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Introduction

Pauline Barrieu[a] and Luca Albertini[b]

There has been much said about the convergence of the insurance industry with the capital markets. Such convergence has taken many forms, and of the many attempts, some have been more successful than others. Insurance-linked securities, often referred to as ILS, have proven to be one of the most successful manifestations of this convergence, of how capital market technologies can find applications within the insurance industry, and how insurance-related risk can be transferred to capital market investors. As outlined in later contributions, there were approximately \$13 billion of tradable non-life insurance-linked securities and \$24 billion in tradable life insurance-linked securities as of the end of 2008. In addition, whilst traded insurance-linked securities are the most visible and headline-catching forms of risk transfer to the capital markets, there are a number of other forms of placement of insurance risk into the capital markets, including:

- Private placements of insurance-linked securities (also called 'club deals') which involve a small number of skilled investors, and which are estimated to be of significant size.
- Sidecars on non-life insurance risk, which reached an estimated \$6 billion of capacity after Hurricane Katrina, and found new interest in 2008 with reduced retrocession capacity being available in the market.
- Insurance-linked derivatives, which are mostly over-the-counter contracts in life and non-life risk, transacted by financial institutions, brokers and regulated exchanges.
- Weather derivatives, also available via financial institutions, brokers and regulated exchanges.
- Traded life insurance policies – life settlements – which have been warehoused in significant size by financial institutions and are being distributed to capital markets as well as private investors.
- Collateralised reinsurance and industry loss warranties (ILW), which are typically reinsurance contracts but frequently backed by capital market investors (such as dedicated insurance-linked securities investors and hedge funds) which fund the collateral posting and assume the ultimate risk of the relevant insurance events.

The outstanding capacity deployed by capital market investors on the above mix of instruments was estimated to be well above \$50 billion in 2008.

[a]London School of Economics
[b]Leadenhall Capital Partners

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Moreover, the market has been enriched by a wider and deeper range of market participants over the last decade:

- Each year, new *originators* have approached the insurance-linked securitisation market, including a number of insurance and reinsurance companies, corporations and government institutions.
- Some of these originators who have tapped the insurance-linked securities market with a transaction have then sponsored *new transactions* covering new risks or *repeat transactions* on the same perils, thus capitalising on their positive experience with the technology, and in some cases have established *risk trading units* with the task of constantly monitoring opportunities for purchasing or ceding risk to the capital markets.
- A number of *modelling* and *actuarial firms* have the ability to perform risk analysis on different life and non-life risks with the rigour and methodology needed to describe them to capital market investors.
- A growing *number of risks* have been modelled for capital market transactions, thus enriching the potential for diversified exposures for investors.
- Diverse range *investors* have approached life and non-life insurance-linked securities across the risk spectrum. Investor types have ranged from money market managers, pension funds, banks, other institutional investors, insurance and reinsurance companies to a growing number of asset management companies dedicated to investing only in insurance-linked securities risk.
- There is a larger community of *arrangers*, *financial institutions* and *brokers* who have equipped themselves for origination and structuring of transactions, secondary trading of insurance-linked securities and in some cases providing secondary market pricing indications (although not yet at the level of market making).

After a decade of continuous growth, the insurance-linked securities market is now at a stage of consolidation of its past successes and further expansion, despite the recent turmoil in the capital markets, as discussed later in various chapters of the book. However, one could argue that the actual size of the market is still very small compared to its full potential. Supporting market participants with a transparent discussion on various aspects of this market and introducing insurance-linked securities to a wider class of originators and investors are essential in making this niche market more understandable, more transparent and more accessible. This is really what has motivated us in undertaking this project and what we would like to achieve with this handbook.

The main objective of this handbook is to present the state of the art in insurance-linked securitisation, by exploring the various roles for the different parties involved in the transactions, the motivation for the transaction sponsors, the potential inherent pitfalls, the latest developments and transaction structures and also the key challenges faced by the market.

To do so, we have decided to gather specialists with different backgrounds and experts with many years of experience in this field, representing the various perspectives and aspects of this market. Each chapter is therefore a contribution by one or several experts in insurance-linked securitisation. As a result, this book presents an independent view on the sector, with contributions from some of the key market players who have agreed to support our initiative. On the other hand, due to the healthy growth of the market and to the number of credible market players, it has not been possible to include all of those institutions that would have been able to provide valuable contributions within the targeted size of this handbook.

The handbook is organised into three parts, covering the various perspectives in insurance-linked securitisation, non-life and life.

The first part focuses on non-life insurance securitisation, and has been organised so as to focus on some key aspects of this market.

We start in Chapter 2 by offering an overview of the non-life insurance-linked securitisation market, its evolution and the key general structural features.

We have then asked three key originators, each of whom has sponsored a number of transactions, to offer, in Chapter 3, the cedant's perspective on this market and outline their motivations in approaching insurance-linked securities and the latter's impact on their overall risk transfer strategy.

Insurance-linked securities can be structured in a number of different ways. One of the most noticeable differences is the type of trigger which can be used to claim a payment from the securitisation structure. The various types of trigger are outlined in Chapter 4, and Chapter 5 guides you through an analysis for cedants in assessing the basis risk impact of the choice of a specific trigger for the transaction.

As rating agencies and modelling firms have been instrumental in supporting the development of the insurance-linked securities market, and have established and enriched their rating and modelling methodology to allow the placement of new types of transaction, we have then asked a leading rating agency to outline, in Chapter 6, its approach to rating non-life risk, and a leading modelling firm to outline its risk modelling methodology as well as the structure and the benefits of its newly established indexes related to catastrophic risk in Chapter 7.

Legal considerations are at the heart of the structuring of insurance-linked securities, and a number of transactions are affected by several legal aspects of federal and state legislation in the United States. Chapter 8 offers a perspective on such legal aspects, and on how structures have been affected.

Chapter 9 then offers the perspective of investors in non-life insurance-linked securities, including the key elements that drive investors' underwriting and pricing considerations and the key issues which are currently the focus of investors' attention. In addition, given the complexities related to the management and the monitoring of an investor exposure to the different risks in a portfolio of non-life insurance-linked securities, Chapter 10 outlines the characteristic of one of the leading tools available to investors to perform such analysis.

Having reviewed some of the key aspects of non-life insurance-linked securities, in Chapter 11 we offer an outline of sidecars, their role in cedants' risk management strategies and a comparison with insurance-linked securities.

To conclude the non-life insurance-linked securities section we offer two case studies with two different types of structures: a multi-peril first event excess of loss transaction (Atlas by SCOR) and a transaction triggered by a frequency of events (Vega by Swiss Re).

The second part focuses on life insurance-linked securitisation, which requires specific focus points due to its specific characteristics.

Chapter 14 offers an overview of the background of the general features of life insurance securitisation and offers the framework for the subsequent analysis.

The cedant's perspective for life securitisation is offered in Chapter 15, in which a leading life insurer and a leading life reinsurer, both active in a number of different types of securitisation transaction, outline their approach in assessing the use and the benefits of life insurance securitisation within their own organisations and provide some background on their own experiences in the field.

Rating and risk modelling of the transactions have also been highly developed to enable underwriting and risk assessment of various types of life insurance securitisation. A leading rating agency offers a perspective on its own methodology for life securitisation in Chapter 16, and a leading modelling firm outlines its modelling approach for various types of life risk in Chapter 17.

Legal issues have influenced a number of life insurance securitisation structures in each jurisdiction, each of which in turn has its own peculiarities. Chapter 18 offers a general overview of the most common legal issues facing life insurance securitisation structuring, with an emphasis on European markets.

Although a number of investors are active in both life and non-life securitisation, there are a number of key sensitivities and focus points which are peculiar to investments in life insurance securitisation; these are outlined in Chapter 19.

A number of market participants including originators, arrangers, law firms, rating agencies and investors have analysed at length ways to transfer longevity risk to the capital markets. This process has met with a number of difficulties, but there are also a number of success stories. Chapter 20 outlines what has been achieved in the specific field of insurance-linked securitisation and the key challenges in using insurance-linked securities to transfer longevity risk. Chapter 21 outlines some of the solutions identified outside of the securitisation market, which have led to successful transactions in derivative form. The structures and indexes used could provide a basis for further evolution of this market in both securitised and derivative forms.

We then conclude the life insurance securitisation section by offering some case studies on catastrophic mortality securitisation (Chapter 22) as well as on securitisation of embedded value (or value in force) and of redundant reserves arising out of Regulation XXX (Chapter 23), for which the contributors have also offered some historical market statistics.

Part three focuses on tax and regulatory considerations affecting the insurance-linked securitisation sector. Whilst we acknowledge the specificities of each jurisdiction, this part touches on UK (Chapter 24) and US (Chapter 25) tax considerations, thus covering some of the largest markets with originators and investors in insurance-linked securities.

The handbook concludes with a perspective on the regulatory environment affecting the insurance and reinsurance industry in some key markets, the implications for the market players and the key future developments expected with the implementation of Solvency II.

In a nutshell, this handbook aims to give a general overview and expert insight on traded insurance-linked securities, this specific and relatively transparent market being considered by many as a benchmark for risk assessment and comparable pricing in other private capital market transactions involving insurance risk. Over the last decade, this market has been going through a process of constant innovation and drive to seek a balance between the needs of the protection buyers and those of the investors.

Note that, whenever we have felt it meaningful and helpful to better understand the insurance-linked securities market, we have included some references to other forms of successful insurance risk transfers. In particular, Chapter 11, dedicated to sidecars, underlines how capital markets have been fast reacting in providing significant additional capacity to a strained insurance and reinsurance industry (particularly in the aftermath of large insurance events) and outlines the differences between sidecar transactions and insurance-linked securities. On the life side, the handbook includes, in Chapter 21, a section on insurance-linked derivatives, as the risk transfer of some life risks (longevity in particular) to the capital markets has been, to date, more successful in derivative form than in insurance-linked form.

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Finally, please note that the contributions have been delivered to the publisher in January 2009, and therefore any subsequent material event affecting the subject of one of more of the chapters is not reflected in this handbook. The insurance-linked securities market is an innovative and adaptive market, evolving fast. For this reason, the publisher has made available a website www.wiley.com/go/albertini_insurance on which the editors and contributors have the opportunity to provide updates to their chapters, although these are voluntary updates and no commitment is given on regular updates before the next edition is published.

We believe that the contributors have done an excellent job and put considerable effort into providing, in a pedagogical way, the reader with their perspective on the market. We hope you will find in this book the answers to your questions on insurance-linked securities and that you will benefit from it as much as we have enjoyed and learned from this experience.

Note that the editors have assembled an impressive panel of professionals who are all prime players in the insurance-linked securities arena and are considered to be experts in the field covered by their own contribution. The editors do not share the same specific expertise in all of the fields covered by the handbook and therefore the views expressed in each contribution – which the editors believe to have been produced in a professional and diligent manner – are the views of the relevant contributor and not necessarily of the editors.