Reinsurance and Catastrophe Bonds

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Agenda

Reinsurance overview:
• Introduction
• Purposes
• Different types

How catastrophe bonds fit in:
• Typical structure
• Common trigger types
• Sponsors, investors, issuers
• Pros and cons
• Reinsurance is insurance for insurance companies.
• Reinsurance helps ensure that insurance companies remain solvent after large catastrophes or losses.
• Insurance companies pay a premium to cede part of the risk when they purchase a reinsurance policy.
• In the event of a loss, reinsurers pay an already agreed upon share of the primary insurance company’s claims.
• Purpose of reinsurance: spread the risk to reduce exposure to loss.
• Risk travels from policy holder to primary insurer to reinsurer
Purposes of reinsurance

- Spreads risk to also spread loss
  - In the event of a large hurricane, not all the losses are concentrated within a few insurance companies.
- Allows insurer to increase risk appetite to insure larger risks
  - More risks are insured.
- Diversifies insurer’s risk
- Stabilizes insurer’s profits and losses (income smoothing), important for growing
Reinsurance methods

• **Treaty:** reinsurer covers a share of insurer’s policies.

• **Facultative:** each insurance policy gets its own reinsurance.
  • Purchased for unique or large risks, usually on top of treaty reinsurance.
  • Higher underwriting costs, more accurate pricing.
Reinsurance structures

• Proportional: reinsurer takes a proportion of the insurer’s premiums and covers that proportion of any potential claims
  • Reinsurer may also have to pay a ceding commission back to insurer.

• Non-proportional: insurance company retains $X amount of loss, and if a claim is greater than $X, the reinsurer covers that difference.
  • Similar to a deductible.
How do catastrophe bonds fit in?

- Similar to reinsurance, catastrophe bonds are another way to spread risk.
- Issued by both insurers and reinsurers to transfer risk to investors.
- They are meant to alleviate large-scale payouts in the event of major catastrophes.
  - Ex: In 2017, global insured losses were $144B from Hurricanes HIM. As a result, Munich Re, the world’s largest reinsurer cut 900 jobs.
- Cat bonds are examples of insurance-linked securities, so their values are determined by insured loss events.
Typical structure of catastrophe bonds

• Insurance or reinsurance companies, called sponsors, issue them through investment banks.

• If the impairment isn’t triggered, issuer pays a coupon to investors.

• If the impairment is triggered, the principal is forgiven and used by the issuer to pay its claims.
  • The trigger type depends on the bond.

• Cat bonds usually have maturities of less than five years.

• These bonds usually provide a return of about 5%.
Common trigger types

- **Indemnity**: cat bond is triggered when sponsor’s losses exceed some specified amount (very similar to reinsurance).

- **Industry loss index**: cat bond is triggered when the insurance/reinsurance industry collective loss from a single catastrophe exceeds some specified amount.

- **Parametric**: cat bond is triggered when the severity of the catastrophe exceeds some threshold.
  - Ex: hurricane cat bond triggered when wind speeds exceed X mph.

- **Modelled loss**: cat bond is triggered when the event parameters of the catastrophe (wind speed, temperature, rainfall) entered into a catastrophe model result in a modeled loss greater than some threshold.
Sponsors, investors, issuers

• Sponsors: property & casualty insurers, property & casualty reinsurers, corporations, government agencies hoping to find new ways of raising capital.

• Investors: mostly institutional investors like hedge funds, investment advisors, pension funds looking to diversify risks.

• Issuers: investment banks and special purpose entities of insurance and reinsurance companies.
Pros and cons to cat bonds

Pros:

• Cat bonds (and other ILSes) are not correlated to other financial instruments. Their values are determined by occurrences of natural disasters.

• They allow insurer to increase risk appetite to insure larger risks

• Cat bonds pay high interest rates.

• Cat bonds diversify an investor’s portfolio.

Cons:

• Generally pretty risky (rated BB) since they take the sponsor’s risk and transfer it to the investor.
Questions?