Reinsurance: An Examination of Its Origins, Evolution, and Impact on Solvency

June 8, 2020 1:30 p.m.
Q&A

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• Type in your question in the space provided.
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  - Very Good
  - Good
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  - Poor

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In keeping with the missions of The Institutes Griffith Insurance Education Foundation and the Katie School of Insurance at Illinois State, today’s program is strictly instructional in nature and does not support a position on any issue.
Webinar Speakers

Moderator

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Presenter

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Presenter

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Temple University

MBA, Ph.D. University of Connecticut
Member, American Risk and Insurance Association and Western Risk and Insurance Association
My ventures are not in one bottom trusted, 
Nor to one place; nor is my whole estate 
Upon the fortune of this present year; 
Therefore, my merchandise makes me not sad.

The Merchant of Venice, Act I, Scene 1
Risk Management Origins

Tomb of Mena, Thebes, ca. 1420 B.C.
Risk Management Strategies

- Derivatives used to finance war and military action, including Crusades
- Dutch auctions included cash settlements and put and call options
- Lloyd’s of London
- Industrial Revolution
Reinsurance Origins

- Cologne Re (1846)
- Reinsurance boom fueled by urban fires (London, Hamburg, Glarus)
- Reinsurance for life insurance expanded from 1854-1860
- Began in U.S. in 1837
- N.Y. State Supreme Court ruled that reinsurance indemnified the insurer but not the ultimate insured
- Foreign reinsurers admitted to U.S. business in 1898
Reinsurance Growth

• Reinsurance provided stability, enabling primary insurers to survive:
  – San Francisco Fire (1904)
  – Titanic (1912)
  – World War I (1914-1918)
  – 1918 Influenza Pandemic
• During World War II, global reinsurance became concentrated in countries that were not engaged in battle, giving rise to Swiss Re’s dominance in the industry
Reinsurance Reasons

- Tax Arbitrage
- Capital Substitute
- Earnings Smoothing
- Real Services Efficiency
# Global Reinsurance Leaders Today

<table>
<thead>
<tr>
<th>Reinsurer</th>
<th>Country</th>
<th>2018 Premium*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swiss Re</td>
<td>Switzerland</td>
<td>$34,042</td>
</tr>
<tr>
<td>Munich Re</td>
<td>Germany</td>
<td>$33,686</td>
</tr>
<tr>
<td>Hannover Re</td>
<td>Germany</td>
<td>$19,953</td>
</tr>
<tr>
<td>Berkshire Hathaway Re</td>
<td>United States</td>
<td>$16,532</td>
</tr>
<tr>
<td>SCOR SE</td>
<td>France</td>
<td>$15,803</td>
</tr>
<tr>
<td>Top 40 firms</td>
<td></td>
<td>$225,098</td>
</tr>
</tbody>
</table>

*Source: S&P Global Reinsurance Highlights, dollars in millions
Tax advantages

- Primary insurer is domiciled in a taxing jurisdiction
- Reinsurer is domiciled in a tax-sheltered jurisdiction
- Primary cedes premium to a tax-sheltered jurisdiction
  - Reinsurance cost may be lower than primary cost due to reinsurer tax position
  - Total reinsurance cost (including commissions) will need to be lower than primary insurer’s tax burden
  - Primary insurer expenses reinsurance premiums before tax
  - Transaction may allow primary insurer to write more business
Capital Substitute

- Regulator is charged with maintaining industry solvency
- Mandates minimum risk-based capital requirements
- Most years, excess capital is held in cash and low-yield securities
- It is difficult to earn the cost of capital with so much of the firm’s assets tied up in cash
- Reinsurers assume low-probability, high-attachment risks
  - More opportunities for risk diversification
  - Access to international capital markets
- Regulators permit reinsurance to substitute for capital and may reduce overall capital costs for primary insurers
Earnings Smoothing

• Primary insurers often rely on business from locations where losses could be highly correlated
  – Common weather conditions impact property losses
  – Heavy traffic or road conditions impact auto losses
  – Legal standards impact liability
• Reinsurers handle some part of the overall loss or the extreme tail
• Primary insurers maintain stable earnings
• Can impact managerial compensation and corporate bond ratings
• Reduces the need to raise new capital following a catastrophe
Real Services Efficiency and Renewal Business

- Reinsurers may have claim-handling capacity to help manage catastrophic events
- Reinsurers have advanced risk-modeling and analytical models that can help price peak risk appropriately
- Concerns about risk-shifting can be addressed through repeated contracts
  - Evidence suggests that both premiums and profits increase with the number of renewals
Reinsurance Fast Facts

- 2% of global life insurance is reinsured
- 10% of global property, liability and motor insurance is reinsured
- Hurricane Katrina would have wiped out 12% of U.S. insurers without reinsurance
- The same event would have wiped out 1/3 of the capital of 23% of U.S. insurers
- Global combined ratios for reinsurers have ranged from 91-98% since 2011
- Total global reinsurance premiums exceed $200 billion
Reinsurance Terms

- Facultative
- Treaty/Obligatory
- Pro-rata
- Excess of Loss/Non-proportional
- Rate on Line
Facultative

- Case-by-case
- Reinsurer can accept or refuse
- Primary insurer can choose which risks to cede

- Building
  - Fire
  - Theft
  - Wind

- Liability
  - Premises
  - Operations
  - Products
  - Completed Ops

- Workers
  - Comp
**Treaty/Obligatory**

- Insurer cedes some or all of a portfolio
- Reinsurer cannot refuse
- Primary insurer cannot choose which risks to cede
- Automatically renewed
- Typically for a large portfolio of similar risks
Pro-rata

- Reinsurer covers specified percentage of incurred losses
- Premium is based on a percentage of primary premiums written
- Quota share:
  - Both premiums and losses are allocated according to the specified proportion
  - Best for homogenous risk profiles
  - Ideal for capital relief situations
- Surplus reinsurance:
  - Reinsurer charges a risk-based premium
  - Reinsurer pays a percentage of losses above a specified attachment point
  - Subject to limit (specified multiplier of retention)
  - Includes a commission paid to the insurer
  - Used to limit tail risk
Non-proportional

• Reinsurer covers all losses above an attachment point to a limit
• Feature lower administrative costs and claim settlement expenses
• Excess of Loss per Risk/Catastrophe:
  – A reinsurance policy that covers the amount of the retention (deductible) for a single risk
  – Typically paid out based on annual retention achievement
  – May be based on either a single covered risk (for example, a building) or portfolio of risks (for example, all covered buildings in a ZIP code)

• Stop-loss Insurance:
  – Covers all losses by an insurer above a specific amount/deductible
  – Usually limited to very large losses where losses exceed primary premiums and expenses
New Methods of Reinsurance

- Insurance-linked Securities (Catastrophe Bonds)
Rate on Line

- Measure of relative reinsurance cost
- Premium divided by limit
- Guy Carpenter Index measures price movements over time
Case Study #1: Northridge Earthquake

- Total insured losses of $15.3 billion (1994 dollars)
  - Total of all premiums collected over 30 years
  - Insurers exited and some nearly went insolvent
- At the time, EQ insurance was a homeowners endorsement
- After Northridge, EQ were excluded
- California Earthquake Authority was formed
  - A privately-funded, publicly-managed organization
  - Can pay $10 billion in claims
  - Funded by reinsurance, contingent capital arrangements, and assessments against insurers
Case Study #2: Terrorism

- **Terrorist attacks of September 11, 2001**
  - $31.6 billion losses (2001 dollars)
  - 2/3 of losses paid by reinsurers
  - Changed probability estimates of massive terrorism losses
  - Reinsurers declined to reinsure losses in urban areas

- **Federal TRIA program (and extensions)**
  - Applies when losses exceed $200 million
  - Insurers pay 20% of all claims
  - Industry must bear up to $37.5 billion before the government covers all expenses
  - The program has a $100 billion program cap
Conclusion

- Reinsurance increases primary insurer underwriting capacity
- Reinsurance allows tail risk to be diversified through risk pooling and capital markets
- Reinsurance contracts take many forms
  - Pro-rata
  - Excess of loss
  - Treaty
  - Facultative
- Reinsurers are leaders in product and financing innovations
  - Pension liabilities
  - Catastrophe bonds
Resources for Further Information

- Guy Carpenter Global Property Catastrophe Rate-On-Line Index, published periodically on artemis.bm
Dale Bruggeman

Chief, Policy and Development, Foreign Analysis, and Administration at the Ohio Department of Insurance
Reinsurance Solvency Framework built around:

- Laws and Rules,
- Accounting and Reporting,
- RBC
- Layer in Regulatory Review – Exam and Analysis
  - the Holding company act – Form D, Sch F, ORSA
  - Use those tools to Evaluate Risks – mostly Credit, but could involve Market, Liquidity, Strategic, Pricing/Underwriting, Operations
  - Different tools for different types of companies (why?)
    - PC – cat risks, attachment points, pooling across affil companies
    - Life – mortality, morbidity, lapse, credit quality, reinvestment, disintermediation
Laws

built on the premise of ceding company getting “collateral” from the reinsurer (covering the risk of default by the reinsurer) in order to take “credit” (reduce liab/increase asset – increase surplus)

• Collateral – Money vs. Regulatory Types
  – Authorized/Licensed/Accredited = 100%
  – Jurisdictional pools = 100%
  – Trusteed = mostly 100%
  – Reciprocal (new) - Jurisdictional Review, high capital levels = 100%
    • Came from the US/EU Covered Agreement
  – Certified = NRSROs Rating 20-100% (money collateral for rest to 100%)
  – Money can be in trust cash, securities or other syndicated LOCs
  – NAIC Model Rule 787 = unique for XXX/AXXX reserves ceded to captives
    • Impacts the Ceding company to make sure the Captive Reinsurer has enough “good” assets
Accounting and Reporting

- **Taking credit involves Transfer of Risk**
  - Reinsurer assumes significant insurance risk and reasonably possible the reinsurer will have a significant loss
  - Transfer of insurance risk (esp for life) requires reins payment to depend on and directly vary with the amount and timing of claims
- **SSAPs 61R and 62R**
  - help with defining transfer of risk; mostly actuarial assumptions with parameters
    - possibility of one or more risk limiting features reduces risk of loss or timing of cash flow
  - defines when, where and what to disclose in financial statements
  - defines what to do when transfer of risk not present
  - what to do when assets are not transferred (funds withheld arrangements)
- **Blanks**
  - Schedules F (PC) and S (Life and Health)
    - Details by Reinsurer of Affil and Non-Affil, Type of Reins Contract
    - Sch F has unique calc for penalty for unauth, uncollat
RBC

- Confidential Regulatory Tool – 2 numbers public in 5 Year Historical Page
  - Generally Increase ACL for Reins Assets, Decrease ACL for Ceding Risk
    - R3&R4 – PR012 Reins Rec Collateralzd, Uncollaterlzd
    - R5 – PR018 – U/W Risk NET written premiums from Sch P
    - Rcat – PR027 and AB – Cats Net
    - C-1o – LR016 – Sch S Rx Credits, Reins Rec, offset for Funds W/H
    - C-2 & C-3a – LR025&LR027 – MODCO ceded Rx
    - Trend Test
  - RBC Estimation Tool for Regulators
    - Allows regulator to do what ifs on YE and any Qtr
Exam and Analysis

- ISite Reports (FAH and Jumpstarts) and IRIS Ratio
- Knowing your company – where are the balances, how have they changed
- Company Reinsurance Program Review
  - Exam Documentation – contract review, interviews, risk documentation
  - Sophistication
    - Business written types and locations
  - How much Reinsurance (or Retention) appetite
    - Too much/too little
      - Concentration of partners
    - Types of reinsurance
      - Is pooling involved?
  - ORSA or Form F discussion
  - Retro–cessions and Assumptions of similar business
- Regulator review of large % transaction
  - Maybe policy holder approval
- Other forms of Risk Transfer
  - Capital markets
    - Weather bonds
    - Derivatives
Question and Answer Segment

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Thank you!!

Questions or Comments?

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