

Cat Bonds and Insurance Linked Securities: Review 2023 and Outlook 2024

Solidum Partners - January 2024

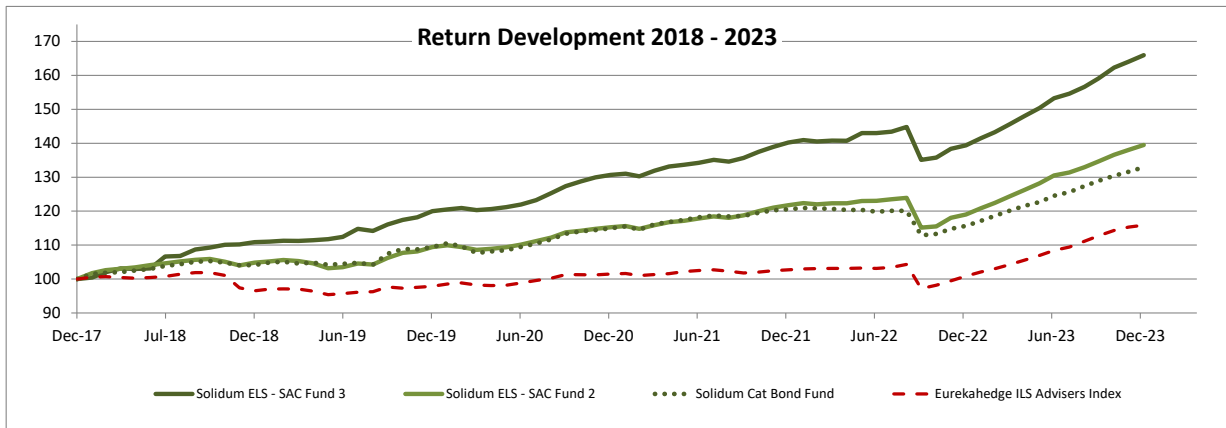
2023 was generally a good year for the insurance-linked securities asset class. On this basis, the Solidum ILS and Cat Bond funds were able to achieve an exceptionally attractive performance. The Solidum Cat Bond Fund and Solidum ELS, SAC3 ended the period with their best annual results. The Solidum ELS, SAC2, with its long performance history dating back to 2006, shows that the year is not a singular event after all. Both 2007 (due to very good market conditions following Hurricane Katrina in 2005) and 2010 (with an exceptional earnings contribution related to the active workout of a distressed cat bond), the Fund’s performance in its functional USD currency class was even higher or of the same order of magnitude.

Some of the drivers of last year’s attractive earnings are worth taking a closer look. Therefore, we would like to outline which factors had a positive impact on the development of the funds and venture an outlook on which of these factors may still be active as performance drivers in 2024. It is also interesting to look back at the event activity in the reinsurance market, as the past 12 months have burdened the insurance industry with a not insignificant amount of loss, and the good performance of the year in the ILS market is not simply a consequence of the absence of insurance catastrophes.

	2023	2022	2021	2020	2019	2018
Solidum ELS SAC 3 (USD I-1)	19.04%	-0.56%	7.27%	8.92%	8.22%	10.88%
Solidum ELS SAC 2 (USD I-1)	17.18%	-2.24%	5.62%	5.36%	4.36%	4.83%
Solidum Cat Bond Fund (USD R)	14.94%	-4.07%	4.91%	5.02%	5.10%	4.13%

Performance drivers of the ILS market in 2023

The basis for the attractive yield environment of 2023 was already laid in 2022. After a general increase of risk premia in almost all asset classes in the first half of 2022 – a consequence of central banks around the world again demanding a price for money – Hurricane Ian led to a further strengthening of the market in the last quarter of 2023. The hurricane impacted the ILS asset class with several effects, all of which worked towards higher yields: (i) the fear of imminent capital losses, (ii) an objective increase in the risk of aggregating structures due to partial erosion of deductibles; (iii) a temporary reduction in the volume of trade on the secondary market at a time of a significant oversupply of paper; and iv) a general repositioning of market participants’ return expectations towards higher compensation for the risk taken. As a result of the combined effects, the average yield to maturity in the Cat Bond market rose to its most attractive level since the end of the credit crisis more than a decade ago. The dynamics in the general reinsurance market followed a similar pattern, leading to significantly higher premiums for contracts concluded on the year-end renewals.



Concerns about the impact of Hurricane Ian on the Cat Bond market proved exaggerated in retrospect. Although there were occasional partial capital losses on bonds in the market, Ian proved to be not significant enough to cause widespread damage to the asset class. As a result, prices that previously had come under pressure returned to normal, leading to appreciation gains in the first half of 2023. The problem of deductible erosion in aggregate structures also faded with the annual ‘resets’ of the structures in the course of the year. Here too, partial capital losses occurred occasionally, especially because the Kahramanmaras earthquake in southeastern Turkey in February 2023 contributed to the damage burden for a few globally widely exposed structures. But these issues were very sporadic, and most aggregating bonds benefited from the price appreciation that accompanied the reduction of risk.

The price increases contributed to a strong market performance especially in the first half of the year and gradually faded away in the following months. Two factors, however, remained very constant throughout the reporting period. First, with money market rates above 5% in USD, the money market base of ILS instruments was noticeably contributing to yields again for the first time in several years. As the period of low interest rates had also come to an end in EUR and CHF, the fully currency-hedged EUR and CHF share classes of the funds also benefited from this development. Above all, however, it was important that the compensation demanded from investors and paid by the market for the assumption of event risk (regardless of any special effects) remained stable at a high level. The basis for the attractiveness of the ILS market therefore remains stable for the time being.

Event Activity

A good earnings situation does not guarantee a successful year for the ILS market if loss events put too much strain on the return. It would be wrong, however, to conclude from the good performance of last year that the event activity was very low in 2023. According to global reinsurance broker Gallagher Re, the global economic loss burden from natural disasters amounted to USD 357 billion, of which an estimated USD 123 billion was covered by the private insurance market or public insurance entities.¹ The insured loss was thus 11% higher than the average of the last 10 years and 37% higher than the average since 2000. Munich Re in their analysis do not take into account losses from agricultural insurance, which suffered particularly from drought conditions in the United States in

¹ Gallagher Re; Natural Catastrophe and Climate Report:2023

2023, and thus calculate 95 billion USD of insured losses, 6% above Munich Re's average value for the last decade.²

The year 2023 was characterised by the absence of extreme single-event losses for the reinsurance industry. The second most expensive event of the year (the crop losses in the United States took the lead) was the Kahramanmaraş earthquake in Turkey in February, with insured damage of slightly above 6 billion USD. This amount is rather moderate, given the severity of the incident, and is due to the low density of insurance coverage in Turkey. The total economic damage of this event, which claimed around 60'000 lives, is estimated at around USD 50 billion. In addition to private ILS contracts, this event hit the ILS market marginally through a few aggregating Cat bonds with globally broad exposure, whose deductibles had already been severely eroded by Hurricane Ian in 2022.

Although Hurricane Idalia hit Florida in 2023 as a major hurricane, i.e. a storm of Category 3 or greater, tropical cyclones in the United States did not pose any challenges to the industry. As the storm made landfall in the sparsely populated Big Bend region of the state, the damage caused by Idalia will not exceed the billion mark. This shows that even in the case of Florida, a major natural disaster does not necessarily have to cause catastrophic property damage.

However, the ILS market nevertheless suffered a small hurricane-induced damage. At the end of October, Otis made landfall on the Mexican Pacific coast near Acapulco as a Category 5 storm. This event resulted in a capital loss of USD 62.5 million on a World Bank parametric bond.

The damage caused by severe convective storms (SCS) in the USA showed a distinctly different characteristic from the earthquake in Turkey. This peril summarises severe thunderstorms with the accompanying hazards of tornadoes, hail and strong winds. The total loss was a good USD 71 billion, of which a much higher percentage was insured with the industry having to pay USD 60 billion. Twenty thunderstorm events alone resulted in insured damages of more than USD 1 billion each. It is worth noting that the total amount from this risk class was thus significantly higher than the damage caused by Hurricane Ian in 2022, but the media attention to these events remained rather low.

The level of damage activity from SCS events is both remarkable and not entirely unexpected. On the one hand, it certainly stands out clearly in the annual comparison and shows that the US actually experienced a very active tornado year in 2023. On the other hand, according to the risk models, the SCS peril class constitutes the main component of the expected annual-aggregate insured loss and distinctly exceeds the expected losses for insurers resulting on a long-term average from tropical cyclones and earthquakes. (Such an average view does not take into account the fact that hurricanes and earthquakes continue to be the most expensive single events, which by their nature, however, occur with significantly lower frequency.)

The strong growth trend of historical SCS damage is also hardly surprising. In this millennium, the damage caused by this peril increased very markedly with just under 10% p. a. Two factors can explain this trend: First, the effects of changing weather patterns due to global warming are likely to be seen more quickly in thunderstorm activity than in hazard classes with lower activity frequency. As well, however, suburban and extra-urban population areas have also expanded very strongly during the last decades, so that today a tornado can cause significant property damage that would only have

² Munich Re, Media Relations; Naturkatastrophen 2023, 9. Januar 2023

swept over farmland a quarter of a century ago. For a responsible underwriting of ILS risks in this segment, it is important to identify such trends and price them correctly. The short-term nature of ILS investments helps to be able to react quickly to new findings.

Market Outlook 2024

Cyber Risks

The market for insurance against failure or malfunction of IT systems resulting either in direct damage to an insured entity or in third party liability claims is growing rapidly. For 2023, the global premium volume amounted to approximately USD 14 billion. This figure is expected to double over the next four years and grow further to USD 50 billion by 2030. The capacity available in the traditional reinsurance market is far from sufficient to support such growth. Therefore, reinsurance companies active in this field have been trying for some years to establish special risk transfer programmes. In 2023, this segment has finally gained significant momentum, with some private transactions closing in the first half of the year and four public Cyber Cat bonds with a total volume of \$415 million being placed in the last quarter.

In the reinsurance market, new structures or coverage elements often involve an enhanced level of risk. Historically, the quality of contractual arrangements often improved only after a loss event had happened by 'learning it the hard way'. In later editions, gaps and ambiguities in the contractual wordings have been corrected by standardised clauses and clarifications. In the new class of cyber cat bonds, therefore, the question arises in particular as to whether the definitions of coverage terms will work as intended at the time when a possible event strikes. The risk is that, ultimately, every event that is "in some way or other related to IT" will be paid, regardless of where claims are arising from. In addition to these contractual uncertainties, a question remains to what extent the risk models used today are already sufficiently robust to be able to assess the risk with reassuring precision. Questions stem from the small number of historical events for the calibration of the models, as well as from the mentioned uncertainty as to whether the described (and thus modelled) risk actually corresponds to the one ultimately covered.

For these reasons, the Solidum ILS and Cat Bond Funds have not yet participated in the new Cyber Cat Bonds. However, due to the high demand for capacity in the primary and reinsurance markets, it can be expected that this segment will continue to grow in importance in the future and that market dynamics should ensure adequate risk compensation in the medium term. Therefore, this risk class and its evolution in the market are currently closely monitored by management, in particular with regard to overcoming potential 'teething problems' and establishing widely accepted and functional coverage standards. Future participation seems possible.

Spread Level of the Cat Bond Market

At the time of the last annual report, the Cat Bond market was in an exceptional state, as reported in the beginning of this report. The aftermath of Hurricane Ian led to several special effects that increased the average market yield. These special effects have largely subsided at the beginning of 2024. However, the generally attractive compensation for assumption of insurance event risk remains stable as the main effect supporting attractive yields. As a result, the Cat Bond market is not as attractive

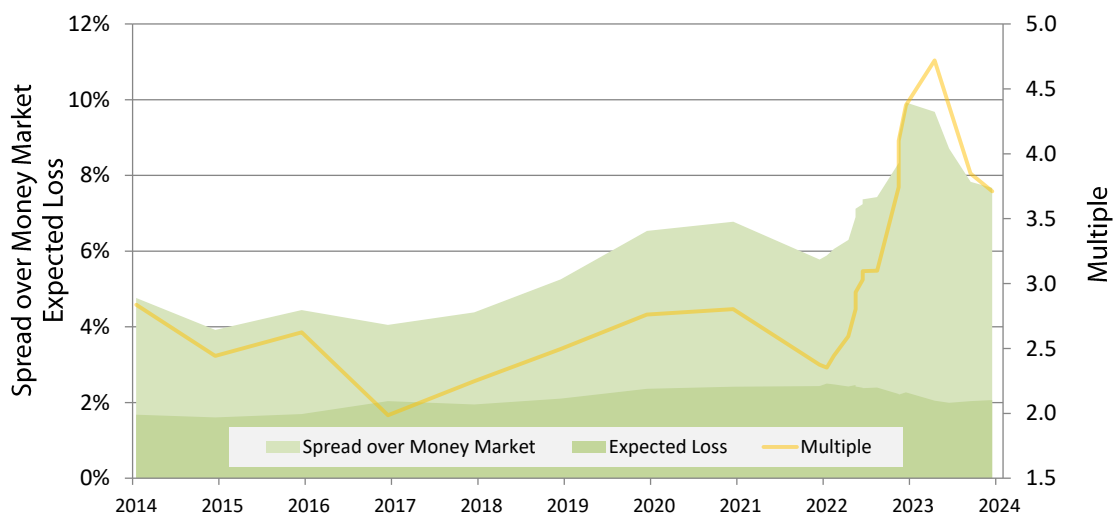
today as it was a year ago, but with an average return of 7.7% over money market and an expected loss of 2.1%, it remains at a level not reached for a decade with the exception of last year.

The quantitative analysis of the market in the chart below is based on different price sources for Cat Bonds. Mid-price yield to maturity (over money market, the instruments are floaters that pay the risk spread on top of money market returns) were calculated for each bond and weighted by issue size. "Pathological cases", where market prices remain strongly influenced by past events, as well as securities with a residual maturity of less than 1 year, have been excluded to minimise distortions. Cyber Cat Bonds have not been taken into account. The chart clearly shows the increase in risk spreads in the first half of 2022 due to the adjustment to general capital markets yield expectations and the very strong additional expansion after Hurricane Ian. After the end of Ian-related special effects, the market remains very solid at the beginning of 2024.

In addition to the generally interesting spread level, the modelled average risk of the market declined slightly from around 2.4% to 2.1% over the past 18 months, as less risky bonds tended to be issued. This had a positive effect on the 'multiple, the ratio of spread to loss expectation. The market also continues to benefit from the currently higher base interest rates, as the instruments are structured as floaters over the money market, thus providing some protection against inflation risks.

And with this the important questions about an ILS investment in 2024 can be answered as follows:

- Can the exceptional performance of 2023 be repeated again in 2024?
 - We're afraid not!
- Does the current spread level offer the potential for above-average returns in 2024?
 - Certainly!



Spread over money market and expected loss of the Cat Bond market over time.