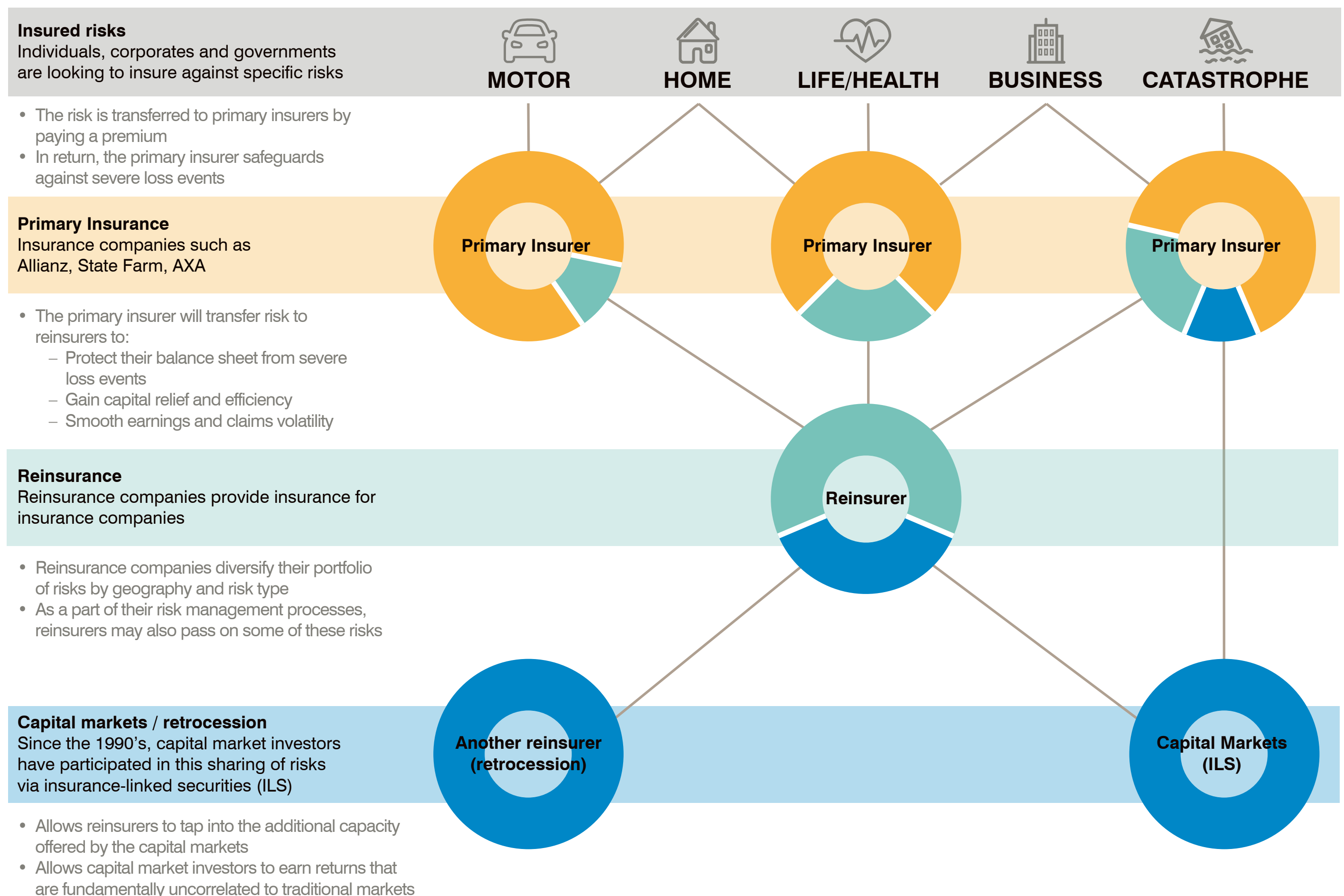
INTRODUCTION TO CAT BONDS

Marketing material for professional/institutional/certified investors

In a world of specialist asset classes whose ‘alternative’ status has been undermined by correlations with other risk assets, catastrophe (“cat”) bonds offer diversification on a fundamental level. Because their pricing is not driven by economic or corporate events, returns from cat bonds are largely independent of mainstream markets, making them attractive to investors looking for portfolio diversification and protection from broad financial market volatility. Moreover, cat bonds typically offer higher yields than similarly rated traditional securities, with the potential to generate stable, attractive returns with low volatility.

Figure 1: Insurance, reinsurance and ILS



Source: GAM, Fermat, Swiss Re. For illustrative purposes only

GAM Investments

What are cat bonds?

Cat bonds, a type of insurance-linked security ("ILS"), are fixed income instruments issued primarily by insurers and reinsurers ("re/insurers") to transfer to investors exposures from potentially large insured losses associated with natural catastrophes.

For issuers, ILS represent an alternative to the traditional reinsurance market: instead of passing catastrophe risk on to reinsurers by buying reinsurance, a cat bond issuer aims to transfer it directly to the capital markets, where capacity for such risks is greater.

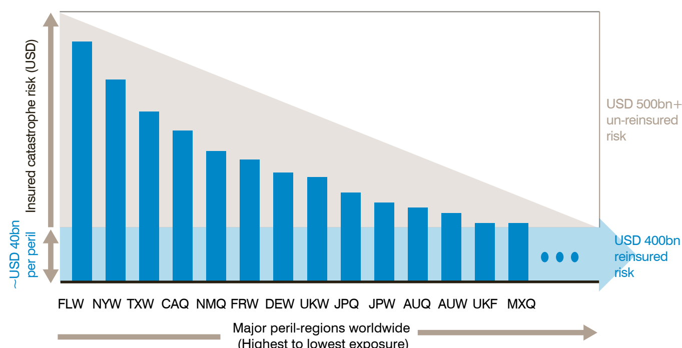
For investors, cat bonds have the potential to provide attractive, steady returns that are fundamentally non-correlated with traditional asset classes – a market crash cannot cause a hurricane or earthquake to occur – and this inherent isolation has proved popular with alternative-seeking investors. Principal is redeemable at maturity in the absence of default, which is typically linked to the occurrence of a well-defined natural disaster, such as a Miami hurricane or a California earthquake.

The origins of the asset class

The ILS market was born in the 1990s after two events in the US – 1992's Hurricane Andrew in suburban Miami and 1994's Northridge Earthquake in suburban Los Angeles – caused a near collapse of the reinsurance markets in Florida and California. Reinsurers at the time had not appreciated nor modelled for the increasing concentration of property that had occurred in these fast-growing, high-risk zones in the preceding decades, and were grossly underprepared to meet the cost of catastrophic disasters that were insured. This 'disaster gap' as it is known – the gap between losses that are insured but not reinsured – was large and continues to grow to this day.

The blue bars in Figure 2 illustrate what the insured losses could be for a significant natural catastrophe in specific risk zones. For example, a catastrophic Florida hurricane (FLW) could cause upwards of USD 250 billion worth of insured losses. However, reinsurance companies, like the insurance companies they support, are regulated and rated based on a risk spreading approach – so that no single risk threatens the capital adequacy of a company – and therefore must keep a rectangular risk profile worldwide (shaded green area). Continuing with the Florida hurricane example, this means only circa USD 40 billion of that potential USD 250 billion loss can be covered by reinsurance, creating the 'disaster gap' that exists not just in Florida, but in risk zones across the globe, and is fundamentally unserviceable by the traditional reinsurance market.

Figure 2: The 'Disaster Gap' between insurance and reinsurance



Source: Fermat Capital, Applied Insurance Research, Guy Carpenter, Aon Benfield Securities. For illustrative purposes only. Diagram is incomplete and not to scale. Peril-region key: FLW, US Southeast hurricane; NYW, US Northeast hurricane; TXW, US Gulf Coast hurricane; CAQ, California earthquake; NMQ, US Central earthquake; FRW, French windstorm; DEW, German windstorm; UKW, UK windstorm; JPQ, Japanese earthquake; JPW, Japanese typhoon; AUQ, Australian earthquake; AUW, Australian cyclone; UKF, UK flood; MXQ, Mexico earthquake. The views are those of the manager and are subject to change.

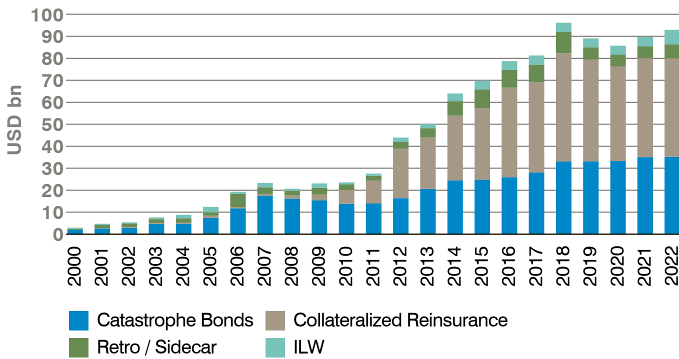
This gap is rapidly growing. We estimate that currently the disaster gap stands at approximately USD 500 billion and is doubling every 10 years, as property concentration in risk-prone areas, and the cost of reconstruction, continue to rise. Additionally, regulatory and ratings-agency capital adequacy requirements for reinsurers are becoming even more stringent.

The substantial risk capacity that cat bonds offer the broader re/insurance market provides an efficient solution to this disaster gap problem, with reinsurers willing to pay an attractive structural premium to transfer the risk off their balance sheets to the capital markets in order to continue providing coverage to the areas that demand it most. By providing multi-year protection against events so large that the solvency of any traditional reinsurer would be called into question, cat bonds support the efficient functioning of the global re/insurance marketplace and provide critical finance for vital economic activity.

How big is the cat bond market today?

The rapid change in catastrophe reinsurance pricing following Hurricane Andrew and the Northridge earthquake drove equally rapid growth in the issuance of cat bonds. Since the market's inception in the late 1990s, the volume of outstanding bonds has continued to grow. Despite its expansion so far, today the ILS market still covers only 15-20% of the disaster gap, offering attractive growth potential.

Figure 3: ILS market growth

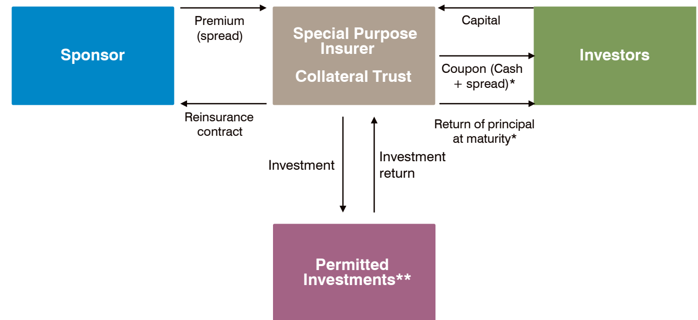


Source: Fermat Capital Management, LLC, and Aon Benfield Analytics. Data and projections as of 31 December 2022. There is no guarantee that forecasts will be realised. The mentioned financial instruments are provided for illustrative purposes only and shall not be considered as a direct offering, investment recommendation or investment advice. The views contained herein are as of the date of this presentation and may not reflect the views any time thereafter. Past performance is not a reliable indicator of current or future trends.

How do they work?

In a typical cat bond structure, the issuer sponsors the creation of a special purpose insurer (SPI). The cat bonds themselves are notes issued by this SPI and are typically short duration investments with an average maturity of 3 to 5 years. Cat bonds are fully collateralised with transparent structures and strict collateral rules designed to limit unwanted counterparty or credit risks. Unlike a corporate bond, where money raised at issuance goes onto a corporation's balance sheet, with a cat bond it is typically held in AAA-rated securities such as US Treasuries. If catastrophic event criteria as set out in the bond's offering document are met, then some or all of the bond's collateral is passed on to the sponsor, for example an insurance company, helping it to pay its liabilities.

Figure 4: Typical structure of a cat bond.



Source: Swiss Re, Fermat Capital. For illustrative purposes only.

* In the case of an insured catastrophe triggering default of the bond, future coupon payments and some or all of principal will be used to cover the sponsor's losses

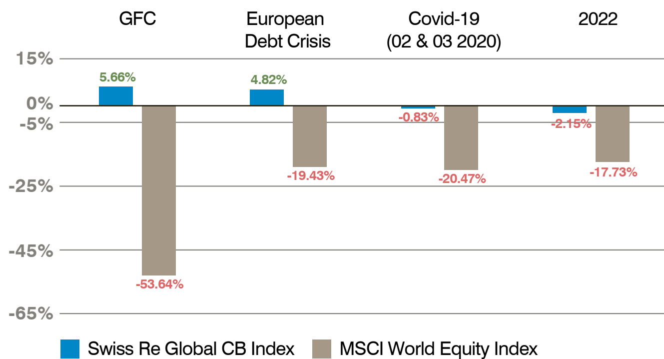
** Typically Highly rated Sovereign or Sovereign-like obligations (such as US T-Bills)

The floating rate coupons that the notes pay are funded by a combination of the returns generated by the AAA-rated securities, together with premiums paid into the SPI by the issuer. The bonds' coupon levels are set with reference to the probability of principal loss as determined by specialist catastrophe risk modelling companies. However, coupons – and subsequent bond yields in the secondary market – are also based on other factors including seasonality, investor demand, the occurrence of any recent loss events, the available supply of similar securities, and in particular, the issuer's need to transfer risk from its balance sheet.

How have they performed?

As an asset class, the performance of cat bonds has been robust and consistent through all financial crises and major natural catastrophes (eg Hurricane Katrina) of the last 15 years. With the returns of traditional and even many alternative asset classes converging significantly, cat bonds have demonstrated their ability to produce consistent and attractive structural returns, uncorrelated to other asset classes even during times of heightened market stress.

Figure 5: Performance of cat bonds during times of market stress



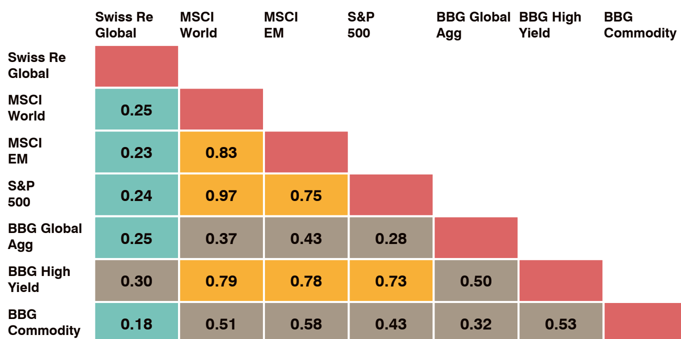
| GAM, Fermat, Mercer GIMD, and Bloomberg. Monthly time series, USD. Global Financial Crisis (GFC): November 2007 – February 2009. European Debt Crisis: May – September 2011. 2022 4 Jan – 31 Dec 2022. Indices cannot be purchased directly. Past performance is not an indicator of future performance and current or future trends.

The rapidly increasing adoption of the cat bond market by insurers and reinsurers has meant that supply, rather than demand, has historically been the primary driver of attractive pricing. In today's matured market, even in the immediate aftermath of a major event, liquidity has tended to remain high.

Demonstrated diversification

One of the key investor benefits has been the stability in ILS performance that one would expect from a fundamentally isolated asset class, with correlation of cat bonds not exceeding 0.30 to broad equity, fixed income and commodity indices.

Figure 6: Cat bonds exhibit low correlation to traditional asset classes



	Swiss Re Global	MSCI World	MSCI EM	S&P 500	BBG Global Agg	BBG High Yield	BBG Commodity
Swiss Re Global							
MSCI World	0.25						
MSCI EM	0.23	0.83					
S&P 500	0.24	0.97	0.75				
BBG Global Agg	0.25	0.37	0.43	0.28			
BBG High Yield	0.30	0.79	0.78	0.73	0.50		
BBG Commodity	0.18	0.51	0.58	0.43	0.32	0.53	

| Source: GAM, Fermat, Mercer GIMD. Monthly time series, USD. Correlation Matrix period from Jan 4, 2002 (inception) to Sep 29, 2023. Indices cannot be purchased directly.

The risks

The main risk to a cat bond portfolio is that a significant natural catastrophe hits a covered area with high insured property concentration, resulting in a multi-billion dollar insured loss. Depending on the risk and the region, this would typically be considered an event that occurs roughly once per century for that region. While the probability of such events occurring is low, they have the potential to cause catastrophic re/insurance industry losses when they happen. On a portfolio of cat bonds, this could cause losses of 15-25%.

However, as a counterbalance to such losses, cat bond rates significantly rise after major catastrophes, which severely impair the global re/insurance industry. Therefore, investors who remain with their investment may recoup losses much quicker than after a major event in traditional asset classes, such as the Global Financial Crisis, when equity markets fell 40% and took over five years to recover.

Other specific risks to a cat bond portfolio include the ability to appropriately model and evaluate risks in ILS investments and other high barriers to entry of the asset class, all of which can be managed through the use of a specialist ILS investment manager.

Cat bonds and ESG

Environmental, social and governance (ESG) factors are important to long-term investment performance in ILS, as ILS are naturally aligned with ESG principles.

Environmental considerations (E) are closely linked with ILS, as a large majority of risks underpinning investments in the re/insurance sector are weather-related. This means the ILS market is at the forefront of monitoring changes in weather extremes on economies, and accurately assessing and pricing these environmental risks is critical to a successful ILS investment strategy. ILS plays an increasingly important role in society (S), helping to stabilise insurance markets by broadening the mutual sharing of risks across a larger and deeper capital pool. These instruments also enable re/insurers as well as government entities to manage systemic catastrophe risks with an efficient, pre-event approach, which requires higher transparency and risk disclosure standards from these ILS sponsors (G).

Portfolio application

Given their low correlation to mainstream assets and the potential for consistent, attractive returns, an allocation to cat bonds could potentially provide a rapid improvement to the risk/return profile of a typical investment portfolio.

Accessing the asset class

While there is no investable cat bond index, an investor seeking simple exposure could do so through one of the many broadly diversified cat bond and ILS investment funds on the market. However, gaining exposure to the full benefits of the cat bond market is best achieved, in our opinion, through an actively managed portfolio that concentrates on certain risks that tend to be most consistently rewarded, and that attempts to avoid some of the less well-modelled and more poorly compensated risks in other parts of the insurance market.

While growing, cat bonds remain a relatively niche market. Active investment management requires a combination of specific resources and experience, of the type offered by a small number of specialist investment managers. The proportional benefits of choosing an active strategy are hard to overstate. The best active cat bond managers have established a leading position over their peers in terms of analytical and portfolio modelling technology, market access and size. As a result, their portfolio strategies are better able to minimise the risk element of cat bonds and focus on harnessing the systemic returns that make the asset class such an attractive proposition for the long-term investor.

Having demonstrated their value to both investors and sponsors alike during the recent chaotic times, we believe cat bonds represent a permanent and growing source of capital for managing the world's insurable catastrophe risks and may possess the dynamic needed for a substantial market growth trajectory ahead. With a unique set of drivers, the benefit of being fundamentally uncorrelated with the broader market, and continued economic turbulence, ILS are filling the disaster gap left by the reinsurance industry while offering genuine diversification for investors.

Key potential benefits of cat bonds

Stable source of alternative returns: ILS and cat bonds can provide an efficient and scalable solution for re/insurers to transfer insurance risk from their balance sheets to capital markets, while seeking to offer steady, attractive risk-adjusted returns in a low yield environment to investors.

Diverse return sources: returns are linked to the occurrence of catastrophes – such as earthquakes or windstorms – rather than economic drivers and therefore cat bonds tend to perform independently of traditional asset classes that many institutional portfolios will have exposure to.

Low exposure to traditional risk: cat bonds and ILS are one of the few investment opportunities that offer investors a consistent yield with low exposure to credit, interest rate and financial market risk.

Index Descriptions:
Swiss Re Global Cat Bond Index – The Swiss Re Global Cat Bond Performance Indices are a suite of indices designed to reflect the returns of the catastrophe bond market. This index tracks the aggregate performance of all catastrophe bonds issued offered Rule 144A. The index captures bonds denominated in any currency, all rated and unrated cat bonds, outstanding perils, and triggers.

MSCI World Index – The MSCI World Index is a broad global equity benchmark that represents large and mid-cap equity performance across 23 developed markets countries. It covers approximately 85% of the free float-adjusted market capitalization in each country and MSCI World benchmark does not offer exposure to emerging markets.

Eurekahedge ILS Advisers Index — USD Hedged Series - The Eurekahedge ILS Advisers Index - USD Hedged is ILS Advisers and Eurekahedge's collaborative equally weighted index of 30 constituent funds. The index is designed to provide a broad measure of the performance of underlying hedge fund managers who explicitly allocate to insurance linked investments and have at least 70% of their portfolio invested in non-life risk. The index is base weighted at 100 at December 2005, does not contain duplicate funds and is USD hedged. The Eurekahedge ILS Advisers - USD Hedged Index utilises the month end FX spot rates and factors in the hedging cost for all non-USD denominated index constituents. For more information, see: http://www.eurekahedge.com/Indices/IndexView/Special/637/Eurekahedge_ILS_Advisers_Index_USD_Hedged.

FTSE World Government Bond Index – FTSE World Government Bond Index (WGBI) World Index is a market-capitalisation-weighted total return index that measures the total rate-of-return performance for the global sovereign bond market in domestic currency with a remaining maturity of at least one year. The index is an investment-grade benchmark as a minimum credit quality of BBB-/Baa3 by either S&P or Moody's is required for all issuers.

Strategy Risk:
Capital at risk – All financial investments involve an element of risk. Therefore, the value of the investment and the income from it will vary and the initial investment amount cannot be guaranteed.

Credit risk / debt securities – Bonds may be subject to significant fluctuations in value. Bonds are subject to credit risk and interest rate risk.

Credit risk / non-investment grade – Non-investment grade securities, which will generally pay higher yields than more highly rated securities, will be subject to greater market and credit risk, affecting the performance of the portfolio.

Risk – Cat bonds and ILS are exposed to catastrophes through which they may suffer substantial or total losses of amounts invested. In such an event or combination of events, which may happen at any time, the portfolio's value may fall significantly and may not recover.

Interest Rate Risk – A rise or fall in interest rates causes fluctuations in the value of fixed income securities, which may result in a decline or an increase in the value of such investments.

Liquidity Risk – Some investments can be difficult to sell quickly which may affect the value of the portfolio and, in extreme market conditions, its ability to meet redemption requests.

ESG- focused investing risk – The portfolio is subject to the risk that its ESG-focused investment strategy may select or exclude securities of certain issuers for reasons other than investment performance considerations. As a result, the portfolio may underperform other portfolios that do not utilise an ESG-focused investment strategy. Certain ESG-focused investments may be dependent on government policies and subsidies, which are subject to change or elimination. Successful application of the portfolio's ESG-focused investment strategy will depend on the Co-Investment Manager's skill in implementing its rating system, and there can be no assurance that the strategy or techniques employed will be successful.

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