, which limits the potential for systemic risk. Of course, risk securitisation based on poor underwriting and inadequate risk management may potentially create systemic issues similar to the ones observed with the securitisation of sub-prime loans prior to 2007. That is why supervisors will continue to monitor the growth of the ILS market (which up until now has been very small) and the standards adhered to by the issuing entities.

57. **Reinsurers are often believed to be contributing to systemic risk in insurance**. One argument builds on the view that the interbank market and the reinsurance market are morphologically equivalent. It implies that reinsurance shocks could cascade as quickly through the insurance sector as shocks in the highly interconnected banking sector. However, there is one important structural difference. Figure 21 depicts a stylised picture of the insurance-reinsurance market.[30] While primary insurers link to reinsurers, interlinkages among primary insurers are comparatively limited. In other words, links between entities in the insurance market are almost entirely hierarchical, and there is no network-like inter-

[30] The argument follows Marc Philippe Radice: "Assessing the potential for systemic risks in the insurance sector", *FINMA Working Paper*, June/2010.

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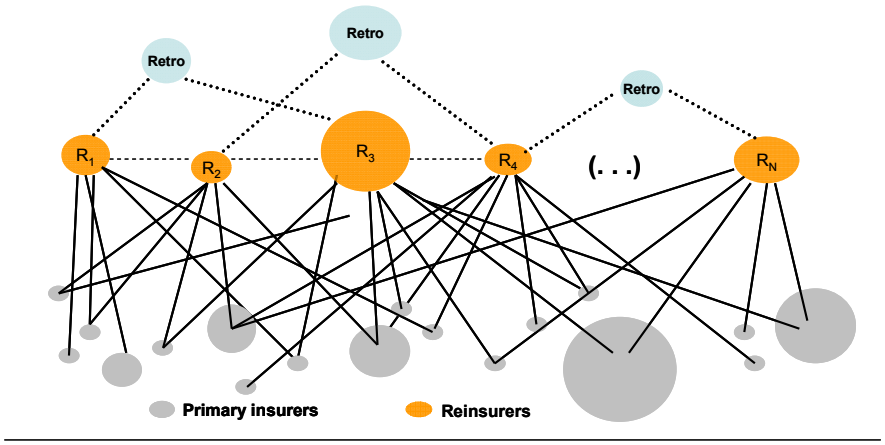
insurance market similar to the interbank market, for which we show a stylised representation in figure 22.[31] As a result, there are fewer feedback mechanisms to create non-linearity and a potential for systemic risk within the insurance sector. Figure 21 also shows linkages between reinsurers. However, these connections are weak. Reinsurers have little incentive to cede parts of their main business lines to competitors. They are more prepared to cede certain specialty lines in which they may have a particularly high concentration of risk. In such cases, retrocession is likely to generate diversification benefits and contribute to an improved capital management. However, one should recognize that these cessions cover only a small proportion of the total reinsured risks.

58. **The degree of interconnectedness within the (re)insurance sector is small, although "intra-connectedness" within an insurance group or a financial conglomerate is not negligible.** The absence of feedback loops implies that the likelihood of potentially non-linear systemic reactions is small. This is another way of stating that the (re)insurance market has built-in circuit breakers. To be sure, the failure of one reinsurer would adversely impact its cedants. But the failure of one reinsurer does not necessarily cascade through the market and cause the failure of other reinsurers or retrocessionaires.

Figure 21: The hierarchical structure of the (re)insurance market



Source: FINMA / IAIS

Figure 21 (above) represents a stylised picture of interconnections in the (re)insurance sector. Circles representing primary insurers, reinsurers, and retrocessionaires are not drawn to scale. The larger primary insurers write annual premiums in excess of USD 100 billion, while the market leaders in reinsurance write about USD 40 billion. In total, primary insurers write more than USD 4 trillion in premiums. Of this global volume roughly 5% is ceded to reinsurers and about 0.6% to retrocessionaires. That said, it should be noted that static considerations based on premiums written and ceded by primary insurers do not reflect the dynamics arising from the confluence of several major catastrophe events that would stress one (or several) reinsurer(s) and possibly impair the quality of reinsurance recoverables.

[31] As more data becomes available, it is expected that evidence will confirm the predominantly hierarchical network architecture of the (re)insurance sector. Ideally, the data should also help in assessing the degree of interconnectedness between reinsurers and insurers.

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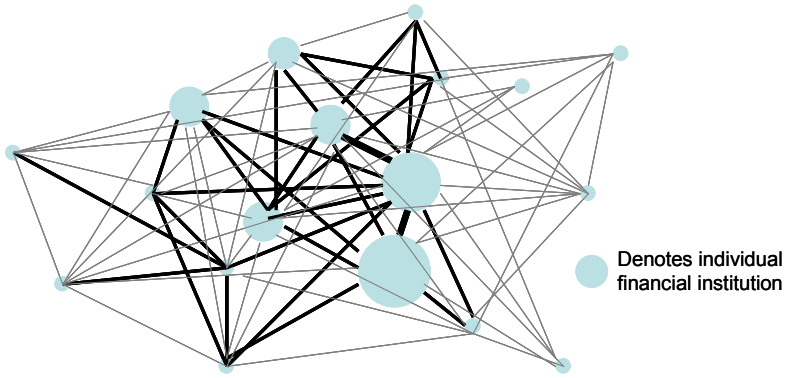
Figure 22 (below) depicts a stylised picture of the interbank market.[32] The blue circles in various shapes denote differently sized financial institutions, while the lines indicate their direct business connections, with the thickness of the lines representing the intensity of the business interaction. The representation makes clear that the banks are part and parcel of a complex network. From theoretical considerations we know that feedback mechanisms in such networks are likely to amplify shocks that can propagate through the whole market and create systemic crises in the process. The financial crisis of 2008 delivered a practical example and it showed in particular that even shocks emanating from comparatively small market participants may have systemic consequences.

Figure 22: The network structure of the global interbank market



Source: Bank of England / IAIS

59. **In recent years, the IAIS has placed a particular focus on the macroprudential surveillance of the reinsurance sector.** Major work was done under the auspices of the Reinsurance Transparency Group (RTG), which was tasked to monitor, among other items, the potential risk transfer between banks and reinsurance companies. Over the years, the RTG has expanded its scope and collected and analysed data on the

- Size and structure of the global reinsurance market
- Structure and profile of reinsurance risk assumed
- Credit risk transfer activity (including the use of financial derivatives)
- Counterparty risks and linkages to other sectors
- Profitability, capital adequacy, and sector-wide investment patterns.

Since 2004, RTG findings have been published in the now semi-annual Global Reinsurance Market Report (GRMR). Some of the recurrent themes dealt with in recent GRMR issues are summarised in points 59 to 61 below.

60. **The record suggests that the evidence for global systemic risk to arise from reinsurance failures has been small or non-existent so far.** The RTG has repeatedly

[32] The information for this representation draws from Andrew G. Haldane: "Rethinking the Financial Network," Bank of England, April 2009.

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reviewed various issues with a bearing on systemic risk. The following summarises three findings.

- **Concentration of reinsurance recoverables among primary insurers**. In 2010, the top US property and casualty (P&C) groups, for example, held 37% of recoverables with the three biggest global reinsurers, with the allocation going in near equal proportions to Swiss Re, Berkshire Hathaway, and Munich Re. Another 28% of recoverables was allocated to the numbers four through ten in the "Top 10" list of global reinsurers; 35% went to the remainder of the reinsurance segment.[33] The distribution of reinsurance recoverables suggests that the US P&C industry has spread insurance risks very broadly and on a global scale.

- **Extreme loss scenarios**. At the end of 2010, the capital of global reinsurers was about USD 440 billion, equivalent to a solvency ratio of more than 250%. For the solvency ratio to drop to 100%, it would require an aggregate reinsurance industry loss of more than USD 260 billion, equivalent to economic losses of USD 2,000 billion. To put such a number in perspective, one should recall that the economic loss from hurricane Katrina was about USD 125 billion and that all great world-wide natural catastrophes that have occurred in the 60 years between 1950 and 2010 amounted to USD 2,100 billion (in 2010 dollars). [34] These observations corroborate also with the record of the severe 2011 catastrophe year. The Asia-Pacific region in particular experienced an exceptional sequence of natural catastrophes, which the global reinsurance industry has weathered well. Comparatively large second quarter losses reported by major reinsurers appear not to have materially impacted aggregate solvency. While recent renewal rounds show sharp rate hikes for catastrophe coverage in the region, there has been little evidence so far of broad-based global reinsurance rate increases.

- **Reinsurance failures**. Individual reinsurers are, of course, not immune to failures. The record lists 29 such failures between 1980 and January 2011. In this period fell three major catastrophic events (hurricane Andrew, the terrorist attacks of 9/11, and hurricanes Katrina, Rita and Wilma); at their time they were all considered the largest loss events in history. Assuming that the loss caused by the 29 failures was equal to the premium volume before insolvency, the cumulated loss would amount to about USD 1.8 billion, which represents 0.43% of the freely ceded premiums between 1980 and January 2010. [35]

61. **The record and stress scenarios scrutinised by the RTG correspond also to the results of a study commissioned by the Group of Thirty.** It found reinsurers in terms of capital to be both robust and resilient and concluded that "the reinsurance industry is unlikely to be a significant source of systemic instability in its broadest manifestation."[36] The Group also thought it unlikely for retrocession spirals similar to the LMX spiral that the London market experienced in the early 1990s to occur again.[37] In short, so far no evidence

[33] Industry communication to the RTG, July 2011.

[34] Industry communication to the RTG, July 2011.

[35] Industry communication to the RTG, July 2011.

[36] Group of Thirty: "Reinsurance and International Financial Markets", Washington 2006, p. 39.

[37] LMX stands for London Market Excess of Loss. This market experienced a reinsurance spiral when syndicates inadvertedly and repeatedly underwrote their retroceded risks. An unprecedented series of large

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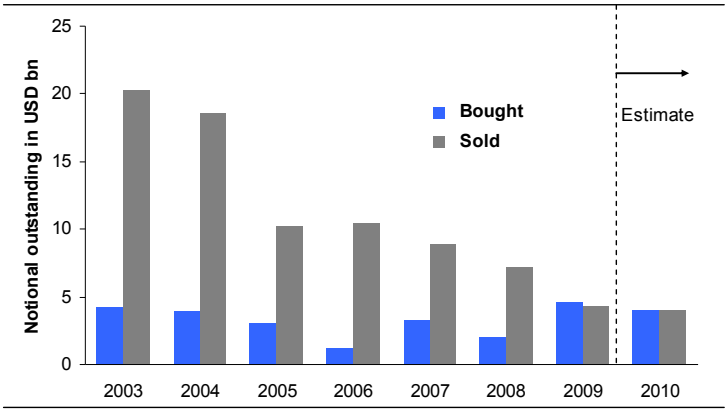
has been unearthed that would point to reinsurers as a source of systemic risk. Of course, the failure of a large reinsurance company could cause – like the failure of the Australian insurer HIH discussed in appendix A10 – short-term market disruptions and it could impose a high cost for individual counterparties. But the historical record does not show signs of systemic contagion on a global scale.

62. **Reinsurers have reduced their exposure to non-insurance CDS activities**. The B2B characteristic of reinsurance appears to foster a bias toward offering financial solutions to insurers and non-insurers that tend to transcend the traditional reinsurance business. Such an example is the underwriting of credit default swaps (CDS), which the RTG has been tracking since 2003, and for which this report provides a specific example in appendix A5. Figure 23 (below) reproduces global RTG data for CDS bought and sold (notional outstanding) by reinsurance firms. The data show that over the last seven years, reinsurers have continuously reduced the notional amount of CDS protection sold from a high of USD 20.3 billion in 2003 to a low of USD 4.0 billion in 2010 (estimate). At the same time they increased the amount of protection bought from a low of USD 1.2 billion in 2006 to USD 4 billion (estimated) in 2010. The volume of CDS protection sold should be compared to the market-wide notional amount of sold CDS contracts of USD 22.2 trillion outstanding in the second half of 2010.[38] From the grand total one can conclude that reinsurers contributed less than 0.02% to the global market's supply of CDS protection.

Figure 23: Credit default swaps bought and sold by reinsurers



Source: Global Reinsurance Market Report 2010; IAIS estimates

63. **The IAIS continues to be committed to the analysis and the macroprudential surveillance of the reinsurance industry.** Data collected by the IAIS in the future may shed light on questions that in the past could be explored only through plausible a priori reasoning. This is true, for example, for the study of risks arising from the concentration of risk exposures. By the very nature of their business, reinsurers are exposed to the same class of risks

catastrophe losses highlighted the instability of the spiral, and the subsequent failure of a number of syndicates led to changes in regulation in the United Kingdom and beyond. One step was to exclude retrocessional business from reinsurance covers protecting direct insurance accounts. Furthermore, the procedures, and in particular the way reinsurers in the London market and elsewhere keep track of their potential exposures, were reformed in line with new regulatory requirements.

38 Bank for International Settlements (BIS): "OTC derivatives market activity in the second half of 2010", Basel, May 2011. The BIS data show also that the insurance sector as a whole has been a net buyer of CDS protection through all reporting periods.

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as primary insurers. Risk concentrations may arise on the side of reinsurers, because they are one step removed from the underwriting of primary insurers, and they may receive incomplete risk information from their primary cedants. Exposure concentrations may thus arise without reinsurers necessarily being fully aware of them. For this reason, most reinsurers estimate their exposures in a different way than primary insurers, and they take steps to limit their total exposure. That said, the answer to the question whether reinsurers are exposed to high and potentially systemic exposure concentrations can only be given based on data that include detailed information about the risk profile of the primary business ceded to reinsurers.

64. **In addition to the macroprudential surveillance activity the IAIS plans to look into more specific reinsurance issues.** A report scheduled for completion in early 2012 will likely discuss risk concentration, retrocession spirals, and stress scenarios related to the extreme catastrophe events that are typically absorbed by reinsurers. Finally, reinsurance will continue to play a prominent role in the new Global Insurance Market Report (GIMAR), which is scheduled for an inaugural release in the first half of 2012. It is designed to continue the tradition set out by the Global Reinsurance Market Report by combining industry-wide reinsurance data with newly assembled market data on primary insurers.

5.3 Insurers and systemic risk

65. **The answer to the question whether insurers could cause systemic risk is ultimately an empirical issue.** In the following we summarise a few a priori considerations without pre-empting an ultimately data-based decision on G-SIFI status.

66. **The fundamentals of insurance suggest that size and the spread of global activity by themselves should not be decisive indicators of systemic risk.** Insurance is based on the pooling of idiosyncratic risks and the law of large numbers. Consequently, risk diversification benefits are expected to accrue with an increasing size of the business portfolio and increasing global activities, although due consideration is necessary when accounting for such benefits, especially geographical diversification benefits. To be sure, size and global spread could potentially contribute to contagion. And size could be a good measure to reflect the magnitude of systemic impacts given an insurer's failure.

67. **In insurance limited substitutability is unlikely to be systemically relevant in a global context.** In points 38 to 41 it was shown that market concentration rates in insurance are generally small and competition is lively. Consequently, the loss of one carrier is unlikely to cause widespread or systemic issues and problems for policyholders and the real economy. On almost every occasion an insurer has failed in the past, the impact has been local. The resultant gap was covered within a short period, and insurance capacity and substitutability were quickly restored to pre-failure levels.[39] That said, there might be lines of business – for example in specialties, such as medical malpractice insurance or directors and officers (D&O) liability cover – where certain carriers may have acquired quasi-monopolistic positions. Their demise could cause at least temporary issues in the affected sectors.

[39] An often cited exception was the failure of HIH in Australia (see appendix A 10), but the short-lived impact was contained to the local market.

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68. **Interconnections between insurers and the banking system are relatively weak.** While insurers are exposed to investment risk through their holdings of fixed-income and equity securities related to other financial market participants, the reverse appears not to be true, although some banks are starting to provide derivative protection in relation to insurance products that insurers offer to their customers. Insurers do not provide short-term or long-term credit lines to banks and they are also not engaged in credit intermediation, which would qualify them as part of the larger shadow banking system.

69. **In contrast, recent crisis history suggests that insurance groups tend to suffer distress as result of an increased exposure to non-insurance activities**. These activities, which at times were only lightly regulated or not at all, appear to be an important source of risk that may become systemic. In the presence of intra-group commitments, such exposures may contaminate the traditional business. While the lessons with respect to the CDS underwriting (see case studies A4 and A5 in the appendix) and other financial products are comparatively easy to draw, the task will certainly be more challenging when it comes to non-traditional activities that defy quick classification. As the discussion on p. 10 ff. has shown, insurance groups may offer a number of products and engage in a variety of non-insurance business lines and they may include non-traditional features in their insurance products. To the extent that these activities are not subject to insurance techniques and insurance accounting, they qualify as non-insurance businesses. The identification of a systemically important insurance group therefore requires an appropriate understanding of the non-insurance activities and their potential interaction with the traditional lines of business.

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6. Potentially systemic insurers and policy measures

6.1 Identifying systemic relevance

70. **IAIS members are working on a methodology to identify global systemically important financial institutions (G-SIFIs) in the insurance sector.** The conceptual framework follows broadly the approach developed by the Basel Committee on Banking Supervision.

71. **The "non-traditional" data category is specific to the insurance sector given the possibility of pursuing different businesses.** From the discussion on the previous pages it follows that non-traditional insurance business and non-insurance activities are likely to play a pivotal role in the future G-SIFI methodology developed by the IAIS.

72. **The methodology will be further refined in light of concrete data.** It is the goal of the IAIS to release the methodology for public consultation in the first half of 2012.

6.2 Policy measures

73. **One key lesson of the financial crisis is that more weight should be given to group-wide supervision.** Such comprehensive supervision should account for all risk activities undertaken in a group and its entities. The need for such an integrated view was underscored most dramatically by the experience of AIG. It is probably fair to say that none of the authorities engaged in the supervision of AIG was fully aware of the exposures entered into by the subsidiaries of the holding company and that the supervisor in overall charge inadequately monitored the underwriting of credit default swaps in the banking subsidiary. The IAIS has launched several projects that address the issues highlighted by the AIG case.

74. **The IAIS has revisited the material relating to group-wide supervision so that the Insurance Core Principles better reflect the expectations for the supervision of insurers on a legal entity and group-wide basis.** A revised version of the Core Principles, including standards and guidance, was adopted by the IAIS General Meeting on 1 October 2011. Supervisory material was enhanced and added to set requirements and provide guidance on establishing effective and efficient group-wide supervision frameworks, encouraging and facilitating coordination and cooperation on a cross-border and cross-sectoral basis (including in crisis situation), and dealing with unregulated entities in group-wide supervision. Special attention was given to include the group-wide implications of a number of issues such as direct or indirect participation, influence and/or other contractual obligations, interconnectedness, risk exposure; risk concentration, and/or intra-group transactions and exposures.

75. **The IAIS has also launched work to building a common framework for the supervision of internationally active insurance groups (ComFrame).** As spelled out in paragraph 10, ComFrame is directed at about 50 insurers which meet the criteria for internationally active insurance groups (IAIG) set by the IAIS. ComFrame is designed to make group-wide supervision operational by addressing issues relating to IAIGs comprehensively. And it addresses both the group-wide and host supervisors' perspectives by defining roles for cooperation and interaction, including supervisory colleges.

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76. **ComFrame has the potential to advance the evolution of various roles in cross-border supervisory cooperation.** Developing ComFrame endeavours to facilitate information sharing between supervisors involved. Eventually, supervisors are expected to establish a similar outcome to the key tasks of IAIG supervision.

77. **ComFrame will also develop qualitative and quantitative requirements applicable to the supervision of IAIGs.** The qualitative requirements capture corporate governance, including the interaction between corporate bodies, and the setting up of processes for risk management, actuarial work, internal audit and other processes. The quantitative requirements will address – based on a comprehensive enterprise risk management approach – liabilities and investments as well as valuation and capital adequacy.

78. **Over the years, supervisors have developed a range of mechanisms to manage failing insurers that, in principle, should allow for orderly wind-ups.** History shows that none of the failures of typical insurers have resulted in developments that would meet the definition of systemic events. In the case of failure it is often possible to partly or wholly save the enterprise because lines of business are comparatively easy to define separately and run off over time. If necessary, books of business can be transferred to other carriers. In fact, it is almost a universal legal requirement that an insurer may not be closed down until its policies have been run off or sold to third parties. As the case of Equitable Life illustrates (see appendix A6), an insurer may carry on successfully in run-off, i.e. in managing a book of business closed to new business that may last for another 40 years. And the case of Equitas shows (see appendix A7) how a workable resolution can eventually be achieved when a number of jurisdictions have a keen interest in the outcome.

79. **IAIS members continue to debate the treatment of loss absorbency in insurers and insurance groups.** The result of the discussion will likely be shaped by insights gained from the SIFI data collection. A number of important jurisdictions have embarked on reviews and reforms of their solvency regimes. In the United States, for example, supervisors are reviewing the approach within the confines of the Solvency Modernization Initiative, while the European Union is scheduled to implement the reformed Solvency II in 2014. Switzerland has already introduced the Swiss Solvency Test (SST), which, though different in many details, largely anticipates essential features to be finalised with Solvency II. On broad terms, these review and reform processes have the potential to improve the understanding of risk in insurance and draw a link to strengthened capital adequacy as well as loss absorbency. However, the reforms are geared predominantly toward policyholder protection; preventing systemic risk was not, and is not, their primary purpose. In the future, the impact of a non-insurance business or non-traditional insurance activities in insurance groups will be analysed in more detail and, if deemed necessary, reflected in resolution regimes and recommendations for loss absorbency. First results will be discussed in a forthcoming IAIS paper on resolution regimes together with the work coming out of the Joint Forum's working group on Principles for the Supervision of Financial Conglomerates.

80. **Loss absorbency for insurers is captured, in general, by provisioning and risk capital**. However, extrapolating from the causes of financial impairment (see figures 3 and 4), inadequacy of reserves can be a major distress factor for traditional insurers. That is why supervisors continuously monitor the adequacy of reserves or technical provisions and the factors impacting them.

81. **Any measure with respect to G-SIFI loss absorption in the insurance sector must be based on the methodological lay-out sketched in table 1**. Foremost, extending the scope of surveillance to a non-insurance business or non-traditional insurance activities will require a better understanding on how to treat activities supervised by other authorities

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and how to narrow or close regulatory gaps.[40] In January 2010, the Joint Forum mapped out a principle for further work. It stated "that the lack of a uniform global standard for capital adequacy within each sector can contribute to regulatory arbitrage, competitive inequalities across jurisdictions, and, in some cases, financial system instability."[41] The Joint Forum suggested that more consistency in prudential frameworks across sectors would be desirable "due to the increasing exposure of financial groups to similar risk factors and increasing transfer of risks across sectors." At the same time, it recognised that more convergence within financial sectors would have to be achieved before consistent capital frameworks could be established. It is essential to take into account the principles of the Joint Forum on conglomerates to have an efficient supervision on dual activities. The IAIS agrees that supervisory frameworks should minimize the scope for regulatory arbitrage. This may require the implementation of banking regulation and supervision for appropriately identified and ring-fenced bank-like activities conducted by insurance groups.

7. Concluding remarks

82. **In this note we summarised why, in general, there is little conceptual reason for life and non-life insurance activities to either trigger or amplify systemic risk.** The reasons have to do with the specific nature of the insurance business model and in the way insurance liabilities are funded and claims are settled. As it is very unlikely for insurance firms, or the whole sector for that matter, to experience rapid cash drains and outright runs, liquidity risk appears to be well contained. And even in the case of insolvency, the long term nature of insurance liabilities and their extended run-off profiles, along with the authorities and tools available to regulators, typically provide for orderly resolutions of traditional insurance firms.

83. **This note has also provided some tentative evidence that substantial non-insurance activities have the potential to distress even well-run insurance-dominated groups.** The financial market proximity of non-traditional activities may also contribute to making insurance groups systemically important. However, more concrete answers to the question of systemic relevance of particular insurers must be informed by concrete data.

[40] In a number of jurisdictions, financial groups are subject to dual supervision by insurance and banking authorities.

[41] Joint Forum: "Review of the Differentiated Nature and Scope of Financial Regulation – Key Issues and Recommendations", January 2010.

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Appendix

A1: Insurance runs in Hong Kong and Singapore

Market developments in Hong Kong

In light of media reports about the financial difficulties experienced by AIG, the number of surrendered policies of the AIA, a collective name for American International Assurance Company (Bermuda) Limited ("AIA(B)") and American International Assurance Company Limited ("AIA Ltd")), on the first few days after the outbreak of the AIG crisis increased slightly above long-term averages. In the week after the Insurance Authority of Hong Kong imposed a ring-fencing requirement, the average number of surrendered policies dropped and the number of surrendered policies continued to decrease in subsequent months and maintained a stable level throughout 2009. After September, the number of surrendered policies per working day was similar to that seen prior to the crisis in 2007.

Contained developments in Singapore

In Singapore, policyholder queues started forming at the Customer Service Center of The news that AIG might be the next to fail following Lehman's file for bankruptcy on 15 September 2008 resulted in a loss of confidence amongst some policyholders in Singapore. By 16 September, queues had formed at the Customer Service Center of American International Assurance Company Limited, Singapore Branch ("AIAS"). This was the first and only "insurance run" experienced in Singapore to date. However, AIAS did not face any liquidity constraints as the percentage of surrender redemptions against the total number of policies in force was small.

The Monetary Authority of Singapore ("MAS") issued press statements in the week of the 15 September to assure that AIAS was meeting the regulatory capital requirements, and was required under the Insurance Act (Cap. 142) to maintain statutory insurance funds which were segregated from its Head Office and other shareholders' funds. MAS also cautioned policyholders against the disadvantages of the premature termination of insurance coverage. AIAS issued its own press release to assure it had more than sufficient capital and reserves to meet its obligations, and reiterated that the fund maintained in Singapore was segregated from AIG. MAS imposed asset ring-fencing measures on AIAS.

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A2: State intervention in the Netherlands

In late 2008, during the height of the financial crisis, the Dutch government took measures to restore confidence in the financial system. As part of the intervention, the government committed itself to provide capital support to each financial institution that faced difficulties because of the financial crisis, but was fundamentally healthy and viable. The facility was part of a European action plan to calm financial markets. EUR 20 billion was made available. ING Group, Aegon Group and SNS Reaal have used this facility for an amount of EUR 14 billion in total.

These three financial institutions have in common that they all conduct both banking and insurance activities, although the relative size of these activities differs per institution. ING Group consists of a large bank with a balance sheet total of EUR 1000 billion and a smaller insurer, but still very large insurer (EUR 300 billion), whereas on the other hand Aegon (EUR 290 billion) is mainly an insurer with only limited banking activities (EUR 5 billion). SNS Reaal is a so-called symmetric financial conglomerate, with more or less the same size of banking and insurance activities: SNS Bank (EUR 75 billion) and Reaal Insurance (EUR 50 billion).[42]

Although the circumstances differ per institution, there are some general remarks to be made about the rationale for government intervention.

First, against the backdrop of overall loss in confidence in financial markets, these institutions faced acute liquidity problems. Banks were particularly hit when the money market dried up and they were vulnerable to a sudden and large withdrawal of time deposits. Insurers were less vulnerable to liquidity problems, due to the long-term nature of their liabilities, but sustained large losses in investment portfolios. Especially for life insurers this resulted in declining solvency ratios, as did their stock market value. The government intervention was aimed at strengthening their financial buffers*, inter alia* in order to secure access to financial markets.

Second, there were increased signs of reputational effects (loss of confidence), both within financial conglomerates and to other financial institutions and the general financial system and economy. Within financial conglomerates, confidence effects may cause distress at the insurer to spread to the bank or vice versa, regardless of the level of actual financial linkages between the bank and insurer. Problems at the insurance part could hence easily result in a loss of confidence in the group as a whole or the bank. In addition, there was the fear of reputational contagion to other financial institutions or the financial system as a whole. This particular channel of systemic risk is exemplified by figure 21 below, which shows the increased correlation in CDS spreads of ING and Aegon since the start of the crisis in mid-2007.

[42] All figures year-end 2008. Source: Annual reports.

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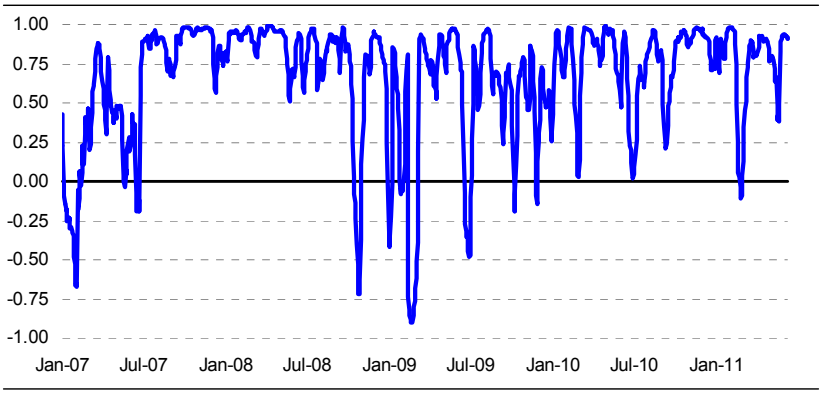
Figure 24: CDS-correlation: ING and Aegon

Moving correlation of 20-days



Source: Thomson Datastream, Bloomberg

Summary of Government support

ING Group

- October 2008: receives government capital injection of EUR 10 billion
  - of which EUR 2.8 billion to ING Insurance
- June 2011: Remaining capital injection is EUR 3 billion

Aegon Group

- October 2008: Receives government capital injection of EUR 3 billion
- June 2011: Remaining capital injection of EUR 750 million fully paid back

SNS Reaal

- November 2008: Receives government capital injection of EUR 750 million and private capital injection (from majority shareholder "Stichting beheer") of EUR 500 million
  - of which EUR 775 million to Reaal
- June 2011: Remaining capital injection is EUR 665 million

Sources: DNB, Press archive, http://www.dnb.nl/en/news/news-and-archive/

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A3: The Failure of AIG's CDS Business[43]

In 2004, American International Group (AIG) was the largest insurance company in the world as measured by stock market capitalisation and a number of other attributes. It was a gigantic conglomerate with USD 850 billion in assets, 116,000 employees in 130 countries, and 223 subsidiaries.

Starting in 1998, AIG Financial Products (AIGFP), a Connecticut-based unit with major operations in London, figured out a new way to make money from the AAA credit rating of AIG. Relying on the guarantee of the parent company, AIGFP became a major over-the-counter derivatives dealer, eventually having a notional portfolio of USD 2.7 trillion. Among other derivatives activities, the unit issued credit default swaps (CDS) guaranteeing debt obligations held by financial institutions and other investors. In exchange for a stream of premium-like payments, AIGFP agreed to reimburse the investor in such a debt obligation in the event of any default.

AIGFP grouped its CDS business into three separate categories, based on the underlying assets that were insured: corporate debt/CLOs (corporate arbitrage), regulatory capital, and multi-sector CDOs. At its peak in 2007, these three groups represented an aggregate CDS portfolio of USD 527 billion, amounting to just 20% of the unit's overall derivatives exposure of USD 2.66 trillion. Only USD 149 billion, or 6%, of AIGFP's total derivatives portfolio in 2007 was classified as arbitrage CDS, comprised of both the multi-sector CDO and corporate debt/CLO components. Ultimately, these two portfolios accounted for 99% of AIGFP's unrealised valuation losses in 2007 and 2008. AIGFP's multi-sector CDO subset of the arbitrage portfolio, which represented approximately 3% of the notional value of AIGFP's total credit and non-credit derivatives exposure, accounted for over 90% of these losses.

AIGFP did not post collateral when it wrote CDS contracts; but unlike monoline insurers, AIGFP agreed to post collateral if the value of the underlying securities dropped, or if the rating agencies downgraded AIG's long-term debt ratings. While market conditions remained similarly illiquid, ratings downgrades on the reference securities and valuation losses by market participants helped establish two of the three primary triggers for collateral payments. In 2007 AIG recognized an unrealized market valuation loss totalling USD 11.25 billion, which primarily occurred in the fourth quarter of 2007. As the value of the underlying CDOs continued to decline thereafter, AIG—under mark-to-market accounting standards—recorded valuation allowances on its contracts. While these losses were in almost all cases unrealised non-cash valuation charges, they corresponded with collateral calls from counterparties, which contributed to a drain on AIG's cash resources. Predictably, valuation write-downs into the billions of dollars and collateral calls from CDS counterparties intensified pressure on AIG's own credit rating, the third key component in the collateral calculation cocktail. Subsequent downgrades of AIG's credit rating in turn precipitated additional collateral calls. This negative feedback loop exposed the firm's securities lending business, as trading partners worried about exposure to AIG chose to unwind USD 24 billion of securities lending transactions in a matter of days, creating a liquidity shock for which the

[43] The box draws from material presented in the report submitted by the Congressional Oversight Panel ("The AIG Rescue, its Impact on Markets, and the Government's Exit Strategy") of June 2010.

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programme was unprepared.

The demand for collateral calls accelerated in 2008 as a result of the rapid deterioration of its multi-sector CDS portfolio. In the first and second quarters of 2008, AIG scrambled to post USD 20.8 billion in cash to meet its collateral obligations for this portfolio. In the third quarter of 2008 (ending September 30, 2008), AIG had posted approximately USD 31.5 billion in collateral as a result of the deterioration in value of its multi-sector CDO portfolio. The problems at AIG had reached crisis point. A sinkhole had opened beneath the firm, and it lacked the liquidity to meet collateral demands. In only a matter of months AIG's worldwide empire had come near collapse, brought down by the company's near-insatiable appetite for risk and poor management of its own liabilities.

AIG's near-collapse was possible because of the sweeping deregulation of over-the-counter (OTC) derivatives, including credit default swaps, which effectively eliminated federal and state regulation of these products. The OTC derivatives market's lack of transparency and effective price discovery exacerbated the collateral disputes of AIG and Goldman Sachs as well as similar disputes with other counterparties. AIG had engaged in regulatory arbitrage by setting up a major business in an unregulated product, locating much of the business in London, and selecting a weak federal regulator, the Office of Thrift Supervision (OTS).

AIG was so interconnected with many large commercial banks, investment banks, and other financial institutions through the relationships on credit default swaps and other activities such as securities lending that its potential failure had created systemic risk. The U.S. government concluded that AIG was too big to fail and committed more than USD180 billion to its rescue. Without this timely bailout, AIG's default could have caused cascading losses throughout the US and the global financial system.[44]

[44] On 3 March 2009, in testimony to the US Senate Banking Committee, Ben Bernanke, the Chairman of the Federal Reserve said, "A failure of AIG would have been devastating for the U.S. financial system," and he elaborated that in light of the company's ties to major financial firms across the globe, its collapse would have been "devastating to the stability of the world financial system." And US Secretary of the Treasury, Tim Geithner added, "And your government made the judgment back in the fall that there was no way that you could allow default to happen without catastrophic damage to the American people." See reporting in the Washington Post, 4 March 2009.

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A4: Swiss Re's experience in CDS underwriting[45]

On 19 November 2007, Swiss Re reported a CHF 1.2 billion before tax mark-to-market loss arising from its credit underwriting activities following the sharp market deterioration in October 2007. The source of the loss was the company's exposure to two related investment grade credit default swaps written by the Credit Solutions unit that had provided protection for a client against a fall in the value of a portfolio of assets.

The severe ratings downgrades undertaken by rating agencies in October 2007, and the lack of a truly liquid market for these securities, resulted in a significant and material reduction of the value of the underlying assets. The portfolios protected through these credit default swaps consisted largely of mortgage-backed securities in various forms, including residential and commercial mortgage-backed securities. While the majority of the exposure was to prime and mid-prime securities, there was exposure also to sub-prime and, more importantly, to collateralised debt obligations or CDOs.

Thus, Swiss Re marked down these ABS CDOs to zero. The sub-prime securities were written down to 62% of their original value. Other smaller adjustments were made to the remainder of the portfolio. The market value of the portfolio was then at CHF 3.6 billion. The transactions continued to be exposed to market value changes.

While Swiss Re absorbed sizeable losses caused by the credit default swaps written by the Credit Solutions unit, no systemic implications were observed either with respect to other insurers or the financial system as a whole.

[45] Source: Press Release of Swiss Re of 19 November 2007.

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A5: Equitable Life

Equitable was and is a mutual company. An unusually high proportion of its policies contained Guaranteed Annuity Rates (GARs). Its GARs were more generous and flexible than most others in the market, and constituted a far greater proportion of its business than its competitors. From 1993 onwards, the GAR rates were almost always higher than market levels, so it became advantageous for policyholders to exercise this right. This inflicted a heavy strain on Equitable's capital, even though sales of new GAR policies had ended in 1988. With a far lower level of free assets than its peers and, as a mutual, no obvious access to additional capital, the need to meet these GAR liabilities inevitably depleted the profits and capital protection available to non-GAR policyholders.

To address this increasingly onerous liability, Equitable (and some other insurers) introduced a "Differential Terminal Bonus Policy" ("DTBP"), whereby policyholders exercising the GAR right received a lower terminal bonus than those who had non-GAR policies and who would therefore receive market rate annuities. The DTBP was intended to equalise the values of the different types of policy. However, as interest rates fell during the 1990s, the differential between the terminal bonus rates necessarily widened. Faced with increasing complaints from GAR policyholders, Equitable instigated legal proceedings on a test case ("Hyman") intended to establish the validity of its DTBP approach. Eventually, the House of Lords held that Equitable was not entitled to operate the DTBP. This had devastating consequences for Equitable as it immediately increased its liabilities by around GBP 1 billion.

Following unsuccessful attempts to sell itself, Equitable was forced to close to new business in December 2000. During the next two years there followed a series of sharp reductions in discretionary policy values which had been communicated to policyholders to try to align them with Equitable's available assets. It resulted in significantly lower payments on maturity of policies and in annuity payments. Additionally, under a S425 Companies Act agreement, Equitable bought out the GAR liabilities. Since then, it has sold off various parts of its book to other insurers, but it continues to run off its remaining business, a process that is likely to take more than 20 years to complete. Having had assets of about GBP 30 billion in December 2000, Equitable's balance sheet now stands at about GBP 8 billion. Importantly, while it has been forced repeatedly to reduce policyholder benefits, Equitable has never "failed" in the sense of defaulting on contractual liabilities or becoming insolvent. It has remained in solvent run-off throughout.

The most recent of the string of inquiries into Equitable, the second investigation by the Parliamentary Commissioner for Administration (the Ombudsman), found ten counts of maladministration by the various regulatory bodies responsible for Equitable's supervision between the early 1990s and 2001 and recommended (without being specific) that policyholders should be compensated for their losses. All findings have now been accepted by the new Government, on behalf of the regulatory bodies, which have publicly apologised. The Ombudsman report also led to a GBP 1.5 billion *ex gratia* compensation scheme being put in place by the Government.

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A6: Equitas

A rising tide of asbestos and other pollution and catastrophe claims in the 1980s meant that certain Lloyd's syndicates were exposed to large losses, principally in the United States. As part of the Reconstruction and Renewal Project, which was implemented with the virtually unanimous consent of the names to address the problems caused by such losses, Equitas, a special purpose reinsurer, was formed in 1996 to reinsure without limitation in time or amount the 1992 and prior non-life obligations of Lloyd's Names. As well as providing a reinsurance vehicle for Names, the establishment of Equitas also effectively ring-fenced the "old Lloyd's" from the "new Lloyd's".

Even though they now had reinsurance cover, Names were still liable for the underlying insurance policies in the event that claims exceeded Equitas' reserves. In order to provide finality to Names, in 2006 Equitas began a two-part total retrocession to NICO, a subsidiary of Berkshire Hathaway. The first part involved reinsuring its claims obligations up to a limit of USD 14.4 bn — USD 5.7 bn more that Equitas' reserves at the time. The second part took place in 2009 when the liabilities of the Names were transferred to Equitas in what is known as a Part 7 transfer.[46] Upon the transfer Equitas purchased a further USD 1.3 bn of reinsurance from NICO for a premium of GBP 40 million, a provision of the retrocession agreement conditional on the transfer taking place before the end of 2009. Names are now no longer liable under English and EEA law for any future claims on 1992 and prior business.

In pursuing the Part 7 transfer, the FSA spoke with its United States, Canadian and Australian counterparts. None of them objected to the transfer, as policy holders would not be worse off and may even be better off under the new arrangements. However, Equitas did not seek formal recognition of the Part 7 transfer in these jurisdictions. It means that in theory, if claims exceeded the reinsured amount, or NICO/Berkshire became insolvent and was unable to meet claims, American policy holders could try to claim against Names, but only those in jurisdictions outside of the EEA. However the risk of either of these events happening is considered to be low. If all else failed, US policyholders would still also have potential recourse to the Joint Asset Trust Funds that Lloyd's must maintain to do business in the United States.

[46] A Part 7 transfer, named for the Part of the Financial Services and Markets Act that allows for it, must be approved by the Court. The application for transfer must be accompanied by an independent expert's report as to the likely effects on policyholders and other stakeholders of the transfer.

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A7: Securities lending at AIG[47]

The near failure of AIG, the world's largest insurance conglomerate at that time, is largely attributed to losses in AIG Financial Products' (AIGFP) credit default swap (CDS) book (see appendix A4). However, another financial stress existed by September 2008; AIG had also incurred significant losses because of its securities lending programme. In hindsight, this programme was characterised "a blatant risk-management failure" (OR, p. 38).

What happened? The AIG securities lending programme was handled through an approved investment pool managed by an affiliated non-insurer. Prior to 2005 the programme had been reviewed and it was found to be a traditional programme with asset durations similar to the durations of lending contracts. Unbeknownst to regulators the investment philosophy was changed around 2005/2006. AIG used some of the "collateral to buy residential mortgage-backed securities (RMBS), with the intention of maximizing its returns. At the height of AIG's securities lending program in 2007, the U.S. pool held USD 76 billion in invested liabilities, 60 per-cent of which were RMBS" (OR p. 34). Ironically, AIG had changed the securities lending strategy at a time when AIGFP began to reverse its engagement in the U.S. mortgage market.

When regulators became aware of the mismatch and the RMBS exposure in late 2007, they began working with management to create more liquidity and move toward an orderly wind-down. By the end of September 2008, the pool had declined to less than USD 59 billion. Although the assets in the pool were performing, market values were dropping rapidly as were most all RMBS. A run on the programme began when news broke that potential rating agency downgrades would trigger billions of dollars of additional CDS collateral posting requirements and force the holding company into bankruptcy. Counterparties seeking to reduce exposure to AIG unwound USD 24 billion of securities lending transactions from 12 September to 30 September. With RMBS values falling and the market increasingly illiquid, the programme suffered a liquidity shock. Combined, the collateral demands from AIGFP counterparties and the liquidity shock of securities lending caught AIG in a "double death spiral" where "problems in AIGFP exacerbated the problems in securities lending and vice versa…, as it struggled to meet its cash demands" (OR, p. 19)

Regulators believe that the insurance entities would have had sufficient liquidity to terminate the pool had it been necessary. In fact, on September 16 the insurer did provide an additional USD 6 billion of liquidity to prevent a default. Without the problems at AIGFP, the counterparties of AIG might have indeed been more inclined to maintain their borrowing of securities from AIG, while AIG's management would have had the luxury of time to work toward the orderly wind-down agreed with regulators. However, it is important to recognize the pressures inherent in systemic crises and that AIG was in the middle of such a systemic crisis.

[47] The box draws from material presented in the reports submitted by the National Commission on the Causes of the Financial and Economic Crisis in the United States (submitted in January 2011 and henceforth abbreviated "CI") and by the Congressional Oversight Panel ("The AIG Rescue, its Impact on Markets, and the Government's Exit Strategy") of June 2010 and abbreviated "OR". We also acknowledge substantial input from the Texas Department of Insurance, the lead regulator of AIG's life insurance operations in the United States.

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A8: Market contagion caused by fire sales

It is a perennial question whether the investment behaviour of the insurance sector as a whole could create adverse spillovers for other financial institutions. A sizeable decline in asset prices, so the argument goes, could adversely impact the solvency of insurers, which then would be forced to sell assets in a declining market in order to fulfil adequate solvency requirements.

While definitive answers must remain elusive, the stock market decline experienced in the UK between 2001 and 2003 provides an illuminating historical example. At that time, UK life insurers, which by tradition were invested heavily in equities, came under pressure by the prolonged and substantial fall in equity prices. To maintain adequate solvency they were perceived to need to sell assets into an already declining market, thus seemingly exacerbating the market's down force. In fact, the FSA applied forbearance twice to exempt life insurers from then existing solvency requirements. Hence, the 2001 to 2003 period creates an opportunity to examine market linkages between insurers and other financial institutions.

An event study[48] of the interlinkages between UK banks and life insurers at that time of distress concluded that, in general, there was no materially significant contagion between insurers and banks. An exception were banks such as Lloyd's, Abbey National, and HBOS, which had substantial holdings in life insurance companies, making them vulnerable to adverse events originating in the (life) insurance sector. Hence, the contagion did not arise with insurers *per se,* but was rather a result of concentrated bank investments in the life insurance sector. This finding is broadly consistent with the experience in the Netherlands in 2008 where the interconnectedness between various parts of financial conglomerates engaged in bankassurance was pronounced to have systemic implications requiring government intervention.

[48] Marco Stringa and Allan Monks, "Inter-industry contagion between UK life insurers and UK banks: an event study," Working Paper no. 325, Bank of England, May 2007.

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A9: The failure of HIH

On 15 March 2001, the major companies in the HIH Insurance group, Australia's second largest insurer, were placed in provisional liquidation, and formal winding-up orders were made on 27 August 2001. By then, the deficiency of the group was estimated to be between AUD 3.6 billion and AUD 5.3 billion.[49] The collapse of HIH qualified then as the largest corporate failure in the history of Australia. According to the Royal Commission appointed to examine the cause of the failure and its lessons, "the collapse of HIH has reverberated throughout the community, with consequences of the most serious kind."[50]

Incorporated in 1968, HIH started as provider of workers compensation cover in the Victorian market. In the mid 1980s, after legislative changes had significantly reduced business in Victoria and South Australia, HIH began to diversify mainly through acquisitions. By 2000, the group through its many subsidiaries had become a key player in Australian and international non-life insurance markets with lines of business comprising workers compensation; public and private liability; and property, industrial and commercial insurance.

While there were many factors contributing to the failure of HIH, the Royal Commission identified as key elements the lack of a clear and integrated group strategy, including a poorly implemented growth strategy without adequate due diligence; poor underwriting; systemic under-reserving and under-pricing; the use, and abuse, of reinsurance; and poor corporate governance with an ineffectual board that did not adequately probe management.

Large corporate failures always have reverberations that go beyond the company's perimeter and at times even beyond the industry. In this context, three observations are relevant for the discussion about insurance failures and their potential systemic impact.

- **Economic losses**: Although the government did not bail-out HIH, there were substantial economic losses accruing to HIH creditors and Australian taxpayers. According to a recent update of the Scheme Administrator[51] for HIH Casualty and General Insurance Limited (one of the eight companies of the former HIH group now in run-off), so far creditors with insurance liabilities in Australia have received 31% of estimated final Scheme Payments; creditors with insurance liabilities that are not liabilities in Australia have received 26.4%; creditors with liabilities in Australia that are not insurance liabilities have received 25%; and creditors with liabilities that are neither liabilities in Australia nor insurance liabilities have received 20%. Following the HIH collapse, the government established an HIH Claims Support Scheme

[49] The HIH Royal Commission, The Failure of HIH Insurance, Volume I, A corporate collapse and its lesson, Canberra 2003, p.xiii.

[50] The HIH Royal Commission, op. cit. p. xiv.

[51] A Scheme of Arrangement is a compromise or arrangement between a company and its creditors (or any class or them), governed by Section 411 of the Corporations Act 2001 in Australia or section 425 of the Companies Act in England. The Schemes of Arrangement are administered separately, but parallel to, the Liquidations of the Scheme Companies. Instead of dealing with the Liquidators, the affairs of creditors are handled by the Scheme Administrators.

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designed to distribute some AUD 640 million to assist HIH policyholders who met specific eligibility requirements. This Scheme was funded by taxpayers.[52]

- **Contagion**: While the HIH failure did not cause contagion for other financial services providers, it did, in the view of the Royal Commission, "impose significant costs on other sectors. For example, the building industry was seriously affected when HIH collapsed, as builders found it difficult to find compulsory warranty insurance cover for projects in some states. This was at least partly the result of the dominance of parts of the builders warranty market by HIH."[53] According to the Royal Commission, "the cost to the building and construction industry alone has forced state governments to spend millions of dollars of public money to prevent further damage to the industry."[54]

- **Substitutability**: The dominance of HIH of parts of the builders warranty market, as pointed out by the Royal Commission in the previous bullet, suggests that the failure of HIH led to certain substitutability issues. Although insurance markets tend to be competitive, the under-pricing of risks by HIH had shut out a number of competitors. They were reluctant to enter the market at the price level maintained by HIH, and cover became available only after the market had accepted sizeable rate increases. This market hardening occurred against the back-drop of a much broader global hardening in 2001 that was related to the terrorism events of 9/11, a series of natural disasters, and the bursting of the dot-com bubble, which, in turn, fostered a significant decline of global equity markets.

Although it should be clear that the demise of HIH did not have systemic impacts on a global scale, one could argue that developments with respect to economic losses, contagion, and substitutability displayed certain features of domestic systemic importance. While the issues related to contagion and substitutability appear to have been limited both in size and duration, the economic losses accruing to HIH policyholders, creditors and taxpayers were certainly real and the pain inflicted on individuals was deep.

[52] See the HIH Royal Commission, op. cit. p. 290. Some State statutory insurers, however, did introduce a premium surcharge to recoup some of their costs and losses. In addition, a post-funded levy was imposed on the industry to cover HIH claimants for any shortfall beyond the subrogated claims.

[53] The HIH Royal Commission, op. cit. p. 200.

[54] The HIH Royal Commission, op. cit. p. xv.

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