LEADING THE WAY

BERMUDA'S ILS MARKET 2016

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BERMUDA'S ILS MARKET

DECEMBER 31, 2015

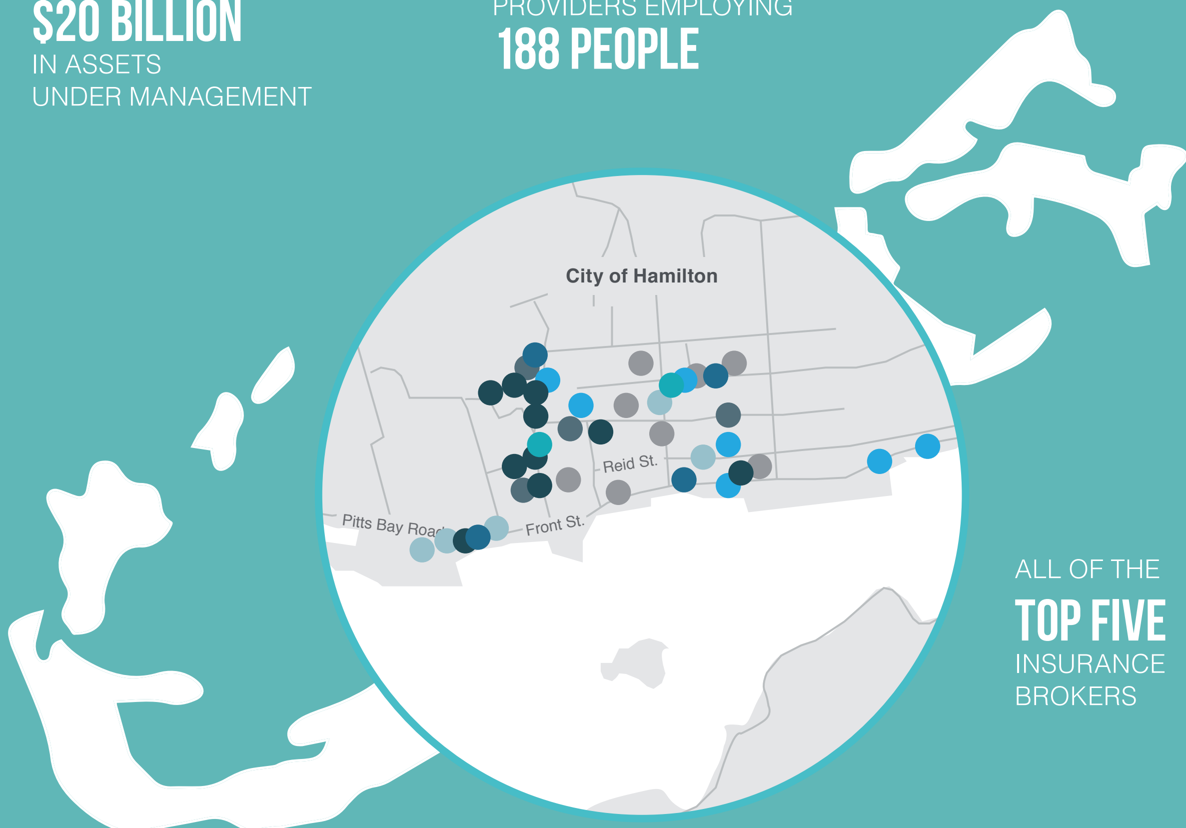
15 FUNDS
EMPLOYING
209 PEOPLE

ALL OF THE
BIG FOUR
ACCOUNTING FIRMS

36 ILS
ISSUED OVER
12 MONTHS

OVER
$20 BILLION
IN ASSETS
UNDER MANAGEMENT

25 SERVICE
PROVIDERS EMPLOYING
188 PEOPLE



ALL OF THE
TOP FIVE
INSURANCE
BROKERS

OVER
$100 MILLION
OF PAYROLL

NUMBER-ONE
JURISDICTION
FOR CAT BOND LISTING

9% OF
PEOPLE WORKING IN
"EXEMPTED"
COMPANIES
IN BERMUDA

Accounting/Audit · Brokers · Fund · Fund Services · Lawyers · Insurance Services · Other

Figure 1. Location of key firms in Bermuda's ILS market

FOREWORD

Ross Webber

CHIEF EXECUTIVE OFFICER

Bermuda Business Development Agency

The juggernaut growth of Bermuda's insurance-linked convergence sector over the past decade has positioned the island as a global industry leader.

By the start of 2016, Bermuda counted more than three-quarters of all the world's ILS listings on its stock exchange, amounting to $20 billion in global capacity.

The fact convergence found its sweet spot in Bermuda underscores what holds true for the reinsurance industry generally—that ours is a domicile where innovation, quality regulation and world-class talent are paramount. And the ILS story has really only just begun. A study in 2016 predicted the worldwide ILS and collateralised reinsurance market could more than double to as much as $160 billion by 2020, reaching almost a third of the world's total catastrophe reinsurance capacity.

While the influx of alternative capital—catastrophe bonds, collateralised reinsurance and vehicles such as sidecars—has challenged traditional markets and contributed to the depressed rates in recent years, it has also wielded an enormously positive impact. Indeed, observers agree alternative capital has enhanced the efforts of Bermuda's traditional companies to innovate and to bridge the coverage/protection gap between the full economic and the actual insured losses in underserved parts of the world, essentially providing more capital to underwrite more global risk.

But what does ILS give Bermuda? The purpose of this study was to carry out an economic impact analysis, first to examine the various island-based components of our convergence ecosystem and then to quantify their contribution to Bermuda's economy—in terms of both actual jobs created and their aggregate fiscal generation.

As an independent unit tasked with fostering an environment conducive to job and GDP growth, the BDA has an active interest in data of this kind. Economic impact is a key factor helping to guide our business-development strategies.

This study details the components that comprise Bermuda's convergence sector and, importantly, how those various parts combine to benefit the jurisdiction. The results are positive, proving the convergence sector has quickly become a pivotal and multiplying contributor to Bermuda's overall economic health.

At the BDA, we will continue to carefully monitor this sector's growth and work closely with our industry colleagues to ensure Bermuda remains at the top of its game in this hotly-contested sphere.

EXECUTIVE SUMMARY

Adam Alvarez

PRINCIPAL

Insurance-Linked

The Bermuda Business Development Agency's first study into Bermuda's ILS market confirms what those in the industry have known for many years—Bermuda enjoys a dominant position in each of the three key pillars of the global market: insurance-linked fund managers and funds; insurance-linked assets; and service providers that work with both the managers and the assets.

This study includes the results of a survey completed by 24 of the firms that are most involved in Bermuda's ILS market representing each of the key subsectors. For the first time, this has enabled us to understand how many people are employed by the market and how fast headcount is growing.

The study has also produced valuable insight into what the industry and jurisdiction are doing well and what could be done better.

It is exciting to be involved in Bermuda's ILS market at a time when it is the driving force for dramatic change across the global reinsurance industry. It is hoped that some of the findings in this study will help Bermuda to maintain its leadership position in the years to come.

Insurance linked managers and funds

More insurance-linked fund managers are based in Bermuda than any other jurisdiction. It is the home of the oldest and largest manager. Major fund managers based in other jurisdictions have subsidiary offices in Bermuda and make extensive use of its infrastructure.

Managers generate hundreds of millions of dollars of fees and employ around 210 skilled Bermudians and international workers.

Insurance-linked assets

In 2015, 75% of all insurance-linked securities were domiciled in Bermuda and 69% of insurance-linked securities were listed on the Bermuda Stock Exchange.

Bermuda also dominates the larger 'collateralised re' market. The majority of the assets in 'transformers' are based in the jurisdiction.

Service providers

The 'convergence' market is a hybrid of the asset management and reinsurance industries. It requires specialist accountants, actuaries, lawyers and brokers to provide highly customised services.

The majority of the world's specialist ILS service providers work within a few blocks of central Hamilton.

Synergy

The success of each of these pillars is supported by the other two. Bermuda's continued global dominance depends on its ability to nurture all three sectors of the market.

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EMPLOYMENT IN BERMUDA'S ILS MARKET

BERMUDA'S ILS MARKET WAS RESPONSIBLE FOR AN ESTIMATED 397 JOBS AT THE END OF 2015. THIS IS AROUND 30% MORE THAN 12 MONTHS EARLIER. OVER 50% WERE EMPLOYED BY INSURANCE-LINKED FUNDS WITH THE REMAINDER WORKING FOR THE VARIOUS SERVICE PROVIDERS.

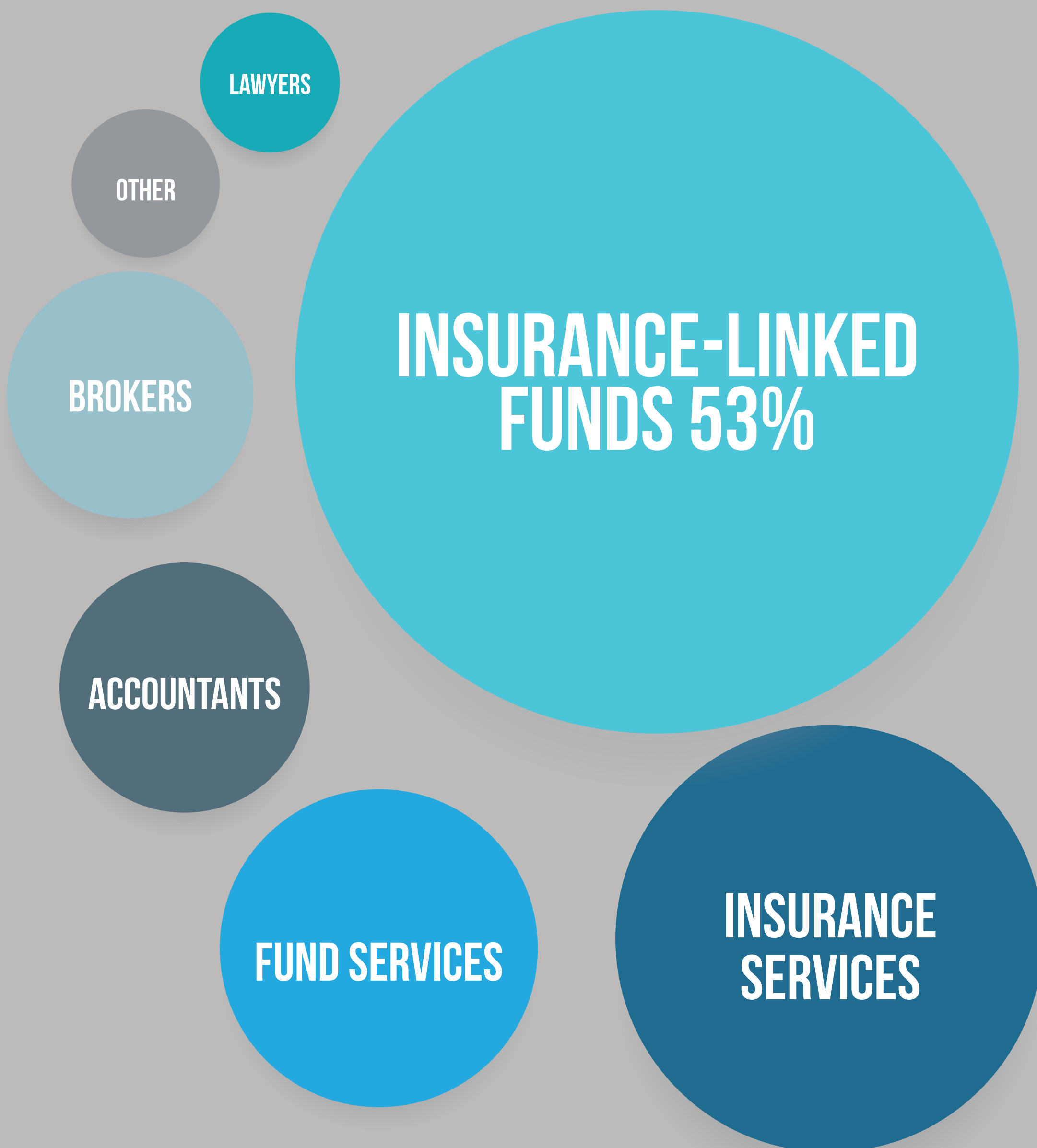


Figure 2: Subsectors of Bermuda's ILS market scaled by numbers employed

ILS MARKET OUTLOOK

Market participants are confident about the future. When asked 'How optimistic are you about the future of the global ILS market?' the average response was 4.0 out of a maximum of 5.

The market is changing at a rapid pace. The most successful firms will capitalise on the biggest opportunities and avoid the biggest risks.

The biggest opportunity was identified as developing new products that can be accessed by ILS funds.

The biggest risk was thought to be the current supply/demand imbalance in the market.

The performance (or non-performance) of funds and assets was identified as both an opportunity and a risk.

TOP-FIVE OPPORTUNITIES FOR GROWTH

1. New products

- Securitising new short-tail lines other than property cat (aviation, marine, terror, etc)'
- 'Trying to explore new avenues on the life side'
- 'Risk moving from public sector to private sector (e.g. NFIP, Pool Re, FHCF, depopulation of wind pools, etc)'
- 'Cyber'
- 'Developing solutions where traditional insurance/reinsurance has failed. Especially for large corporate entities'

2. New territories

- 'New cedents in new geographies'
- 'Development of Asian markets - China'
- 'Insurance penetration in regions where take-up rates are low'

3. Disruptive innovation

- 'Insurers cutting out reinsurers and going direct'
- 'Use of technology to capitalize on inefficiencies in the market.'
- 'Improvement in efficiency of risk transfer'

4. Post-event performance

- 'Post some significant events ILS should prove resilient and reduce much of the skepticism'
- 'Increased demand following a truly large cat event (especially if this is a somewhat unexpected/unmodelled/under-modelled loss)'

5. Investment performance

- 'Investment interest yield'
- 'Equity markets unstable'

Other

- 'Increased demand resulting from higher solvency standards'
- 'Harmonization of standards (ie, contract forms, modeling data, reporting standards)

Figure 3: Top-five opportunities for market growth

ILS MARKET OUTLOOK CONTINUED

TOP-FIVE RISKS GLOBAL

1. Supply-demand imbalance

- "Strong competition from traditional reinsurance"
- "Excess capital keeping rates soft leading to continued depressed returns"
- "Insurance fund space in general is getting overcrowded"

2. Post-event performance

- "Purchasers of coverage are not paid due to the unanticipated structural failures of a product type"
- "Perception of investors to have suffered a loss from an event which they did not get paid for"
- "Cedent dispute with Trustee / Trapped capital"
- "Surprise unmodelled losses"
- "Untested structures"

3. Regulation and taxes

- "Regulatory changes and tax law changes"
- "Regulatory over-reach by various governments including insurance in with banking"
- "Political uncertainties - restrictions in free trade"

4. Global economy

- "Deteriorating macroeconomic environment"
- "Hard landing of Chinese economy leading to economic slow-down/ recession"
- "Commodity rout"

5. Risk quantification

- "Cat bonds being seen as cash equivalents (ultimate investor not fully understanding what they are exposed to)"
- "Inclusion of new risk such as cyber, flooding that may not be fully understood"
- "Modelling"

Other

- "Outside Competition/Disrupters/ Technology"
- "Liquidity mismatch"
- "The relative returns of other alternate asset classes improving"

Figure 4: Top-five market risks

PERCEPTIONS OF BERMUDA

Top 10 most popular locations for ILS market participants

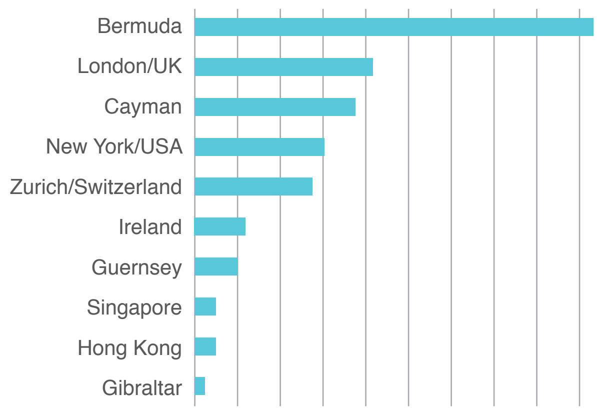


Figure 5: Ten most popular locations

Respondents were also optimistic about the future of Bermuda's ILS market. When asked 'How optimistic are you about the future of Bermuda's ILS market?' the average response was 3.9 out of a maximum of 5.

All but one respondent ranked Bermuda as their number-one location. Insurance-linked managers ranked London and Zurich in joint second place while service providers said that Cayman and the US were the next best locations.

Risks

The survey also asked respondents to identify the greatest risks to Bermuda's global leadership position. Maintaining a cost-effective and efficient platform was identified as the number-one priority.

HOW BERMUDA MAINTAINS ILS LEADERSHIP

Cost-competitive, speed to market	Stable, sophisticated Political environment	Globally-respected regulation
World-class talent	Tax efficiency	Accessible location & time zone

Figure 6: How Bermuda maintains ILS leadership

FOCUS ON INSURANCE-LINKED FUNDS

The large majority of insurance-linked assets are managed by specialist insurance-linked fund managers. These firms operate at the intersection of the reinsurance and investment industries and employ people with both types of experience. Bermuda-based and foreign managers employ an estimated 209 people in Bermuda – 5.3%[1] of the jobs in exempted companies. These jobs generate approximately $64m of payroll.

The top three jurisdictions for investors in Bermuda fund managers were North America, Europe and Asia. Close to 100% of respondents' investors were institutional.

On average (equally weighted), respondents sourced 64% of their portfolio from the US.

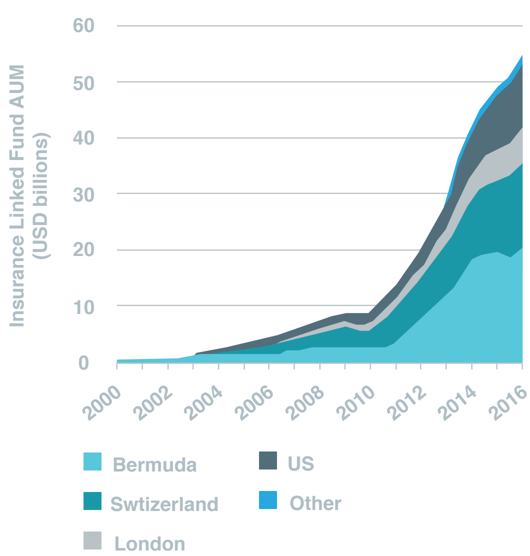


Figure 7: Growth of the insurance-linked fund managers

Globally

Insurance-linked fund managers manage about $55 billion[2]. The rate of growth was about 14% a year for the two years ending December 31, 2015. This was much slower than the previous two years in which AUMs grew by 43% per year.

The rapid growth of the ILS market has had a dramatic impact on the global reinsurance market. Alternative capacity is 19% of the global catastrophe reinsurance limit[3] and a significantly higher proportion of key parts of the market such as retrocession and US reinsurance.

Conversely, the entire ILS market is less than 1%[4] of the global assets allocated to alternative investments.

Bermuda managers

Bermuda is the most popular jurisdiction to establish insurance-linked fund managers, with 38% ($21 billion) of fund assets managed by managers with head offices in Bermuda. This proportion has shrunk over the last two years as other jurisdictions have seen more rapid growth. Much of this growth has come from managers with access to high-net-worth investors.

International managers doing business in Bermuda

In recent years, major ILS managers from other jurisdictions have established subsidiary offices in Bermuda. This enables them to have direct access to the reinsurance business that is placed on the island. 47% ($26 billion) of assets under management is managed by funds with an office in Bermuda.

In addition, ILS managers without a permanent Bermuda presence also make extensive use of Bermuda's infrastructure and service providers.

Economic impact

The fee structures for most ILS funds are commercial secrets, though it is known that there are funds with management fees of 0.25% and others with management fees of 2%. Performance fees and other costs can be additional to this.

Using 1.5% as an approximation for the total expense load of the Bermuda-based fund managers, $21 billion of assets would generate $315m of fee revenue.

A 2008 study[5] calculated economic multipliers for various sectors of the Bermuda economy. The type II multiplier (direct and induced effects) for 'international business activity' was 2.33. This takes account of how much international businesses and their employees spend in other parts of the economy.

This multiplier implies a total economic impact of $734m due from Bermuda-based insurance-linked funds.

FOCUS ON SERVICE PROVIDERS

A wide variety of highly specialised service providers support Bermuda's ILS industry. Each of them plays a crucial role in matching investments with insurance risk.

Part of the service providers' revenue derives from funds and additional revenue comes from the structuring and distribution of insurance-linked assets.

Service providers employ an estimated 188 people in Bermuda. These jobs generate approximately $57m of payroll.

Insurance services

Bermuda is the home of several firms that facilitate investors' participation in the insurance market.

Transformers

Only licensed insurance companies can sell reinsurance. A transformer allows organisations to buy shares in a cell of a company that sells a fully collateralised insurance contract.

By transforming assets into contingent liabilties, this innovation has dramatically reduced the barriers to entry into the ILS market.

Fronting

Fronting is a way for reinsurers that do not have a rating from AM Best or S&P to benefit from the rating of another company. Often, fronting is also used as a mechanism to add leverage to transactions.

More recently, fund managers have used fronting companies to access the highly regulated US insurance market. This dramatically expands the number of opportunities as the insurance market is far larger than the reinsurance market.

Insurance management

Insurance management enable vehicles to outsource the key functions of an insurance company. Catastrophe bonds and sidecars use insurance managers to carry out the functions that are defined during placement process.

Fund services

Insurance-linked funds need to perform all the same operations as other investment funds including fund accounting, investor services and corporate secretarial services.

Insurance-linked funds also require specialist services including the calculation of the fair value of insurance assets.

Accountants

All of the 'Big Four' global accountancy firms have significant offices in Bermuda. These firms audit funds, fund managers and insurance-linked securities. They also play a number of other important roles in insurance-linked securities such as loss reviews and loss reserve specialist opinions.

Lawyers

The Bermuda Bar Association lists 70 law firms that are licensed to practise law in Bermuda but a much smaller number provide services to insurance-linked managers and assets. The ILS market is concentrated in a few Bermuda firms with a global reach.

Government–industry partnership

In 2009 none of the world's insurance-linked securities were domiciled in Bermuda. That year, the Bermuda government collaborated with local service providers to introduce legislation that allowed the creation of 'Special Purpose Insurers'. This was specifically designed to attract insurance-linked securities (and collateralised insurance companies) to the island.

Since then, Bermuda has come to attract the majority of new ILS issues including 75% of those issued in 2015.

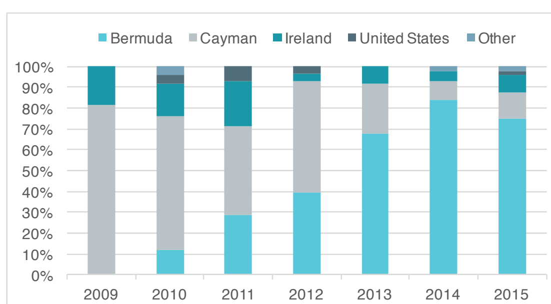


Figure 8. Number of ILS issuance by jurisdiction

FOCUS ON SERVICE PROVIDERS CONTINUED

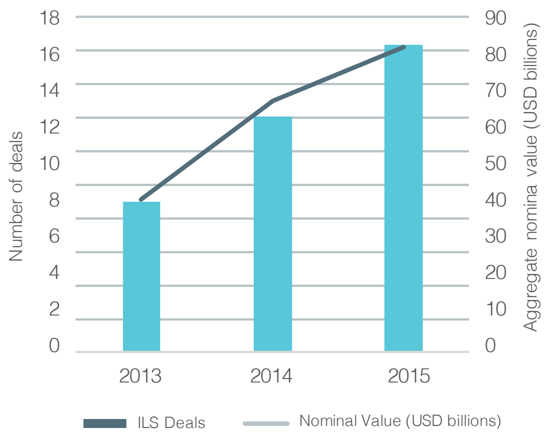


Figure 9: Growth of ILS listing of the BSX

Brokers

All five of the top five[6] global insurance brokers are represented in Bermuda and they are all involved to a greater or lesser extent in the ILS market.

These brokers use their global reach to source and structure most catastrophe bonds and almost all collateralised reinsurance transactions.

They have their own teams of accountants, lawyers and actuaries who enable market participants to quantify and transfer insurance risk.

Other

A number of other organisations enable the smooth functioning of Bermuda's ILS market .

Bermuda Monetary Authority (BMA)

The BMA regulates Bermuda's financial services sector including insurance-linked managers, funds and linked assets that are domiciled in Bermuda.

It works closely with the industry and its focus on the reinsurance industry means that it is often able to regulate new structures more quickly than would be possible in other jurisdictions.

Bermuda Business Development Agency (BDA)

The BDA is the sponsor of this report.

'The BDA is an independent, public-private partnership funded by both the Bermuda government and the private sector.

The BDA carries out pro-active, targeted marketing and business development strategies to stimulate growth in the Bermuda economy and create and maintain jobs.'[7]

ILS Bermuda

ILS Bermuda is an industry trade organisation that hosts an annual 'Convergence' event every November that gathers industry leaders from around the world in Bermuda.

The steering committee includes senior representatives from across the industry who work with the BDA to promote the industry in Bermuda and internationally.

Bermuda Stock Exchange (BSX)

'The BSX is the world's largest offshore, fully electronic securities market offering a full range of listing and trading opportunities for international and domestic issuers of equity, debt, depository receipts, insurance securitisation and derivative warrants.'[8]

The BSX has had considerable success in attracting new ILS issuances to list in Bermuda. At the end of 2015, $18.2 billion (69% of the total) of nominal outstanding issuance was listed on the platform.

Consultants

Bermuda is home to a number of specialist consulting firms. These firms work with investors around the world who are trying to understand Bermuda's ILS market.

APPENDIX

Appendix I. Scope and Definitions

Appendix II. Methodology

Appendix III. Introduction to Insurance-Linked Assets

APPENDIX I SCOPE AND DEFINITIONS

SCOPE

The BDA set the scope of this study as follows:
Bermuda's key stakeholders have welcomed a study to gather data and generally define the infrastructure around Bermuda's alternative insurance market at December 31, 2015. This collective information will help to promote the jurisdiction with tangible statistics, and also provide solid data on the market's growth and the economic impact on the Bermuda economy year-over-year.

DEFINITIONS

The sector is described using a confusing mix of terminology – alternative reinsurance, convergence capital, the ILS market – what is the difference and does it matter?

Market practitioners are quick to point out the flaws with each of these terms. 'Alternative reinsurance' seems to understate the importance of an asset class that has been established for almost 20 years; 'convergence capital' is overly vague; and ILS stands for 'insurance-linked securities' – but tradable securities are a minority of the market.

For the sake of clarity, this study attempts to define some key terms below:

'Alternative reinsurance' and the 'ILS market' are used interchangeably to mean insurance-linked fund managers, insurance-linked assets and their service providers.

'Insurance-linked fund managers' are specialist fund managers that invest in insurance-linked assets to provide investors with access to uncorrelated returns.

A small proportion of insurance-linked assets are held by generalist investors. These generalist investors were not considered by this study.

Entities that are structured to provide access to investment returns are not considered. Hedge fund reinsurers are often described as 'alternative' but their investors are motivated by different objectives.

'Insurance-linked assets' are the financial instruments that are used by investors to access non-correlating investment returns. This includes catastrophe bonds, sidecars and collateralised reinsurance, retrocession and ILWs.

Appendix III contains an introduction to these structures.

Service providers include firms that provide specialist expertise to service insurance-linked fund managers and to the structuring of insurance-linked assets. It does not include general service providers such as transportation or hospitality companies.

APPENDIX II METHODOLOGY

The aim of this study is to describe the current state of Bermuda's ILS market. Data was drawn from a variety of public sources and a questionnaire that was sent to 34 firms that are significant participants in the ILS market. The authors are grateful to the 24 firms that took the time to complete the questionnaire.

We are also grateful to a number of market experts who were able to provide additional insight through interviews.

Peter Illston led Acumen's work on this report.

In order to present a complete view of the market, various estimates and subjective judgements were made.

NOTES ON FIGURES

Data for the figures were taken from the study and expert interviews unless otherwise noted.

Figure 1: Location of the key firms in Bermuda's LS market

Source: Company websites.

Figure 2: Subsectors of Bermuda's ILS market scaled by numbers employed

Survey question: *How many full-time equivalents worked in your ILS business in Bermuda at 31/12/15?* Area of each circle is proportional to the Bermuda headcount.

Figure 3: Top-five opportunities for market growth

Survey question: *What do you see as the top-three opportunities for growth in the industry?*

Answers were grouped into categories and ranked (descending) in order of frequency. The quotes are examples of responses.

Figure 4: Top-five market risks

Survey question: *What do you see as the top-three risks that the global market is facing?*

See Figure 3.

Figure 5: Ten most popular locations

Survey question: *Including Bermuda, can you rank the top-five jurisdictions for your type of company?*

Five points were allocated to the most popular jurisdiction of each respondent and one point to the lowest.

Figure 6: Top-five risks to the Bermudian market

Survey question: *What do you see as the top-three risks that the Bermuda market is facing?*

See Figure 3.

Figure 7: Growth of the insurance-linked fund managers

Source: insurancelinked.com

Figure 8: Number of ILS issuance by jurisdiction

Source: BMA

Figure 9: Growth of ILS listing of the BSX

Source: BMA

NOTES

[1] There were 3,937 jobs in Bermuda's exempted business in 2014 with an average wage of $304,189 (accountancy and law firms are not "exempted" companies); Department of Statistics

[2] InsuranceLinked

[3] Guy Carpenter

[4] Institutional alternatives were $7.2 trillion in 2013, McKinsey

[5] Study by Tourism Economics for the Department of Statistics

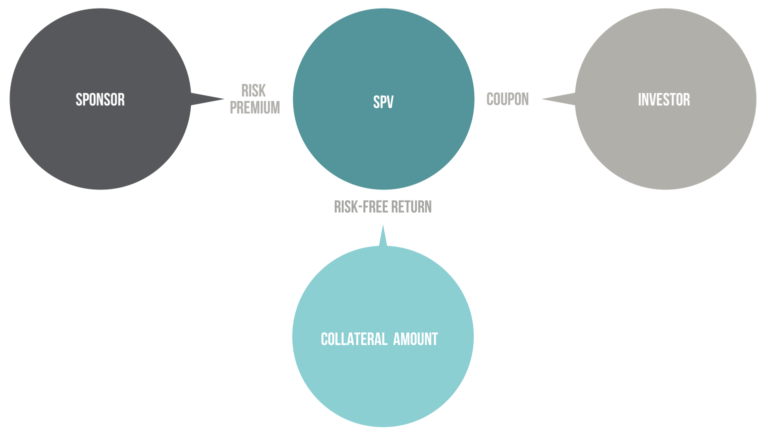
[6] Insurance Information Institute

[7] BDA

[8] BSX

APPENDIX III INTRODUCTION TO INSURANCE-LINKED ASSETS

Adapted from "Investing in Hurricanes" by Adam Alvarez



Alternative asset classes offer investors opportunities to generate returns that are weakly correlated to the debt and equity markets. Hedge funds, real estate investment trusts (REITs) and commodity funds as well as niches such as wine, art and stamp funds all promise absolute returns that are independent of the stock market.

But we live in an interconnected world and experience has shown that, in stressful times, all of these strategies are affected by what is happening in the rest of the economy.

Insurance-linked funds have experienced rapid growth in recent years by successfully making the argument that catastrophe reinsurance is an asset class that is less correlated than most. Whilst a financial collapse might cause people to buy less wine, stamps or art, it won't cause a hurricane, earthquake or tsunami.

Reinsurance is not complicated but it is full of jargon. This appendix aims to explain the types of asset that an insurance-linked fund can invest in.

Insurance-linked securities

Insurance-linked securities (ILS) are tradable, high-yielding debt instruments that are used by companies – usually insurance and reinsurance companies – to transfer insurance risk to the capital markets. A large majority of the ILS market is composed of property catastrophe bonds (cat bonds), which are typically used as an alternative to buying traditional catastrophe reinsurance.

Other types of insurance-linked security include mortality bonds, longevity bonds and XXX bonds. The securities pay periodic coupons to the investor during the life of the bonds (cat bonds typically have a three-year maturity but can range from one to five years). The coupon consists of a risk-free return (often three-month treasuries) plus a spread that depends on the risk of default and market conditions at the time of issue. The principal is at risk following a trigger event that affects the sponsoring company. A semi-liquid secondary market exists that is facilitated by a number of specialist broker-dealers. Some of these firms issue weekly pricing sheets that include guidance on the current pricing level of outstanding bonds.

The ILS market

At the end of 2015, the total value of cat bonds on risk was at an all-time high of $26.3 billion. For investors, cat bonds are attractive because their returns are largely uncorrelated with other financial markets. They have also paid higher coupons than comparably-rated corporate instruments.

Structure

Cat bonds are issued by a special purpose vehicle (SPV), typically domiciled in Bermuda or the Cayman Islands. The bond is placed with institutional investors through investment banks and the SPV invests the proceeds in highly rated assets.

The cat bond itself is issued as notes by the SPV. These notes are often given a rating by an agency, such as S&P, which will give guidance on the risk of default. The coupon that the notes pay out is funded by a combination of the 'risk-free' returns generated by the collateral, along with the premiums paid by the issuer. If no trigger event occurs during the life of the bond, the SPV returns the entire principal to the investor at maturity. If the bond is triggered, the SPV liquidates the assets and pays the sponsor all, or part, of the proceeds.

Property catastrophe bonds

Property catastrophe bonds are the largest part of the insurance-linked securities market. Insurers and reinsurers sponsor cat bonds to hedge the risk of very large losses from events such as hurricanes and earthquakes.

Investors can buy bonds on either the primary or the secondary market. The principal is at risk in the event of a catastrophe that affects the sponsoring company. Following a trigger event, the principal will be released to the sponsor to enable it to pay for financial losses (the claims they receive from their policyholders).

For sponsors, cat bonds offer an attractive alternative to standard catastrophe reinsurance for low-frequency, high-severity catastrophes. The benefits of cat bonds include the tenor (cat bonds are usually multi-year deals compared to annual reinsurance contracts), the security (100% of the potential liability is held in trust) and pricing (in recent years many cat bonds have been competitively priced compared to traditional reinsurance contracts).

Cat bonds are structured to protect the sponsor from low-probability, high-severity events (analogous to an out-of-the-money option). Insurers pay normal (or attritional) losses from the premium they receive from their policyholders. Catastrophe losses can be larger than an insurer's premium and can threaten its capital. Cat bonds can be used to reduce the capital that an insurer is required to hold by regulators and rating agencies.

Occurrence cat bonds respond to a single large event. Following a large event, either the sponsor calculates the total losses from pre-agreed lines of business or an index is calculated by a third party. If this number is greater than the attachment point of the bond, it will default. A complete default will occur if this number is greater than the exhaustion point.

Aggregate cat bonds work in a similar way except that losses from all events in a period are aggregated. If this amount is greater than the attachment point it will default.

Less common structures include bonds that pay out following two or more large events.

Sidecars

Sidecars are another vehicle that enable investors to access insurance returns without taking market risk. They are a collateralised version of quota-share reinsurance. Sidecars typically have a tenor of a few years and provide investors with the returns of all or part of a reinsurer's portfolio. Originally, they were used as crisis capital by reinsurers, but they are increasingly becoming a form of fund management by reinsurers.

Sidecars typically have two types of fee – a management fee (or over-rider) and a performance fee (or profit commission).

Collateralised reinsurance

Collateralised (or unrated) reinsurance is sold by reinsurers that lack credit ratings. All of the collateral that could be needed to pay claims is held in a trust account. These structures are implemented by catastrophe bonds and insurance-linked funds as they can be used to transform investments into reinsurance.

For example, a fund could sell a reinsurance contract with a maximum downside of \$10m for a premium of \$1m. The fund will place \$9m of collateral into a trust account and the insurance company will pay \$1m of premium into the same trust account. The most likely scenario is that there is no claim and at the end of the policy period, the fund will take back its \$9m along with the \$1m of premium (an 11.1% return). If there is a full loss, the insurance company will be able to draw down \$10m.

This financial innovation has dramatically reduced barriers to entry to the reinsurance market. A bank in Brazil or a pension fund in Canada is able to sell reinsurance policies to an insurance company in Florida or Japan using a low cost 'transformer' that converts an investment into a reinsurance transaction.

ILWs

Industry loss warranties are similar to excess of loss reinsurance but the contracts respond to the losses of the total industry rather than the losses of a particular company. Any figure for total industry losses will be an estimate and the contract will specify which estimate to use. In the US, the loss estimates calculated by the Property Claim Services (PCS) are usually used. Elsewhere, it is common to use estimates provided by Swiss Re or Munich Re.

ILWs can be structured on either an aggregate or an occurrence basis and PCS produces loss estimates for homeowners, commercial and auto claims on a per state basis. This gives considerable flexibility in structure. A \$10m occurrence ILW with a €5 billion xs €10 billion European wind trigger would pay a claim of up to \$10m in proportion to a single loss between €10 billion and €15 billion. Equally a \$10m aggregate ILW with a \$10 billion xs \$20 billion trigger might pay an amount based on the total annual losses in Texas, Louisiana, Mississippi and Alabama.

A key advantage of ILWs is speed of execution. It is possible to sell an ILW without knowledge of the business of the protection buyer. This means that significant transactions can be agreed in a matter of hours. This ease of execution means that the ILW market has lower barriers to entry than the UNL market. The resulting supply-side pressure means that ILWs often sell for a lower price than an equivalent UNL cover.

A significant disadvantage for the protection buyer is the introduction of basis risk. This describes the mismatch between the insurance company's losses and those of the industry as a whole. For a variety of reasons, it is possible for a catastrophe to cause a relatively small loss to the industry as a whole but a disproportionately large loss to a particular insurance company (or vice versa). This is one of the reasons why ILWs make up a relatively small part of the market.

CONTACT DETAILS

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