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Fair valuing insurance-linked securities

As capital and insurance markets converge, a robust approach to fair value is increasingly needed

Over the last several years, we have observed unprecedented growth in the scope and scale of insurance-linked securities ("ILS"). A variety of structures have emerged, including securitizations, private equity, portfolio transfers, and more. ILS sponsors are developing innovative risk transfer solutions across a variety of business lines. At the same time, investor appetite is growing as asset managers increasingly recognize ILS as both an attractive total return opportunity as well as an essential part of a diversified portfolio strategy.

As the capital and insurance markets continue to converge, market participants need a robust and consistent approach to fair value measurement and disclosure. This will enable more comprehensive and precise representations of a fund's net asset value, leading to better-informed decision-making for all stakeholders.

The fair value challenge
When applying fair value principles to ILS, inputs follow an intuitive hierarchy:

- Quoted market prices
- Market-observable inputs
- Actuarial inputs / judgements

Quoted market prices are rarely observable as many ILS transactions have unique features and the underlying insured assets/perils are not identical. Thus, we must often rely on other inputs and actuarial analysis in our valuations.

Our approach
At first glance, this sounds like a daunting combination of risk modelling, industry benchmarking, actuarial analysis, and expert judgement. To help rein in the complexity and produce intuitive and transparent results, we take a pragmatic approach and break down the larger problem into tractable components. Our process is summarized below, and is illustrated on the next page with a discussion of how to apply it for a conventional catastrophe bond (although, with a few tweaks, the approach works for all varieties of ILS).

Step 1 - Recognition of earned premium

- Accrete premiums earned since prior valuation
- Reflect seasonality of earnings pattern

Step 2 - Development of incurred claims

- Update attachment probabilities
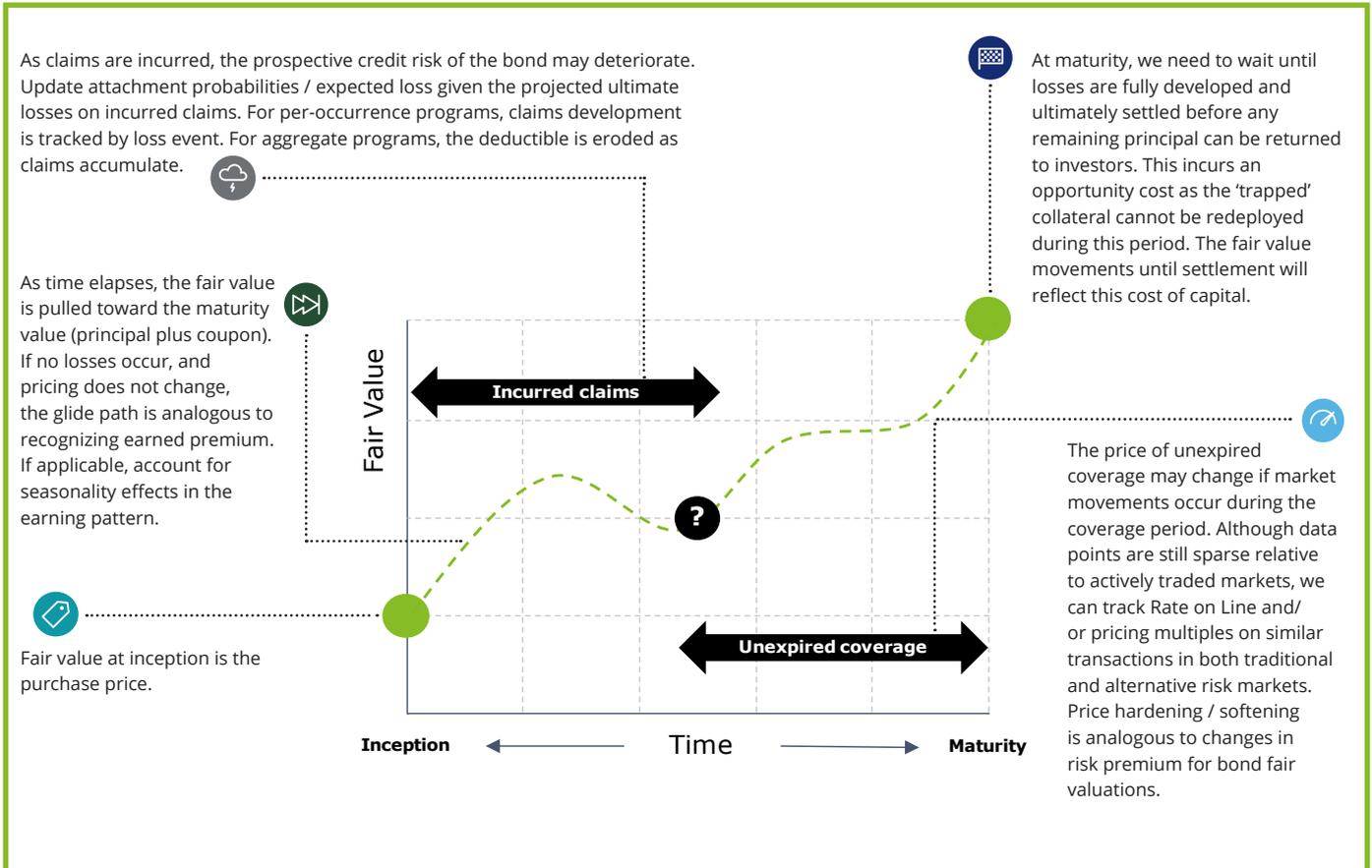- Update ultimate losses

Step 3 - Price of unexpired coverage

- Update for currently observable pricing
- Reflect movement of relevant benchmarks

Step 4 - Cost of trapped collateral

- Determine post-coverage ultimate losses
- Adjust for cost of capital while losses fully develop

Example: fair value journey of shares in an insurance vehicle

To illustrate our approach to fair valuing ILS, below we follow the shares of a conventional, indemnity-based catastrophe bond program as it reaches its maturity. We know the fair value at inception; by definition it is equal to the total consideration paid by the investor. If no losses occur, the fair value at maturity equals the principal plus specified coupon. In this base case, the fair value over time is analogous to any other discounted bond being pulled to par. However, the glide path can be very different, depending on price movements over the coverage period and loss development on incurred claims.

As claims are incurred, the prospective credit risk of the bond may deteriorate. Update attachment probabilities / expected loss given the projected ultimate losses on incurred claims. For per-occurrence programs, claims development is tracked by loss event. For aggregate programs, the deductible is eroded as claims accumulate.

As time elapses, the fair value is pulled toward the maturity value (principal plus coupon). If no losses occur, and pricing does not change, the glide path is analogous to recognizing earned premium. If applicable, account for seasonality effects in the earning pattern.

Fair value at inception is the purchase price.

At maturity, we need to wait until losses are fully developed and ultimately settled before any remaining principal can be returned to investors. This incurs an opportunity cost as the 'trapped' collateral cannot be redeployed during this period. The fair value movements until settlement will reflect this cost of capital.

The price of unexpired coverage may change if market movements occur during the coverage period. Although data points are still sparse relative to actively traded markets, we can track Rate on Line and/ or pricing multiples on similar transactions in both traditional and alternative risk markets. Price hardening / softening is analogous to changes in risk premium for bond fair valuations.

Fair Value | *Time* | Inception | Maturity | Incurred claims | Unexpired coverage | ?

How we can help

Our approach to fair valuing ILS is built on a robust technical framework and the outputs are easy to understand and communicate to stakeholders. Furthermore, we leverage our market insight and global outreach to incorporate unparalleled benchmarking and expertise into our pricing and loss development analyses. As a market leader in providing Loss Reserving services to ILS programs, and through many other diverse engagements across the financial sector, we have a wealth of experience fair valuing catastrophe bonds, collateralized reinsurance, life settlements, and many other alternative investments. We have a dedicated team of professionals equipped with extensive actuarial, accounting, and (re)insurance industry expertise. Contact us to learn more about how we can help you on your fair value journey.

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