INTERNATIONAL ASSOCIATION OF INSURANCE SUPERVISORS

Developments in (Re)Insurance Securitisation

Global Reinsurance Market Report
Midyear Edition

26 August 2009

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Preface

Peter Braumuller,
Chair, IAIS Executive Committee
Chair, IAIS Financial Stability Task Force

I am delighted to introduce this new work by the Reinsurance Transparency Subgroup (RTG), *Developments in (Re)Insurance Securitisation*. This is the first mid-year edition of the Global Reinsurance Market Report (GRMR), which the RTG will be publishing every year in addition to usual GRMR that is release at the end of each year. The purpose of the mid-year editions is to allow the RTG greater flexibility to report on issues related to the global reinsurance market on a more frequent basis. This report, as well as the existence of the RTG itself, reflects a key IAIS concern with financial stability, systemic risk and transparency.

Although insurance securitisation does not appear to have played a role in the current financial turmoil, it has been affected by it. At the root of this are the many inter-linkages at play among financial market participants. We feel this report makes a unique contribution to macroprudential surveillance by identifying and better understanding these market developments from a supervisory perspective.

Al Gross,
Chair, IAIS Technical Committee

Since its inception, the RTG has been monitoring reinsurance market developments. In doing so, it has sought to better understand, among other things, the many inter-relations between reinsurance and other financial markets. Insurance securitisation is one such point of contact.

Insurance securitisation constitutes a genuinely global practice, with global regulatory implications. Although still relatively small, this practice, which has been growing over the years, offers great potential as well as presenting new risks. As such, we are committed to better understanding it, and crucially, to developing the necessary tools for supervising it effectively.

Jeremy Cox,
Chair, IAIS Reinsurance Transparency Subgroup

As Chair, I am very pleased with this latest RTG effort. Our commitment to enhancing transparency in the reinsurance sector could not be of more relevance in the current times. Efforts are made worldwide to understand -and deal with- the financial crisis; we hope the report adds value to this endeavour. The issues discussed in the study aim to shed light on the distinct nature of securitisation in the insurance sector, and the part it plays in providing capacity, aiding competitiveness, and contributing to countering cyclicality.

Finally, I would like to commend the drafting team for taking up this additional piece of work, and the Reinsurance and Other Forms of Risk Transfer Subcommittee for their substantial contribution to the report. I see this first Midyear Edition as a genuine IAIS team effort.

Executive Summary

- This report discusses the issue of insurance (i.e. liability-based) securitisation, looking at its main characteristics and functions, key similarities and differences with banking securitisation, and current approaches to its regulation and supervision. It draws on the extensive literature on the matter, on regulatory and supervisory developments worldwide, and on empirical data on the performance of insurance securitisation arrangements to date.
- Insurance securitisation complements traditional reinsurance, adding to the pool of capital available to insurers as well as contributing to premium price competitiveness and to countering cyclicality. In addition, it provides investors with low correlation investment alternatives.
- Insurance securitisation arrangements have developed extensively over the past 12 years, covering property, casualty and life insurance risks worldwide. Although still a small market (e.g. USD15.5billion issued in peak year 2007), it is growing and taking up a larger share of available reinsurance capacity.
- Although securitisation in insurance shares much with banking securitisation, there are some crucial differences between them: for example, in insurance securitisation, the cedant remains fully liable to the policy holder. These differences play a determining part in the cedant's risk management strategy as well as in the supervisory treatment given to securitised arrangements.
- Empirical analysis of the performance of insurance securitisation arrangements highlighted key messages:
    - Securitisation arrangements tested by the materialisation of catastrophic risks (e.g. US 2005 hurricane season) proved to have coped well. Cedants were indemnified and investors, as subordinated creditors, lost part of the interest, and part of the principal. Further, arrangements covering property risks appeared to have performed better than those covering casualty risks. Moreover, although cedants were indemnified, the time needed for payment determination and execution was long, triggering bond extensions and lengthening the life of the arrangements.
    - Securitisation arrangements tested by the current financial crisis showed important weaknesses, from excessive reliance on a key party to the arrangement (i.e. the Total Return Swap counterparty) to problems with the arrangement's investments (e.g. lack of transparency). Importantly, the crisis highlighted the inherent complexity of insurance securitisation arrangements.
- Basis risk, especially that inherent in arrangements using non-parametric triggers, remains a key concern for regulators, as to date there have been almost no cases in which this type of securitisation was tested in practice.
- Regulatory developments addressing insurance securitisation have followed national policies on the matter, resulting in a variety of dissimilar approaches.
- The IAIS is currently reviewing standards and guidance for the supervision of insurance risk transfer in general, and to the capital markets in particular. IAIS approach to the regulatory and supervisory treatment of risk transfer to the capital markets follows the underlying logic of traditional insurance risk transfer, placing supervisory efforts on the cedant and on the risk-assuming party.
- This report adds to the on-going work by the Reinsurance Transparency Subgroup (RTG) on the global reinsurance market. Moreover, the RTG work provides a significant contribution to the development of macro-prudential surveillance tools for insurance supervision, currently under consideration by the IAIS.

Introduction

1. In the current financial crisis much attention has been dedicated to the relation between securitised risk transfer and financial stability. For example, residential mortgage-backed securities -especially if related to so-called "sub-prime" mortgages- have been at the centre of a broad debate that extends from the increased interconnectedness of the various financial sectors, to the transparency -or lack thereof- of the instruments used to carry out the transference of risk. As a result, securitisation has been put under renewed scrutiny by governments, regulators, securities issuers, investors and other parties affected by them. Insurance securitisation has escaped this trend.

2. This paper, which is part of a broad IAIS effort towards better understanding the part played by insurance in contemporary financial markets, addresses the issue of insurance securitisation and its role as a central building block of so-called alternative insurance risk transfer arrangements (ART). It identifies and discusses key recent developments in insurance securitisation, focusing on the regulatory, supervisory and operational dimensions of these.

3. As part of the process of revising and updating all of the IAIS Standards and Guidance papers on reinsurance, the IAIS plans to include guidance to the regulatory and supervisory community in relation to insurance securitisation. This work, currently in progress, is expected to be finalised in 2011.

4. This paper builds on previous IAIS work on the matter, in particular the 2003 Issues Paper on Non-Life Insurance Securitisation, the 2003 Issues Paper on Life Securitisation, and the 2006, 2007 and 2008 editions of the Global Reinsurance Market Report[1].

5. This paper is divided into four sections. Section 1 provides an overview of the current landscape of insurance securitisation, briefly describing the main transactions, and how they operate in practice. Section 2 presents and discusses empirical data on the extent to which insurance securitisations have been used in past years, focusing on emerging trends and their relation to financial stability. Section 3 looks at current developments in regulatory frameworks worldwide in relation to insurance securitisations. Section 4 of this paper looks in detail at examples of insurance securitisation arrangements put under stress; special attention is dedicated to the impact that the current crisis has had on these instruments, and highlights some of the lessons to be learnt by the regulatory and supervisory community.

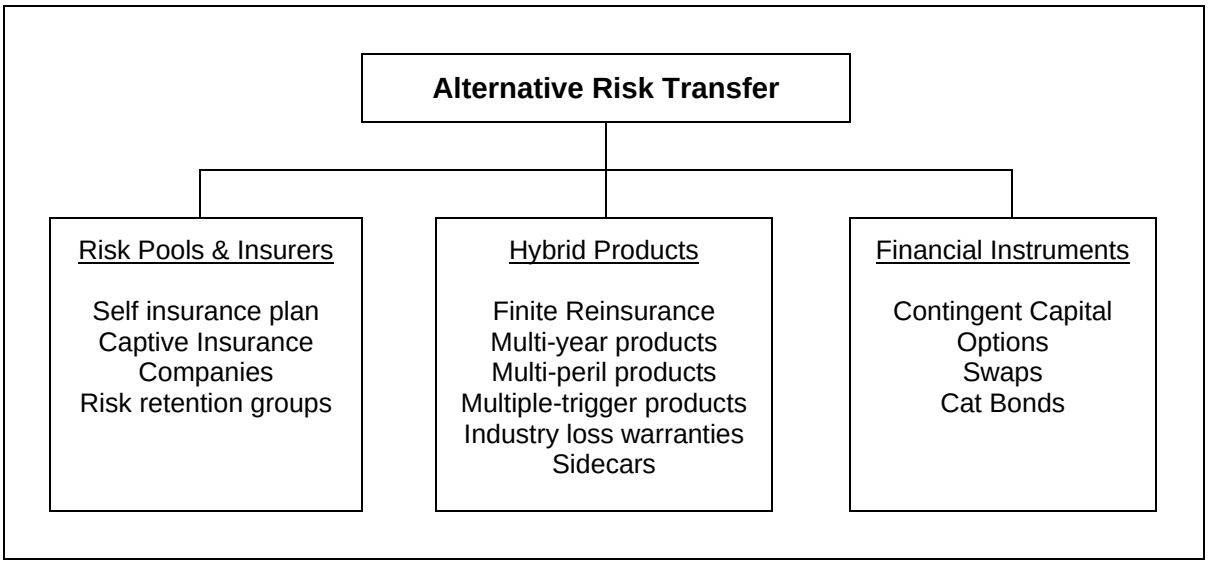
1 Insurance securitisation in the context of alternative risk transfer

6. Insurance securitisation and other forms of alternative risk transfer (ART) constitute valid sources of risk capital for insurance and reinsurance companies, enabling risk to be transferred out of the companies to capital markets and other entities, and raising funds that insurers and reinsurers can use to pay claims arising from certain types of loss events[2].

7. Insurance securitisations belong to a broader category of alternative insurance risk transfer. Cummins and Weiss propose a three-group classification of ART: 'Risk Pools and Insurers', 'Hybrid Products' and 'Financial Instruments'. Exhibit 1 sets out the most common types of instruments in each of these groups:

[1] All IAIS papers are available at www.iaisweb.org.
[2] Cummins (2008).

Exhibit 1 – Alternative Risk Transfer Arrangements[3]



8. Following the above classification scheme and falling under the banner of 'Risk Pools and Insurers' there are self insurance plans, captive insurance companies and risk retention groups. While self insurance and captive insurance companies have developed worldwide over the past four decades, with over 5,000 captives currently active, risk retention groups are predominantly a US phenomenon. A detailed analysis of these types of ART is beyond the scope of this paper[4].

9. With respect to the second cluster of ART, Cummins and Weiss argue that 'Hybrid Products' combine a mixture of reinsurance and financial products. Examples of these include finite risk reinsurance[5], sidecars[6], industry loss warranties, and multi-year, multi-peril and multi-trigger products.

10. The third group of ART arrangements, as proposed by Cummins and Weiss, i.e. 'Financial Instruments', is the one under which insurance securitisations broadly fall; this group includes contingent capital, options, swaps and cat bonds.

11. As can be inferred from the paragraphs above, the landscape of ART is broad and diverse. Each ART arrangement has its own characteristics, its own strengths and weaknesses. According to Cummins and Weiss, the main similarities and differences among these three groups of ART arrangements, can be summarised as follows:

[3] Cummins and Weiss (2009).
[4] In relation to captive insurers, the IAIS has been actively engaged in insurance captives supervision work (IAIS 2006b and 2008b).
[5] In relation to the supervision of finite reinsurance, please refer to IAIS (2006c).
[6] For additional information on sidecars, please refer to IAIS (2008a, 2007 and 2006a).

Exhibit 2 – Risk Transfer Products: Comparison of Key Characteristics[7]

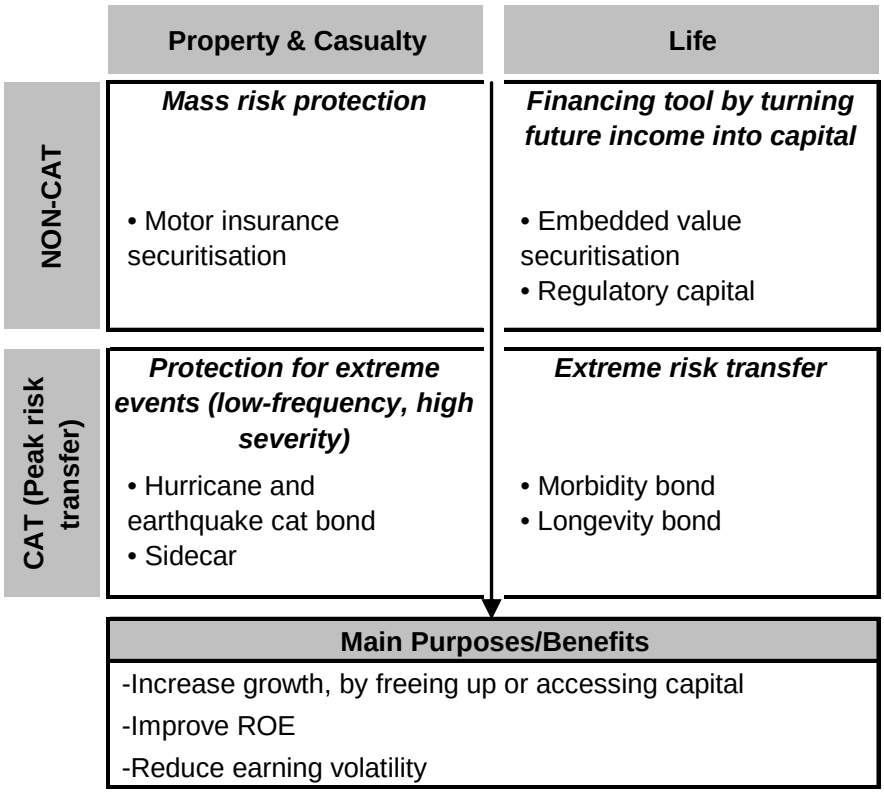
Product	Credit Risk	Basis Risk	Moral Hazard	Trans-parency	Multi-year	Multi-risk	Standad-isation	Liquidity	Capital Markets Access
Insurance/Reinsurance	Yes	No	Yes	Low	Rarely	Rarely	Low	Low	No
Captive Insurance	Yes	No	No	High	Yes	Yes	Low	Low	No
Hybrid Products:									
Finite Reinsurance	Yes	No	Yes	Low	Often	Rarely	Low	Low	No
Retrospective XOL Covers	Yes	No	Yes	Low	Often	Rarely	Low	Low	No
Multi-year, multi-peril products	Yes	No	Yes	Low	Yes	Yes	Low	Low	No
Multiple Trigger Products	Yes	Yes	Yes	Low	Often	Rarely	Low	Low	No
Industry Loss Warranties	F	Yes	No	High	No	No	Moderate	Low	Yes
Sidecars	S	Minimal	Moderate	High	Often	Sometimes	Low	Low	Yes
Financial Market Instruments:									
Contingent Capital	F	T	T	High	Yes	Often	Low	Low	Yes
Futures and Options	Yes	Yes	No	High	No	Rarely	High	Potential	Yes
Swaps	Yes	T	Low	High	Often	Varies	Moderate	Low	No
Cat Bonds - Indemnity	C	No	Yes	High	Yes	Varies	Moderate	Moderate	Yes
Cat Bonds - Non indemnity	C	Yes	No	High	Yes	Varies	Moderate	Moderate	Yes

T = Depends on trigger. Basis risk is low for company loss (indemnity) triggers but moderate to high for index and parametric triggers. Moral hazard is moderate to high for indemnity triggers but low for index and parametric triggers.
S = Depends upon structure and collateral arrangements.
F = Depends upon whether capital is pre-funded or unfunded for contingent capital and whether limit is collateralized under industry Loss Warranties.
C = Usually minimal but depends upon investment restrictions, swap counterparty arrangements, topping up rules, etc.

12. An alternative way to understand and classify ART is by looking at them in relation to the kind of business covered, that is, life or property and casualty, and in relation to the extent to which the coverage is provided for catastrophic events or not. For example, sidecars are used almost exclusively to provide coverage for catastrophic property and casualty risks. Exhibit 3 lays out ART arrangements under these two axes[8]:

[7] Cummins and Weiss (2009).
[8] Swiss Re, in IAIS (2008a).

Exhibit 3 – ART Arrangements: Matrix of Capital Markets Solutions



13. There is a wide variety of arrangements available to transfer risk out of a company, and to the capital markets -and other players- to assume such risk, in exchange for a premium. However, the underlying logic remains broadly the same: the risk assuming party provides (or commits) capital against a payment and, should a stipulated event take place, the insured party draws on the capital provided (or committed).

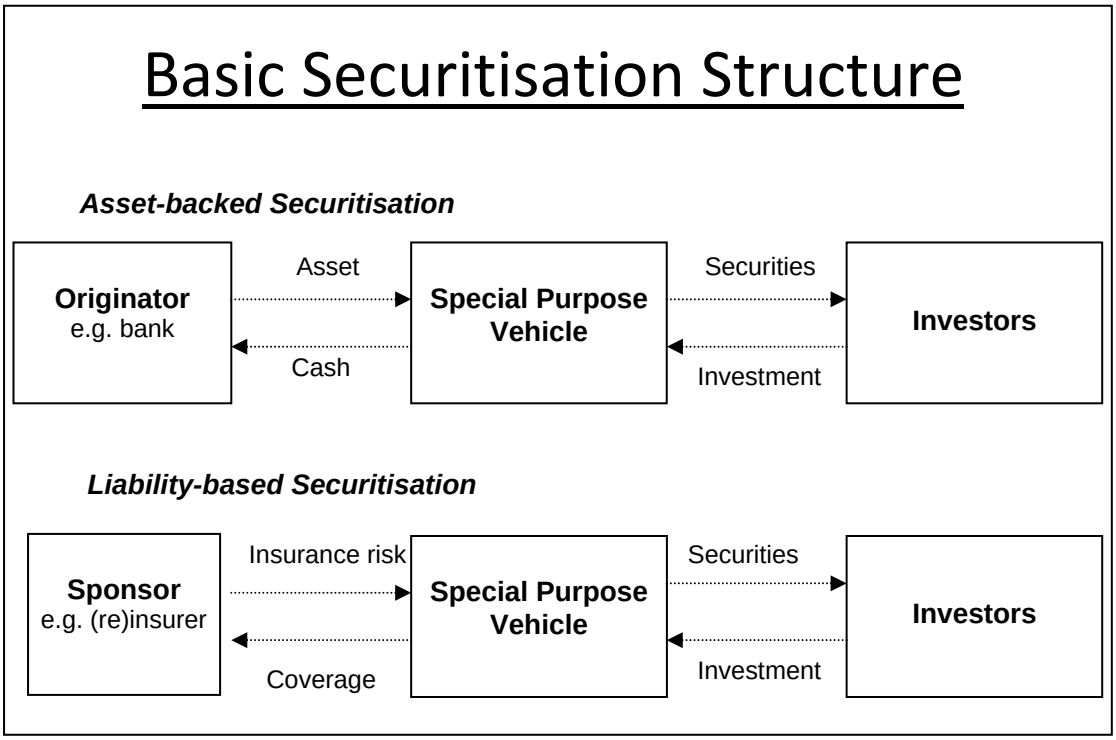
Structure of securitisation transactions

14. In any form of securitisation, an originator/sponsor (e.g. a bank or an insurer) transfers an asset/liability to a special purpose vehicle (SPV), which issues securities to investors, who contribute funds for the asset/liability transferred.

15. The SPV remains a passive financial entity that exists solely to house the asset/liability transferred to it, to issue the securities, and to hold the proceeds of the issuance[9]. Exhibit 4 shows the basic structure of an asset-backed and a liability-based securitisation.

[9] Cowley and Cummins (2005).

Exhibit 4 – Asset-backed and Liability-based Securitisations



16. In addition to the commonalities in their basic structures, asset-backed and liability-based securitisations share other key features. For example, in both arrangements the SPV appears as **bankruptcy remote** from the originator/sponsor.

17. Bankruptcy remoteness entails a clear separation of the SPV from the originator/sponsor. A key consequence of this is that the credit risk of the SPV is based on the quality of the SPV's assets, as SPV creditors will have no access to assets of the originator or the sponsor. A mechanism commonly used to achieve an SPV's bankruptcy remoteness is to transfer the SPV's shares to a trust which has, as its sole purpose, the holding of such shares.

18. A further key similarity between asset-backed and liability-based securitisations is that both arrangements often rely on so-called "**credit enhancement**" mechanisms, which are tools added to improve the credit quality of the securitisation.

19. Credit enhancement mechanisms are usually classified as *internal* or *external*. An example of the former is reserve accounts established to collect the excess cash flows. An example of external credit enhancement is a letter of credit issued by a bank. Securitisation arrangements often use combinations of more than one credit enhancement mechanism[10].

20. In addition to the above, liability-based securitisations generally rely on two key arrangements to enhance further the credit worthiness of the SPV, in particular in relation to the commitments taken by the SPV vis-à-vis the sponsor and the investors.

- First, SPVs commit to hold at all times assets equal to or in excess of the insurance exposure assumed, also known as the **fully funded** condition.
- Second, SPVs agree to maintain their assets in a trust account which has the sponsor as beneficiary, that is, there is a **collateralisation** of the SPVs' exposure.

[10] A detailed account of credit enhancement mechanisms can be found in Joint Forum (2009) (forthcoming, www.bis.org).

21. Although asset-backed and liability-based securitisation arrangements share key structural and operational characteristics -indeed the development of liability-based securitisations drew largely on the experience of asset-backed securitisations- there are some fundamental differences between them.

22. Perhaps the most important difference is that whilst it is common in asset-backed securitisations for the originator to consider the asset transferred to the SPV as a 'true sale'[11], in liability-based securitisations the sponsor retains a contractual liability to the underlying policyholders, notwithstanding the economic transfer of the risk. This is the same as with a traditional reinsurance contract. This fundamental distinction lies at the heart of the different regulatory and supervisory treatment given to securitisation arrangements by banking and insurance supervisors.

23. The above means that, whilst asset-backed securitisations could be equated to a sale transaction, liability-based securitisations entail the transfer of an insurance risk against the payment of a premium. Investors in the latter will benefit from the interest yielded by the securities issued by the SPV as well as from the premium paid by the sponsor to the SPV in exchange for providing coverage for the risk ceded. On the other hand, should the risk transferred to the SPV materialise, investors are exposed to losing their investment which is at risk.

24. It should also be noted that insurance risk is generally uncorrelated with the sorts of risks to which other forms of securitisation contracts (such as market risk) are exposed.

25. Whilst liability-based securitisations (i.e. insurance securitisations) operate like typical reinsurance contracts, there are important differences in certain elements of these two kinds of arrangements.

26. While traditional insurance and reinsurance coverage operates on indemnity triggers based on actual losses, insurance securitisations can be structured to rely on either indemnity measures or a wider variety of stipulated events. Early insurance securitisation structures used largely standard reinsurance contracts that indemnified the cedant on a 'follow the fortunes' basis (i.e. an indemnity trigger). This had the benefit of offering the cedant a known level of coverage as these reinsurance contracts had developed and had been tested over many years through precedents set by legal challenges and disputes. However, it can be many years before the full extent of known losses can be quantified (e.g. there are still claims outstanding today from Hurricane Katrina) and this uncertainty is unattractive to investors.

27. In order to offer certainty and transparency to investors, some insurance securitisations have used non-indemnity triggers (i.e. triggers based on model outputs, indices, parameters or combinations of these) which act as proxies for the sponsor's actual losses[12].

28. In addition, the evolution of standardised products relying upon industry loss or modelled and parametric loss triggers has helped to develop a broader and deeper market for insurance securitisations providing discrete protection against extreme events[13].

29. However, as proxies of actual losses, non-indemnity triggers do not exactly match these losses of the cedant, generating a residual or **basis risk**. The degree of basis risk is a key consideration for supervisors in determining the amount of reinsurance credit to give to the coverage or whether the coverage offered is reinsurance or a derivative. Key characteristics of the main trigger types are illustrated in Exhibit 5[14].

[11] Although the concept of 'true sale' may, in theory, imply a complete disengagement from the part of the seller (i.e. the originating bank) with respect to the item sold (i.e. the asset), in practice other factors (e.g. reputational risks considerations from the part of the originator) have blurred this distinction.
[12] Ozizmir (2007).
[13] Zeller (2008).
[14] Munich Re (2009).

Exhibit 5 – Comparison of Trigger Types

Trigger Type	Indemnity	Modelled Loss	Industry Loss (pure or weighted)	Parametric (pure or weighted)
Description	Ultimate net loss of the sponsor	Simulated loss in a dummy portfolio	Industry loss estimate (e.g. PCS)	Function of a measured value (e.g. wind speed)
Basis Risk	Low ⟷ High			
Necessary Disclosure	High ⟷ Low			
Time to Market	High ⟷ Low			
Time to Indemnification	High ⟷ Low			
Market Tradability	Low ⟷ High			
Market Capacity	Low ⟷ High			

2 Why is insurance securitisation important?

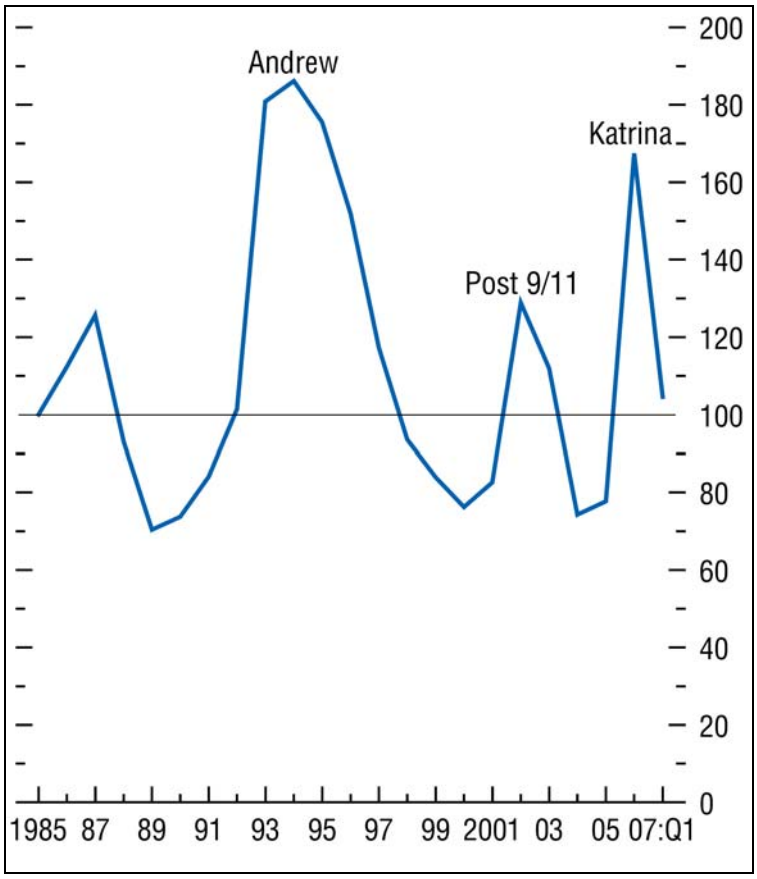
30. Insurance securitisation in particular, and ART in general, add to the realm of opportunities that insurers and reinsurers have at their disposal to obtain access to capital resources, in a broader sense, than their own shareholders' funds. As such, they can add to the replenishment of capital after catastrophic events, as well as contributing to **limiting the cyclical nature of insurance markets**, and **contribute to the competitiveness of premium prices**[15].

31. In relation to the cyclical nature of insurance markets, the potential for securitisations to contribute to the shortening of the spike in premium increases has been documented by the International Monetary Fund in its Global Economic Outlook of April 2008[16]. Exhibit 6 reports the IMF finding. As illustrated, the cycle appears more short-lived in the post-2005 period (i.e. after USA hurricane season, especially, Katrina, Rita and Wilma) than in the post-1992 period (i.e. after Andrew).

[15] See, for example Wharton Risk Management and Decision Processes Center (2008), Finken and Laux (2009), Froot (2001), Froot and O'Connel (2008).
[16] IMF (2008) (available at www.imf.org).

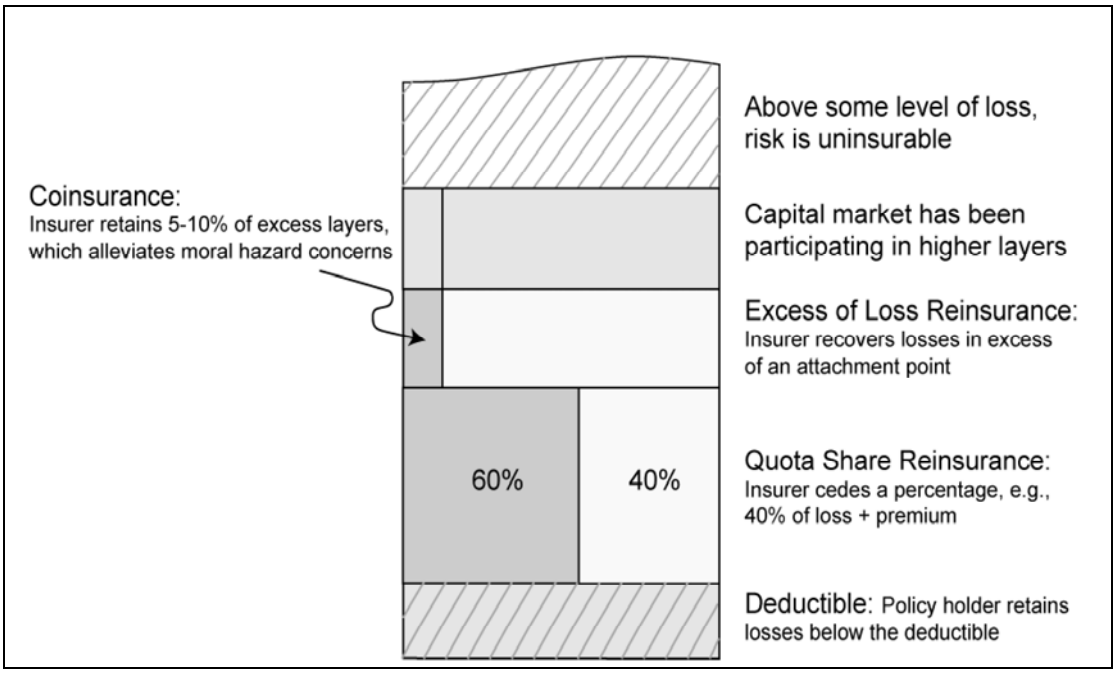
Exhibit 6 – Catastrophic Insurance Premiums

(Index, 1985 = 100)



32. Insurance securitisations in particular, and the capital markets in general, tend to assume insurance risks of a catastrophic nature. Exhibit 7 illustrates the location of the layers commonly included in insurance securitisations transferring risks into the capital markets. It shows that capital market intervention in assuming insurance risks is located in between more traditional excess of loss coverage and so-called 'uninsurable' risks. This means that capital market transactions may be in a position to add capacity to a risk absorption area where traditional insurance cannot readily assume risk because of complexity, exceptionality, etc.

Exhibit 7 – Risk Layers and Risk Coverage Relationship[17]



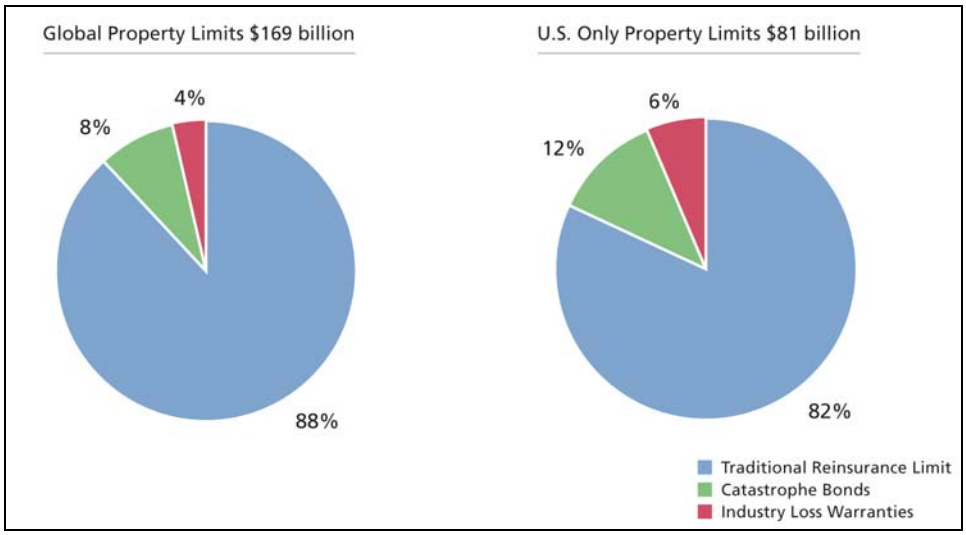
33. Further, insurance securitisations, as well as other forms of ART, appear attractive to capital market investors, particularly due to the appeal stemming from the apparently low correlation between these kinds of insurance loss and capital markets in general.

34. Notwithstanding the attractiveness of the features mentioned above, **insurance securitisations remain largely untested**, both because of their much shorter history than traditional insurance and reinsurance arrangements and because of the relatively small number of transactions. How insurance securitisation structures will react under extreme liability loss scenarios is an issue yet to be fully tested and a potential concern to many supervisors.

35. Although the idea emerged in the 1970s[18], it was not until the second half of the 1990s that insurance securitisation began to materialise in concrete examples. Further, after over a decade of activity on this front, the market share of insurance-linked securities and other forms of innovative insurance risk transfer remains small when compared to traditional approaches to risk transfer – in particular reinsurance. Exhibit 8 below provides an illustration of this by looking at cat bonds as a proportion of limits outstanding for World and US only for 2007.

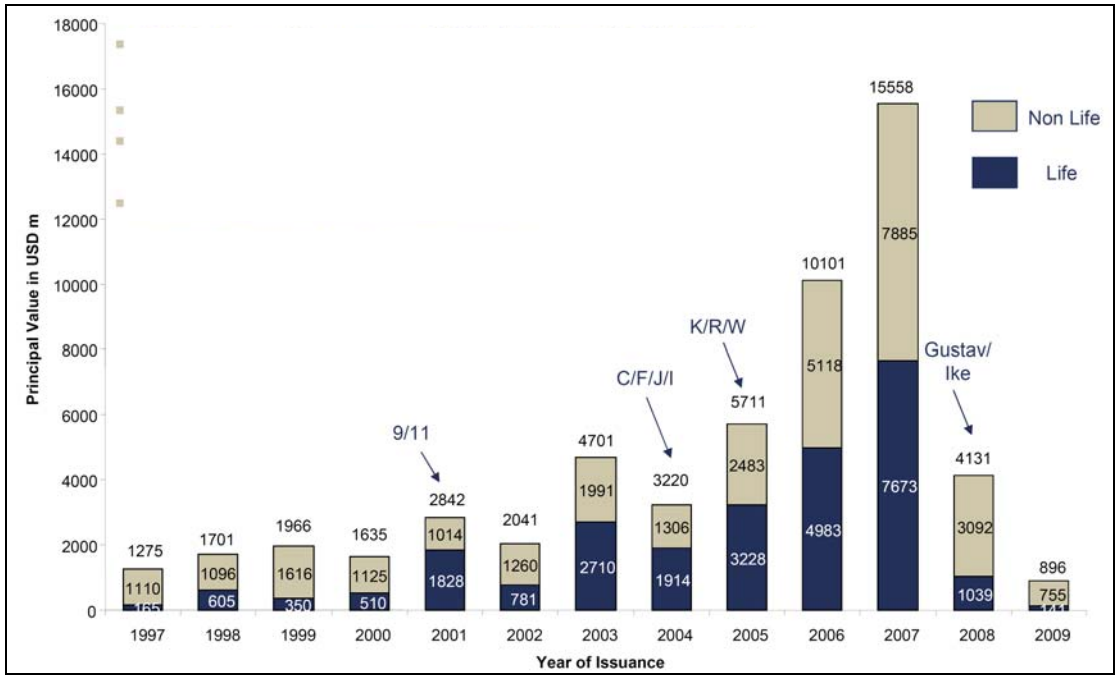
[17] Wharton Risk Management and Decision Processes Center (2008).
[18] Goshay and Sandor (1973).

Exhibit 8 – Cat bonds as a proportion limits outstanding for World and US only (2007)[19]



36. Although comparatively speaking, as shown above, the alternative risk transfer market appears small in relation to traditional reinsurance, it is nonetheless a market that is experiencing growth. This is particularly the case in the US, where so-called 'uninsurable' risks are comparatively bigger. In particular, after the USA hurricane season of 2005, there was a marked acceleration in both the volume of transactions carried out and the amount of capacity secured. Exhibit 9 shows by looking at insurance-linked securities issuances for the period 1998 – 2009, which peaked to over USD15 billion in 2007, from USD 1.3 billion raised ten years prior. Also, approximately USD11 billion of the non-life issuances are outstanding ate the time of writing this report.

Exhibit 9 – Issuances of Insurance Linked Securities (1997 – Q1 2009)[20]



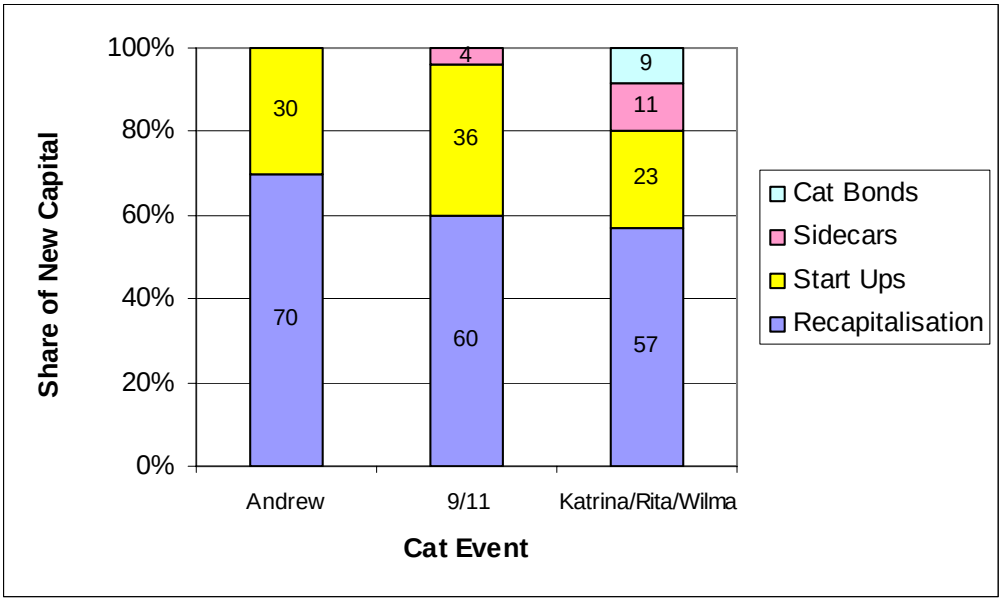
[19] Guy Carpenter (2008).
[20] Boller (2009).

37. Looking at issuances in the period covered above, according to Lane (2009), there were 328 issuances in total, 83 of which were carried out by 2003, while 245 took place from 2004 to the present. This shows an average of 16 issuances per annum in the first period against 40 issuances in the second. Moreover, just over 50% off all issuances are carried out by direct insurers, with the vast majority of the remainder done by reinsurers (i.e. as retrocessional coverage). Issuances directly by non-insurers are rare and bespoke (e.g. cat bond issued to cover risks related to the construction of Tokyo Disneyland). Last but not least, there are cases of government-led issuances like the 2006 Mexico earthquake bonds, or the Caribbean Catastrophe Risk Insurance Facility, launched by the World Bank in 2007 and covering hurricane risk for 16 Caribbean countries.

38. There are further elements that add to the growing importance of alternative insurance risk transfer, and its impact on regulatory and supervisory matters, including financial stability. First, a growth in the insurance securitisation market has the potential to strengthen the ability of the sector to diversify the risks assumed[21]. Further, as shown above, although alternative risk transfer appears comparatively small when looked in relation to traditional insurance and reinsurance, the picture changes if the focus of observation concentrates on 'new' capital coming into the market, as opposed to 'all' the capital in it. In this respect, the share of alternative risk transfer increases substantively in comparison to traditional arrangements.

39. As shown in Exhibit 10, and with particular reference to the aftermath of the 2005 USA hurricane season (hurricanes Katrina, Rita and Wilma -KRW), 20% of the new capital raised to replenish capacity was originated in ART arrangements (i.e. 9% in cat bonds and 11% in Sidecars), a stark comparison to the post-Andrew recapitalisation where no ART took place.

Exhibit 10 – New Capital Following Large Catastrophes[22]



40. There are some other very important developments accompanying the relative growth in the share of new capital brought into the reinsurance markets by securitisation arrangements. For example, over the past 10 years there has been growth in the number of

[21] With respect to the diversification effect, it should be noted that the ring-fenced nature of the securitisation transactions probably means that there is not the same fungibility of capital as with traditional reinsurance, and so diversification may not operate in the same way.
[22] Lane, in Klein (2009).

insurance and reinsurance companies that have opted to raise capital through direct cross-sectoral risk transfer into the capital markets. According to AON (2009) the number of "first timer sponsors" more than doubled between 2002 and 2007[23].

41. Further, in addition to the growth of new entrants, there has been growth in the average size of each individual issuance as well as a lengthening of the average maturity (e.g. while pre-1999 cat bonds had a 12-month maturity on average, 10 years later this was nearly three times as long).

42. The growth reported above had an impact the variety and mix of perils covered. For example, multi-peril bonds were exceptional in the mid 1990s, but represented over 50% of all issuances by 2008/09. Further, whilst the first cat bonds covered mostly US wind and US earthquake, by 2007 perils covered included, according to Guy Carpenter (2007): Europe hail, Monaco earthquake, Puerto Rico hurricane, Taiwan earthquake, third party casualty liability, Australian earthquake, Australian wind, Mexican earthquake and hurricane, U.S. tornado and hail, Canadian earthquake, U.K. Flood, Greek earthquake, Turkish earthquake, Cyprus earthquake, Israeli earthquake, Portuguese earthquake, Guatemalan earthquake, and El Salvadoran earthquake, among others.

43. In addition to providing coverage for property and casualty risks, ART transactions play a growing part in the transfer of life insurance risks. A detailed account of life securitisation is provided in an IAIS paper dedicated to the matter[24]. In summary, there are three main types of life insurance securitisations offered [25]:

43.1. *Securitisation of future cash flows from a block of business* - Transactions falling into this category include so-called VIF ("value in force") or embedded value securitisations. These transactions offered financial relief, similar to that offered by financial reinsurance, by securitising a block of insurance or annuity business to achieve a business objective such as capitalisation of prepaid acquisition expenses or monetisation of the embedded value from the block. In short, raising cash is central to this kind of arrangements. This type of transactions also includes closed block and open block securitisations undertaken to support demutualisation.

43.2. *Reserve funding securitisations* – These transactions make up the majority of life insurance securitisations by size issued to date and were designed to finance US regulatory reserve requirements, such as those associated with Regulation XXX and Actuarial Guideline AXXX, over and above the economic reserves.

43.3. *Life insurance risk transfer securitisations* – Transactions designed to protect life (re)insurers against mortality or longevity risk such as mortality cat bonds.

44. In summary, the share of risk capital raised by insurers and reinsurers via alternative risk transfer arrangements, in particular securitisations, appears to be growing. Furthermore, industry stakeholders have argued that as convergence between financial sectors strengthens and deepens, alternative arrangements stand the chance to become the norm instead of the exception[26]. The growth in complexity, in size and in market share experienced by insurance securitisation poses new challenges to insurance and reinsurance supervisors and regulators, some of which are discussed below.

[23] AON (2008). Insurance.
[24] IAIS (2003b) (available on www.iaisweb.org).
[25] Cowley and Cummins (2005).
[26] Ferguson (2008).

3 Developments in the regulation and supervision of insurance securitisation

45. The quantitative growth in insurance securitisation and the qualitative expansion of securitised arrangements have been accompanied by a variety of developments in regulatory and supervisory frameworks.

46. Regulatory developments addressing insurance securitisation have followed national policies on the matter, resulting in a variety of dissimilar frameworks and approaches. The European Union work the matter, in particular the Reinsurance and the Solvency II Directives, provide the only example of a regional approach to the issue. However, both directives still leave plenty of implementation latitude to European Union members.

47. Notwithstanding national differences, there are some common threads that are emerging among most regimes. These include: the creation in law of the category of the special purpose insurer; the differentiated nature of the special purpose insurers, in particular in relation to licensing, on-going supervision and capital requirements; the subordination of investors claims on the assets of the special purpose insurers to those of the cedant; and the fully funded nature of the special purpose insurer. Importantly, a common element among most supervisory arrangements is the reliance on both quantitative and qualitative information in the assessment of the soundness of special purpose insurers[27].

48. As mentioned in the Introduction to this report, the IAIS is currently engaged in the production of dedicated standards and guidance with respect to the supervision of insurance risk transfer to the capital markets.

49. The paragraphs below summarise the most salient of these developments.

Europe

50. In Europe, the Reinsurance Directive and the Solvency II Directive define a "special purpose vehicle" as any undertaking, whether incorporated or not, other than an existing insurance or reinsurance undertaking, which assumes risks from insurance or reinsurance undertakings and which fully funds its exposure to such risks through the proceeds of a debt issuance or some other financing mechanism where the repayment rights of the providers of such debt or other financing mechanism are subordinated to the reinsurance obligations of such a vehicle.

51. Article 46 of the Reinsurance Directive states that a Member State must require prior official authorisation of a special purpose vehicle, as defined, prior to its establishment within its territory. It further states that a Member State shall lay down rules for a special purpose vehicle regarding:

a) scope of authorisation;
b) mandatory conditions for inclusion in all contracts issued;
c) the good repute and appropriate professional qualifications of persons running the special purpose vehicle;
d) fit and proper requirements for shareholders or members having a qualifying holding in the special purpose vehicle;
e) sound administrative and accounting procedures, adequate internal control mechanisms and risk management requirements;
f) accounting, prudential and statistical information requirements;
g) the solvency requirements of special purpose vehicles.

[27] For further discussion on qualitative approaches to insurance securitisation regulation and supervision see Machler (2009).

52. The Reinsurance Directive and the Solvency II Directive contain provisions regarding the definition and workings of SPVs.

53. Further, the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS) issued, in March 2009, a consultation paper on Level 2 advice[28] on SPVs. CEIOPS' advice proposes eight principles for the sound workings of SPVs, as follows[29]:

1) Fully funded nature of SPV – SPVs should have, at all times, assets that are equal to or greater than their aggregate limits, including anticipated fees and expenses
2) Subordination of investors' claims to cedant's claims – the SPV's assets to be available to first meet the reinsurance obligations
3) Prudent person – SPVs should adhere to the "prudent person" investment principles[30]
4) Effective risk transfer – Agreements between cedants and SPVs should effectively transfer risks from cedants to SPVs
5) Intra-group reinsurance – SPVs should not be utilised as intra-group reinsurance to achieve group level regulatory capital reduction
6) Non-recourse – Investors in SPVs should have no recourse to assets of cedants
7) Bankruptcy remoteness – SPVs should be segregated into a bankruptcy remote vehicle separate from cedant.
8) Documentation – Supervisory authorities licensing SPVs should do so based on appropriate documentation being submitted to them

54. European Countries that have issued particular requirements in relation to ILS under the Reinsurance Directive include:

Germany

55. Germany amended its Insurance Supervision Act on the 28th of May 2007, which came into force on the 2nd of June 2007, transposing the provisions of the Reinsurance Directive almost conclusively into German law. This amendment included the option offered by Article 46 of the Reinsurance Directive allowing for the establishment of insurance special purpose vehicles (SPV) in Germany. German law defined "a special purpose vehicle as any undertaking having its registered or head office in Germany, whether incorporated or not, other than a primary insurance or reinsurance undertaking, which assumes risks from primary insurance or reinsurance undertakings and which fully funds its exposure to such risks through the proceeds of a debt issuance or some other funding mechanism where the repayment rights of the providers of such debt or the funding mechanism are subordinated to the reinsurance obligations of such a vehicle".

56. SPVs are subject to an authorisation requirement by BaFin. A business plan with specified information must be submitted to allow BaFin to obtain extensive information on the SPV and the transaction structure. Particular importance is attached to the description of the intended risk assumption, the funding system, the parties involved in the transaction and the organisation of operations. In addition, the SPV must also have a professionally qualified and reliable manager. Other elements of the business plan include the articles of association, a projected balance sheet and profit and loss statement for the first financial year, contracts between business enterprises, function outsourcing and service contracts in the overview, and evidence of an adequate organisation fund to finance the setting up the

[28] One of CEIOPS' roles, as laid down in the so-called 'Lamfalussy Process', is to provide advice to the European Commission on drafting of implementation measures for framework directives and regulations on insurance and occupational pensions. For details on the workings of the Lamfalussy Process, please visit www.ceiops.eu.
[29] CEIOPS (2009) (available at www.ceiops.eu).
[30] According to CEIOPS (2009), 'prudent person' principles for SPVs are as follows: assets should reflect the duration of underlying liabilities, assets should be of a high quality and counterparty exposures should be sufficiently diversified, and derivatives should be used only for risk reduction / efficient portfolio management.

business organisation of the vehicle. BaFin has to consider all aspects of their operations, and in particular solvency, the creation of adequate technical provisions, investment in suitably appropriate assets and compliance with generally accepted business principles and the other financial fundamentals of running a business.

57. Under German law, amounts outstanding from SPVs are treated in the same way as amounts outstanding from reinsurance undertakings provided the reinsurance contract is in a form recognised for regulatory purposes. Also, where the SPV has a registered office in a non-EU State, there are special requirements for amounts outstanding from SPVs having their registered office in a third country, in order to guarantee an equivalent level of security.

Ireland

58. Ireland transposed the Reinsurance Directive into Irish law in July 2006 through Statutory Instrument No. 380 of 2006 ("S.I. 380"). S.I. 380 defined a special purpose reinsurance vehicle (SPRV) as per the Reinsurance Directive. Irish law requires that an SPRV authorised in Ireland must maintain sound administrative and accounting procedures, adequate internal control mechanisms and risk management requirements and satisfy accounting, prudential and statistical information requirements.

59. The Financial Regulator issued its requirements in June 2007 to supplement those applicable under Irish law, including requirements on the criteria for reinsurance contracts issued by SPRVs, the systems and controls required in a SPRV, corporate governance of a SPRV (including fit and proper requirements), mandatory conditions for inclusion in all contracts issued by a SPRV, and infrastructural support required by a SPRV. Other requirements include the manner in which claims relating to such securities rank as between different security holders and limited in the event of insufficient funds, and make it a condition of securities issued or to be issued by the SPRV that the holders of the securities undertake not to initiate or participate in insolvency proceedings against the SPRV until those securities are discharged.

60. The Financial Regulator also set out the information required and the issues to be addressed for an application to establish an SPRV in Ireland.

United Kingdom

61. In the UK, a new regulatory regime for insurance special purpose vehicles (ISPVs) took effect from the 31 December 2006. The definition of an ISPV is as per the Reinsurance Directive. The Financial Services Authority (FSA) issued guidance on the requirement for an ISPV to be 'fully funded', which included rules applying to a UK ISPV's assets and liabilities and the contractual arrangements which ensure the ISPV remains fully funded. To be fully funded, an ISPV must:

1) Have received the proceeds of issuing debt or other method by which it is financed;
2) In each contract of reinsurance, include terms which secure that its aggregate maximum liability (i.e. its exposure) under its contracts of reinsurance does not exceed the amount of its assets at any time;
3) Ensure that under terms of any debt it issues or other financing arrangement used to fund its reinsurance liabilities the rights of providers of that debt or other financing are fully subordinated to the claims of creditors under its contracts of reinsurance; and
4) Only enter into contracts or otherwise assume obligations which are necessary for it to give effect to the reinsurance special purpose for which it has been established.

62. The FSA require an independent legal opinion to confirm that a contractual agreement between the ISPV and a ceding insurer is legally effective and meets the FSA requirements and a legal opinion confirming that the terms of the ISPV's financing agreements meet the

requirement that the rights of the providers of that finance are fully subordinated to the claims of its reinsurance creditors.

63. If the ceding insurer is UK regulated, it can benefit from a reduction in its own regulatory reserving and capital requirements by claiming credit for the risks transferred to the ISPV through a waiver application. The FSA also set out the information needed to receive a waiver application and the issues to be addressed for consideration of such an application.

The Netherlands

64. In the Netherlands, special purpose reinsurance vehicles are allowed to form and operate through a licensing regime under De Nederlandsche Bank ('DNB'). In order to be permitted to pursue its business, a special purpose reinsurance vehicle must satisfy certain requirements, as specified in Decree providing prudential rules pursuant to the Wft (Besluit prudentiële regels Wft, 'Bpr'). Key requirements relate to the following:

1) Fitness and propriety of owners, directors and officers to be (Chapter 2 of the Bpr)
2) Soundness of operational policies (Chapter 3 of the Bpr)
3) Control of operational and business processes and of operational risks (Chapter 4 of the Bpr)
4) Control of outsourced activities (Chapter 5 of the Bpr)
5) Minimum available solvency (Chapter 9 of the Bpr)

65. De Nederlandsche Bank also requires the submission of a brief of activities (programma van werkzaamheden). This is a business plan containing, among other things, details on the nature of the risks that the special purpose vehicle intends to assume, details on the solvency of the vehicle, estimates of the other management costs, premiums, claims, the liquidity position, the financial assets available to cover the liabilities and the required solvency margin, for each of three successive years ahead.

The Americas

United States of America[31]

66. The States are charged with the responsibility of regulating the business of insurance pursuant to the McCarran-Ferguson Act of 1945. The National Association of Insurance Commissioners (NAIC) is the organization of insurance regulators from the 50 states, the District of Columbia and the five U.S. territories, and provides a forum for the development of uniform policy within the states.

67. The NAIC has determined that there is a compelling public interest in facilitating prudent securitisation of insurance risks located onshore in the United States, and has developed a regulatory framework for the securitisation of these risks.

68. On December 6, 1999, the NAIC adopted the Protected Cell Company Model Act to facilitate onshore securitisations. This model provides a basis for a domestic insurer to create one or more “protected cells.” These protected cells would isolate assets and liabilities related to an insurance securitisation, and would be protected from the insolvency of the rest of the insurer. The creation of protected cells is intended to be a means to achieve more efficiencies in conducting insurance securitisations, and to promote the ability of domestic insurers to take part in such transactions.

69. On October 24, 2001, the NAIC adopted the Special Purpose Reinsurance Vehicle Model Act, which provides a basis for the creation of Special Purpose Reinsurance Vehicles

[31] Further discussion of insurance securitisation regulatory efforts by the NAIC can be found in Moriarty (2002).

("SPRVs") exclusively to facilitate the securitisation of one or more ceding insurers' risks as a means of accessing alternative sources of capital and achieving the benefits of securitisation.

70. Investors in fully funded insurance securitisation transactions provide funds that are available to the SPRV to secure the aggregate limit under an SPRV contract that provides coverage against the occurrence of a triggering event. The creation of SPRVs is intended to achieve greater efficiencies in conducting insurance securitisations, to diversify and broaden insurers' access to sources of risk bearing capital and to make insurance securitisation generally available on reasonable terms to as many U.S. insurers as possible. Some of the key provisions of the model act can be summarized, as follows:

1) Exemption from insurance laws within limitations.
2) Limited purpose of SPRV - SPRVs are only created to securitize risk and may not be used for other purposes.
3) Approved transactions and operation of SPRVs - Securitisation transactions must be fully funded; assets must be held in trust for the ceding insurer; the trust must enable the ceding insurer to withdraw funds at any time without notice; and the trust shall be valued at the current fair value of the assets in the trust.
4) Affiliations - An SPRV may not be under common control with any ceding insurer that is a party to the SPRV contract.
5) Credit for reinsurance for SPRV contract - Credit for reinsurance should be granted to the extent of the fair value of the assets in the SPRV trust.
6) No transaction of an insurance business by investors in securities - Investors in securitisation contracts shall not be deemed to be in the business of insurance solely due to such investments. The securities issued shall not be deemed to be insurance or reinsurance contracts.

71. Only a few States have adopted legislation similar to the Special Purpose Reinsurance Vehicle Model Act, notably Illinois, Maine and South Carolina. However, since 2007 several States have adopted legislation that permit the creation of special purpose financial captives, which would enable captive insurance companies to facilitate risk securitisation transactions in order to access additional sources of capital. These States include South Carolina, Delaware, Utah, Vermont and the District of Columbia.

Cayman Islands

72. Under current Cayman law, SPVs are established as exempted companies, under the Companies Law (2007 Revision). An exempted company is not permitted to conduct business within the Cayman Islands[32].

73. Many SPVs carrying out insurance business also obtain a Class B Restricted License, under the Insurance Law (2008 Revision).

74. The requirements for an SPV to set up as an exempted company include having a registered office in the Cayman Islands, having a Board of Directors keeping a Register of Directors and a Register of Shareholders, paying an annual filing fee, filing an annual return. Further, a Cayman Islands SPV need have only one shareholder and only one director, which may be a corporation.

Bermuda

75. Legislation enacted in March 1998 triggered the beginnings of the Bermuda Monetary Authority's (BMA) insurance securitisation regime, introducing the concept of Designated

[32] The majority of the special purpose vehicles used for the transfer of insurance risk to the capital markets is domiciled in the Cayman Islands.

Investment Contracts allowing for the transaction of indexed-based (non-indemnity) event-linked covers.

76. The Insurance Amendment Act 2008 (the "Amendment Act") of July 2008 created the class of Special Purpose Insurers ("SPIs"), which complemented the 1998 legislation through the introduction of a regulatory platform for the establishment of insurance entities, licensed to transact both indemnity and non-indemnity based products.

77. Bermuda law defines SPIs as vehicles carrying out special purpose insurance business, whereby the insurer fully funds its liabilities to the persons insured. Bermuda law restricts the type of (re)insurance buyers and investors allowed to engage in SPI business to sophisticated persons only.

78. At the time of writing this paper, the BMA is consulting on an SPI Guidance Note (scheduled to be released by the 3rd quarter of 2009). Key features in the Guidance note are transparency and disclosure, spanning licensing, implementation and dissolution stages of the SPI's life.

79. According to the SPI Guidance Note, once an SPI has been licensed, and in line with the risk characteristics of these insurers, regulatory attention should be placed upon the original cedant who established the SPI. This shift in focus (from the SPI to the cedant) is aligned with the definition of the SPI.

80. Entities ceding to SPIs are expected to be positioned to fully model, and be adequately capitalized to manage, all risk characteristics associated with their SPI cession. In addition, Bermuda regulated legal entities are required to disclose within their annual statutory financial returns all SPI transactions, including purchases from and investments in these vehicles.

4 The workings of insurance securitisation arrangements in practice – learning from recent developments

81. As mentioned in previous paragraphs, there have been over 300 issuances of insurance-based securities since 1996. The body of empirical evidence spans over more than a decade, providing evidence to gain understanding of the working of insurance securitisations in practice.

82. The paragraphs below summarise key learning to date, focusing on those cases that have put under stress the soundness of the securitisation arrangements. We break down the presentation of the examples into three groups.

83. The first group looks at the early cases of insurance securitisations tested, by describing the background and developments of Georgetown Re, Kelvin Re and SFL IV. The second group looks at two cat bonds affected by the 2005 USA hurricane season, i.e., Kamp Re and Avalon Re. Finally, the third group focuses on distressed insurance securitisation arrangements affected by the current financial crisis; cases discussed include Willow Re, Ajax, Carillion Re, Newton Re, Ballantyne Re and Orkney Re.

Georgetown Re, Kelvin Re and SFL IV[33]

84. Georgetown Re, Kelvin Re and SFL IV appear in the literature as the first three cases of insurance securitisations put under stress.

85. Georgetown Re dates back to December 1996. Its sponsor was St. Paul Re, which retroceded, on an excess of loss basis, part of its catastrophe lines, under a proportional 10-year long treaty, ceding reinsurance business from five classes: USA/ Caribbean property-casualty, European property-casualty, other property-casualty, retrocessional/Lloyd's short tail, and marine and aviation. Georgetown Re committed to pay losses to St. Paul Re on an indemnity basis. Goldman Sachs was the bank that structured the deal.

86. Georgetown Re was funded via issuance of debt and equity amounting to USD68.5 million. The debt tranche was of USD44.5 million and had an 11 year maturity, i.e. expiring in 2007. The equity element (i.e. preferred shares) covered the remaining USD24 million and expired in 2000. The expected returns were 8.4% for the debt and 13% for the equity; loss-free returns were estimated to be approx. 11% and 18.8% respectively. Importantly, returns were calculated based on the overall performance of the ceded business.

87. During the first three years of the contract, St. Paul Re did not suffer losses reaching the excess of loss layer ceded to Georgetown Re, so note- and shareholders in it received the coupon payments agreed under the respective contracts.

88. However, in 1999, losses in lines ceded by St. Paul Re to Georgetown Re reached the layers covered by Georgetown Re. These were largely explained by losses stemming from Hurricane Lothar of December 1999. Investors in Georgetown Re experienced loss on principal, albeit minimal (i.e. estimated to be less than 3%), as well as loss of coupon. Importantly, in subsequent years, investors in Georgetown Re continued to receive coupon payments as the SPV did not receive any additional claims from St. Paul Re.

89. In conclusion, Georgetown Re is an early example of an insurance securitisation which has been tested by the materialisation of the risks covered by it. Importantly, Georgetown Re, which was based on indemnity triggers and underwriting performance returns, appears to have held.

90. The two additional cases of early securitisations which suffered losses, albeit with no reported disruption to the flow of the arrangement were Kelvin Re and SFL IV.

91. Kelvin Re was a 3-year transaction issued in 1999, transferring to investors the risk associated with certain levels of annual losses across a fixed portfolio of 28 weather derivative contracts. Each contract was based on temperature experience at one of 19 weather stations throughout the U.S.

92. Kelvin Re securities were offered to investors in two tranches -First Event Senior Notes and Second Event Senior Notes- by Cayman Islands based special-purpose company Kelvin Ltd. In the event of seasonal perturbations in daily temperature at the 19 locations, the collateral accounts backing the notes would be used to make payments to sponsor company Koch Energy Trading under a weather portfolio swap. Although some of the weather stations used in the arrangements did reach levels that activated the triggers, no publicly available data was obtained with respect to the level of payouts generated.

93. Finally, SLF IV was sponsored by Reliance National. It issued in 1999 unrated notes for USD 10 million. These proceeds were used to cover multiple perils.

[33] For information on Georgetown Re and SFL IV please refer to: Culp (2002), Froot (1999) (available at www.nber.org/papers/w7287), and Lane and Beckwith (2000) (available at www.lanefinancialllc.com). For information on Kelvin Re please refer to The Alternative Risk Transfer Internet Portal, Artemis, at www.artemis.bm.

94. SLF IV experienced a French storm loss that caused investors to receive returns of LIBOR + 8.25% instead of the stated coupon of LIBOR + 13.25%. Payouts to Reliance, on the other hand, amounted to 5% of the principal.

95. Summing up, Georgetown Re, Kelvin Re and SFL IV constitute the first examples of insurance securitisation arrangements that provided coverage for risks that did materialise. Although the publicly available data is scant, the three arrangements appeared o have operated well, with losses settled as agreed.

Kamp Re and Avalon Re[34]

96. Different from the three cases presented above, Kamp Re and Avalon Re constitute two examples of securitisations put under stress in a way where effects persist in the present. This is of importance to insurance (and securities) supervisors in light of the short term initial maturity of many, if not most, issuances.

97. Kamp Re is a cat bond issued by Swiss Re on behalf of Zurich Financial Services (ZFS). It was launched in August 2005 to provide coverage for catastrophe risks, including USA wind.

98. Kamp Re was issued as an indemnity-based bond, that is, payment to ZFS would be triggered by actual losses incurred by ZFS as opposed to modelled triggers. Specifically, actual losses up to 95% of USD200 million (5% was retained by ZFS), in excess of USD1billion would be covered by the monies held as collateral under the Cayman Islands-based Kamp Re SPV.

99. Kamp Re investors would get a return of LIBOR plus a 5.3% spread, and, should no losses materialise, they would get the principal of the bond back at the end of the bond maturity date stipulated to be 14 December 2007. Moreover, the transaction included provisions to extend Kamp Re's maturity by 36 months, if requested.

100. The USA hurricane season of 2005 generated the materialisation of risks covered under Kamp Re. A loss notice was filed in June 2006. Since then Swiss Re started paying a reduced amount of interest on the bond, as stipulated by the contract, of LIBOR plus 10 basis points while ZFS calculated the amount of its Katrina losses.

101. Further, on 14 December 2007, Kamp Re investors paid out USD29.7 million in losses from the principal amount of the notes after confirmation from the independent claims review agent, KPMG Cayman Islands, that claims had exceeded the bond trigger amount of USD1 billion. It should be noted that the indemnity trigger of the bond played a part in the length of period elapsing between occurrence of the event and the materialisation of the payment.

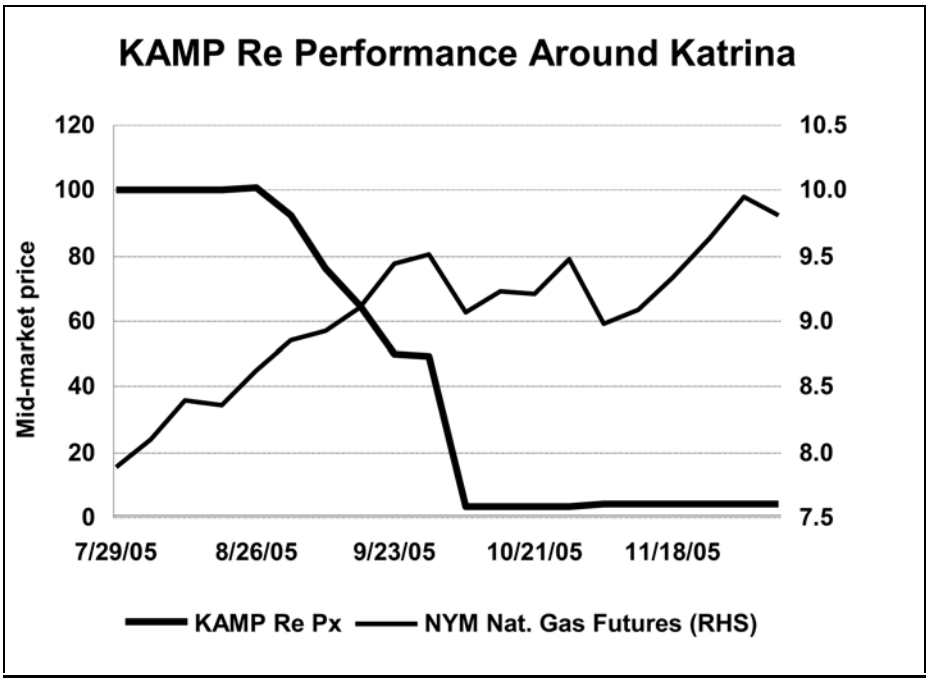
102. Finally, at maturity the extension option was exercised and the bond was kept in force. After this first payment, the remaining unpaid balance on the Kamp Re bond notes was USD160.3 million. However, the final determination of losses is still to be concluded.

103. As illustrated by Exhibit 11, the market value of Kamp Re decreased dramatically after Hurricane Katrina in late August 2005. By mid 2009, it was still priced at approx. 7 cents to the Dollar, leading to the assumption that the final loss incurred would not add up to the USD190 million value of Kamp Re. Importantly, and following Cummins and Weiss (2009), the behaviour shown by Kamp Re could be defined as a smooth settlement of the

[34] For information on Kamp Re and Avalon Re please refer to Lane and Berwick (2009) and Lane Financial (2008) (available on www.lanefinancialllc.com); Rockmuller (2008); Trading Risk (Jan/Feb 2008); and The Alternative Risk Transfer Internet Portal, Artemis, at www.artemis.bm.

reinsurance obligations assumed by the SPV, in particular in relation to the payment of the losses incurred by the cedant.

Exhibit 11 – Kamp Re[35]



104. A second example of a bond affected by the USA 2005 hurricane season is Avalon Re. Avalon Re is a Cayman Islands-domiciled insurance company formed solely to issue the variable-rate notes, enter into a reinsurance contract with Oil Casualty Insurance Ltd. (OCIL), a Bermuda-based insurer, and to conduct activities related to the notes' issuance.

105. OCIL, the sponsor, is one of the three members of The OIL Group of Companies with the other two members being Oil Insurance Limited (OIL) and sEnergy Insurance Ltd. (sEnergy).

106. Under the reinsurance contract, Avalon Re committed to reimburse OCIL –on an indemnity basis- for insured casualty-related losses, in excess of predefined attachment points, incurred by the company during the three years following the issuance, which took place in mid-2005.

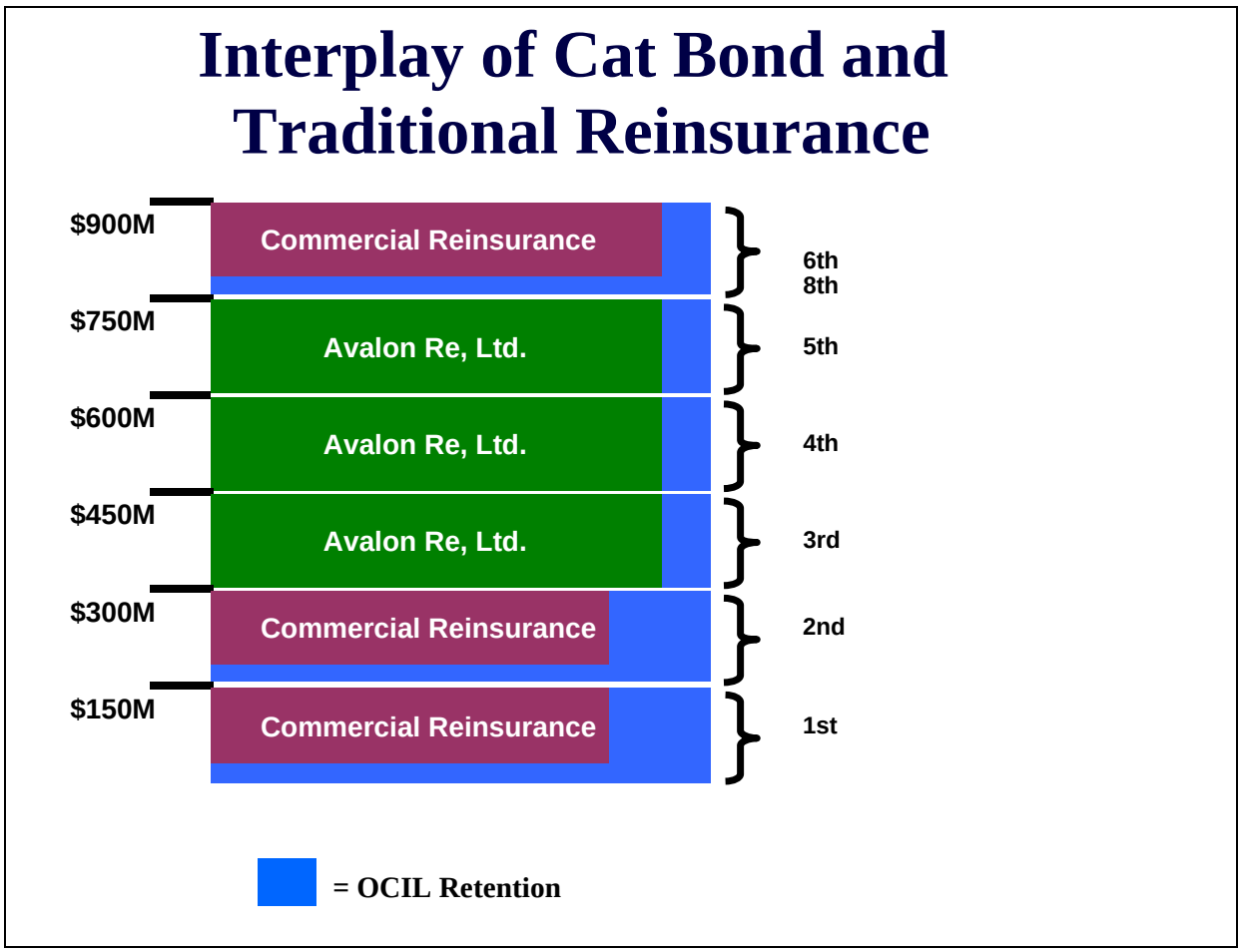
107. Avalon Re issued USD405 million in variable-rate notes. The notes comprised three tranches and were all rated by Fitch Ratings and Standard and Poor's. Fitch rating was as follows:

- USD135 million class A variable-rate notes due June 6, 2008 'BBB+
- USD135 million class B variable-rate notes due June 6, 2008 'BB+'
- USD135 million class C variable-rate notes due June 6, 2008 'B-'

108. Exhibit 12 illustrates he overall structure of the programme.

[35] Rockmuller (2008)

Exhibit 12: Avalon Re



109. A feature in Avalon Re, as well as many other insurance securitisations, was the right by the sponsor (i.e. OCIL) to extend the maturity of the bond by up to two years.

110. Risks covered by Avalon Re materialised during the period of coverage. As the cat bond operates on an indemnity basis, the determination and quantification of losses proved time consuming, activating the extension of the maturity of the bond from mid-2008 to mid-2009.

111. By early 2009, paid and reserve losses attributed to the deal amounted to USD347 million; USD147 million for hurricane Katrina and reserves of USD200 million for the Buncefield oil depot explosion and a steam pipe explosion in New York in July 2007. Losses affected all three tranches of notes. Very importantly, there is also a contested asbestos component in the liability claims which has the potential to trigger a legal dispute. This in turn, may prompt a further extension of the bond's maturity to mid-2010. Total insurance losses claimed on Avalon Re were still unknown at the time of writing this report.

112. As the Kamp Re and Avalon Re cases illustrate, when risks covered by the bonds materialise, an array of measures and procedures, rights and duties are set in motion. In particular, and due to the nature of indemnity-based triggers, the time needed for determining and quantifying losses heavily influences the overall securitisation arrangement. Although SPVs are allegedly set to live for short periods of time, this may not be the case in all circumstances, as extensions are exercised and maturities extended.

113. In both cases the insured party (i.e. the ceding sponsor) recovered the monies from the SPV, thus providing evidence of proper functioning in practice of the insurance cross-sectoral risk transfer and SPV concepts. However, other issues highlighted by these cases (i.e. the extension of maturity dates of bonds and the complexities in the determination of losses) appear to be matters of importance to insurance as well as securities supervisors.

Insurance securitisations and the current financial crisis (Part I): Ajax Re, Carillon Re, Newton Re and Willow Re[36]

114. Ajax Re is a cat bond issued by Ajax Re Ltd, an SPV licensed on 11 April 2007 in the Cayman Islands as a "Restricted Class B Insurance Company" under Insurance Law (2008 Revision). Its sponsor is the Bermuda-based Aspen Insurance Group. Ajax Re Ltd provided up to USD100 million protection to Aspen against California earthquakes. On issuance Standard and Poor's rated Ajax Re notes BB+.

115. Carillon Re is a cat bond issued by the Cayman Islands SPV Carillon Ltd. The securitisation provides up to USD150 million coverage to Munich Re and relates to hurricanes in 26 eastern and southern US states and Washington D.C. causing a market loss in excess of USD 35bn each. Munich Re is entitled to receive payments should insured market losses exceed USD 35bn in the risk period from June 2006 to 31 December 2009. On issuance Standard and Poor's rated Carillon Re notes B+, which means that they paid 1525 b.p. over the three-month Libor.

116. Newton Re is a cat bond issued by Newton Re Ltd, an SPV licensed on 9 November 2007 in the Cayman Islands as a "Restricted Class B Insurance Company" under Insurance Law (2008 Revision). Its sponsor is the Bermuda-based insurer Catlin. Newton Re Ltd provided up to USD150 million protection to Catlin. The coverage, which expires on 31 December 2010, is triggered if Catlin's losses from defined US windstorms and earthquakes, European windstorms, and Japanese windstorms and earthquakes exceed an annual aggregate threshold amount against California earthquakes. On issuance Standard and Poor's rated Newton Re notes BB; the notes, had a coupon of Libor plus 750 basis points.

117. Willow Re is a cat bond issued by Willow Re Ltd, an SPV licensed on 9 February 2007 in the Cayman Islands as a "Restricted Class B Insurance Company", under Insurance Law (2008 Revision). Its sponsor is the USA-based Allstate Insurance Company. Willow Re Ltd provided up to USD250 million protection to Allstate against Texas wind. On issuance Standard and Poor's rated Willow Re notes BB+.

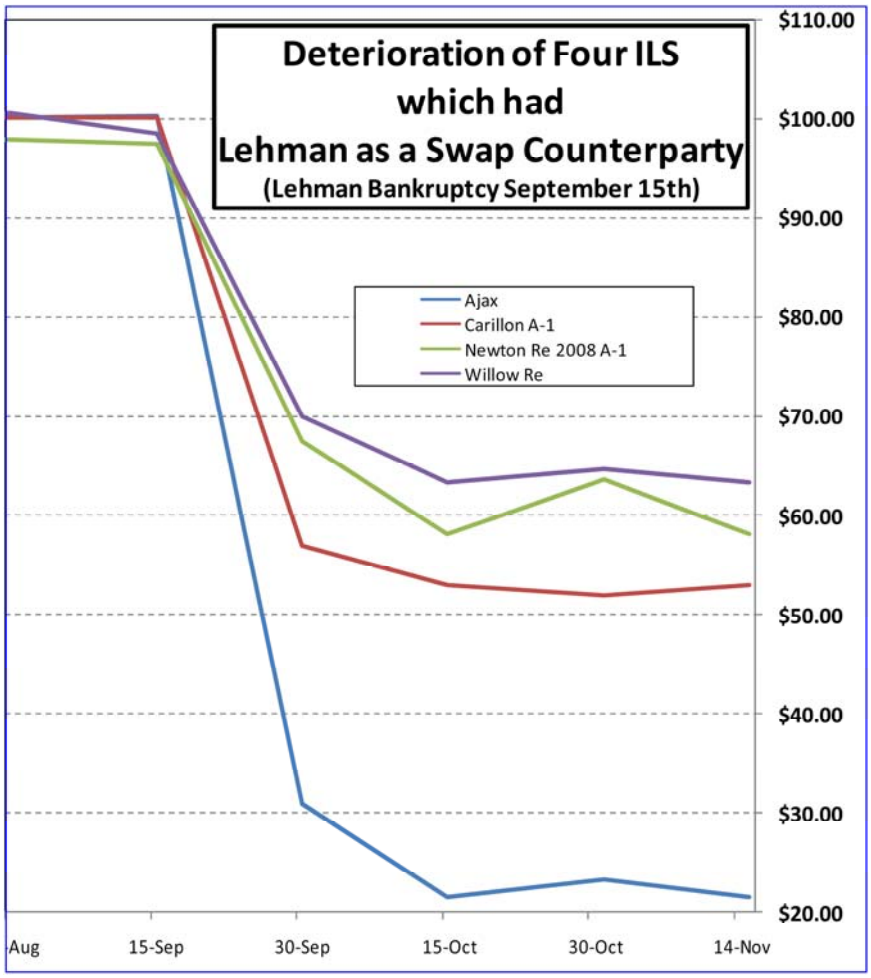
118. In addition to the various features described above, all four bonds benefited from Total Return Swap arrangements entered into with Lehman Brothers Special Financing, a subsidiary of the investment bank Lehman Brothers.

119. Lehman Brothers declared bankruptcy in September 2008. The bankruptcy triggered the termination of the Total Return Swaps, which acted as a credit enhancement tool for both cedants and investors. The swap arrangements committed Lehman Brothers Special Financing to paying fixed interest rates to investors, i.e., Libor + set spread (interest rate swap element of the total return swap), and to make up for any funding deficiency experienced by the funds held by the SPVs to cover for any losses experienced by the sponsor –or to pay back the principal to investors at maturity.

[36] For information on Ajax Re, Carillon Re, Newton Re and Willow Re please refer to: Lane and Berwick (2009); Lane Financial (2008; various issues of Trading Risk magazine; various press notes by credit rating agency Standard and Poor's and various news agencies; and The Alternative Risk Transfer Internet Portal, Artemis, at www.artemis.bm.

120. The Lehman Brothers bankruptcy severely affected the structure of the four securitisation arrangements, changing the fully funded nature of the transaction, and triggering a series of security downgrades by the rating agencies. Also, as Exhibit 13 below illustrates, the secondary market value of the bonds dropped dramatically

Exhibit 13 – ILSs and the financial crisis[37]



121. It is important to remember that, as discussed in previous sections of this report, credit enhancement arrangements are not directly affected by the materialisation of the insurance risks transferred to the capital markets via the SPVs. However, credit enhancement arrangements could be indirectly affected by loss events. In fact, the fluctuations in the value of the cat bonds illustrated above bear no direct relation to the insurance risks that gave birth to the securitisation arrangements. The impact was purely on the assets of the insurance securitisations and highlights the difficulty in ensuring that such structures remain fully funded through their life.

122. With respect to the ***interest rate element*** of the Total Return Swap, all four cat bonds lost the ability to guarantee a fixed return to investors. Further, as investors have a subordinated right to the SPV's funds –these are there to provide coverage for the cedant first- the return to investors became dependent on the return on the assets in the SPV. Moreover, as these assets' ability to yield return was severely eroded due to market conditions, the SPVs lost the ability to deliver to investors the return they had committed to

[37] Lane (2008).

deliver. As a consequence, in the case of Willow Re, as the bond's coupon became due, the bond defaulted on its obligations.

123. With respect to the ***principal element*** of the Total Return Swap, all four cat bonds lost the ability to guarantee a committed level of funding. Different from the interest rate issue which affected investors in the bond, this has serious implications for both investors and cedants. An SPV's funds, it should be remembered, are there to protect cedants from losses emerging from the insurance risks ceded, and, should no loss occur, funds are there to be returned to investors. As was the case with the interest payment, the adverse market conditions generated deterioration in the value of the assets held in the SPVs. As bonds matured, the SPVs became unable to return principal to the investors.

124. It is also important to note that in the case of Ajax Re, funds invested in collateral to secure the swap arrangements included bonds issued by another SPV called Ballantyne Re (see section on Ballantyne Re below), a life insurance securitisation. This highlights the potential exposure of contagion risk in insurance securitisations, a key risk exposed by the financial crisis in banking securitisations.

125. As the illustration above shows, the secondary market value of the four cat bonds analysed dropped dramatically after the bankruptcy of the financial institution acting as counterparty to the Total Return Swap. However, while the value of three of the four bonds was almost halved (i.e. Carillion, Newton Re and Willow Re), one bond lost four-fifths of its value (i.e. Ajax Re –see below for additional analysis on this point).

Insurance securitisations and the current financial crisis (Part II): Ballantyne Re and Orkney Re II

126. One of the principal differences between non-life and life (re)insurance is the duration of the liabilities. The duration of the liabilities has a direct impact on the life span of insurance securitisations, becoming an issue that needs to be considered carefully by supervisors, particularly in relation to the fully funded requirement through the SPV's lifespan and to the risk management and corporate governance processes applicable to insurance securitisations.

127. Ballantyne Re plc was formed as a public limited company in Ireland in November 2005 and as a special purpose vehicle for the limited purpose of reinsuring portions of a defined closed block of term life insurance business reinsured by Scottish Re (U.S.) Inc and issued Class A, B, C and D Notes, the Preference Shares and the Class A Ordinary Shares. The defined block of business consists of business that was originally reinsured through 68 separate treaties with 23 different ceding insurers. As Ballantyne Re plc was set up prior to the transposition of the Reinsurance Directive in Ireland it was therefore subject to regulatory notification under Section 22 of the Insurance Act 1989 (and amendments). The purpose of Ballantyne Re plc was to issue securities to investors, the proceeds of which would be used to fund Regulation XXX statutory reserves in excess of the actuarial determined economic reserves for the block of closed business. The reserves were expected to payout over 30 years.

128. Ballantyne Re had a credit enhancement arrangement in place covering some, but not all, of the securities issued. However, in contrast to the cases highlighted above, this arrangement was a credit insurance coverage (a so-called wrap) provided by financial guarantee insurance companies Ambac Assurance UK Limited and Assured Guaranty (UK) Ltd.

129. Ballantyne Re's investment policy allowed for assets to be invested in different credit qualities for the respective accounts held within the SPV as collateral for the different classes of securities issued. A significant amount of the assets in Ballantyne Re was held in

subprime and Alt-A mortgage backed securities[38]. As the market value of these assets declined significantly, Ballantyne's Re assets suffered substantial impairment and the market value of the securities issued by Ballantyne Re also declined (these declines contributed to deepen the drop in the value of funds held by Ajax Re, analysed above).

130. In addition to the impact on Ballantyne Re, the financial crisis also had a significant impact upon the financial fortunes of Scottish Re Group in 2007 and 2008. The impact of the deterioration in assets held by Ballantyne Re also had a knock on effect on the ability of the cedant in receiving regulatory credit for the coverage offered by Ballantyne Re. The Ballantyne Re case again highlights the difficulty in ensuring that an SPV remains fully funded throughout its life, particularly when the liabilities have a long duration.

131. Scottish Re's business model involved the origination of blocks of business that could be packaged and sold to the capital markets. Another SPV sponsored by Scottish Re was Orkney Re II in late 2005; it too suffered impairment in asset values. In addition to the issue of how an SPV that is initially fully funded can be affected by declines in asset values, the cases of Ballantyne Re and Orkney Re II raise questions with respect to the investment policy of these vehicles, and more generally, to their relation to the overall proposed return to investors. It is to be noted that in both of these cases the challenges related to investment risk rather than underwriting risk.

132. The cases discussed above touched on some of the key impacts that the current financial crisis had on the insurance securitisation market. Moreover, as Exhibit 9 above shows, there was a marked drop in market activity (i.e. USD15.5 billion issuances in 2007 against USD4.1 billion in 2008).

133. Importantly, the financial crisis appears to have also had an effect on the structuring of insurance securitisation arrangements. For examples, issuances in 2009 have privileged conservativeness with respect to the SPV investment approach (e.g. investment portfolios focused on US Treasury securities). In addition, and with respect to investment practices, there are emerging signs of increased stringency (e.g. stricter rules on admitted investments, on investment replacement, on top-ups, etc.) and transparency (e.g. more frequent disclosure of investment portfolio data as well as wider disclosure of the data, e.g. reaching investors, potential investors, intermediaries, etc.).

5 Conclusions

134. The market for cross-sectoral transfer of insurance risk into capital markets has experienced growth over the past decade. Although it is still relatively small when compared to traditional reinsurance there is evidence that the upward trend is likely to continue, generating more volume of business and eroding market share to traditional reinsurance, especially in relation to new capital.

135. Cross-sectoral risk transfer appears to be benefiting the insurance and reinsurance markets. By generating additional capacity, it has exercised some, although modest, counter-cyclical effects as well as contributing to more competitive markets.

136. On the capital markets side, it has provided a diversified investment alternative for market participants. Furthermore, as the risks transferred are in mostly catastrophe risk, investors find an additional apparent appeal in the little correlation that these products have when compared to traditional investment products[39].

[38] Alternative A-paper, or Alt-A, are mortgage-backed securities which are considered of less risk than subprime mortgage-backed securities but riskier than Á-paper or prime mortgage-backed securities.

[39] However, cat bond secondary market prices showed correlation to traditional bond market prices during the period following the bankruptcy of investment bank Lehman Brothers (Lane and Berwick 2008).

137. The growth in breadth and depth of cross-sectoral risk transfer has been accompanied by developments in regulatory and supervisory frameworks. The creation in law of the category of the (re)insurance special purpose vehicle is evidence of this. These developments however, have been uneven.

138. Empirical evidence, gathered over 10 years of activity, shows that cross-sectoral risk transfer between the insurance and capital market has, in general, operated successfully. It is to be pointed out however, that the overwhelming majority of the risks transferred did not materialise. Nevertheless, as the Kamp Re case illustrates, the risk transfer arrangement appears to have coped well when called to cover for the losses experienced by the cedant.

139. Although the Kamp Re example provides an encouraging illustration, the very limited number of cases in which the risks transferred to the capital markets did materialise call for prudence, as to date the body of empirical evidence in this respect is far from robust. In particular, there is very little evidence regarding casualty risk transfer (and the only example, i.e. Avalon Re, already showed not to be without problems) so it is still early days to draw any stable conclusion in this respect. As a general point, the evidence analysed in this paper seems to signal some degree of incompatibility between the long-tail nature of the liabilities and the desire for short term certainty from investors.

140. A key area of uncertainty that remains relates to the performance of non-indemnity triggers. With one exception, all bonds put under stress were indemnity bonds[40], shedding little light on the impact of the activation of modelled, parametric or other non-indemnity triggers. This area warrants more attention from the insurance supervision community as non-indemnity triggers carry with them the possibility of the materialisation of basis risk.

141. The current financial crisis has put several risk transfer arrangements under stress, generating a very instructive body of evidence. Perhaps a key finding emerging from the cases analysed is the inherent complexity of these kinds of transactions and the often unforeseen risks that complexity entails. Cross-sectoral risk transfer arrangements bring together a broad spectrum of players, interlinked by an intricate web of contractual arrangements, the soundness of which can be difficult to ascertain from the outset.

142. In addition, and of critical value, the financial crisis has highlighted the importance of sound investment guidelines and practices by special purpose insurers, which bear the obligations to indemnify the cedant for the risks assumed and, albeit in a subordinated manner, to repay investors (interests, dividends, capital, etc.). Recent market developments in this respect, and efforts towards enhanced transparency in particular, are moves in the right direction.

143. Insurance supervisors, especially those responsible for the supervision of companies ceding risks to the capital markets via special purpose insurers, face challenging tests when aiming to understand, and gain comfort with, these types of arrangements. Further, as more often than not the ceding company and the special purpose insurer reside in different jurisdictions, effective and timely cooperation among supervisors appears critical.

144. The IAIS work on the development of sound and up-to-date principles, standards and guidance of insurance supervision aim to provide insurance regulators with effective tools for understanding and supervising cross-sectoral risk transfer. As part of the process of revising and updating all of the IAIS standards and guidance papers on reinsurance, the IAIS will be publishing specific standards and guidance to the regulatory and supervisory community on reinsurance and other forms of risk transfer, including insurance securitisation.

145. Moreover, the work on reinsurance mutual recognition aims to facilitate cooperation among supervisors. Last but not least, with this first Midyear Edition of the Global Reinsurance Market Report we hope to have added value to the international supervisory

[40] The only non-indemnity bond was Kelvin Re but there is scant publicly available evidence on the loss payment experience.

community’s efforts towards enhanced macro-prudential surveillance of global, and ever more converging, financial markets.

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Appendix

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