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Impact of Catastrophe on the Systemic Risk of Insurers

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RESEARCH QUESTIONS AND MAIN FINDINGS

- **Analysis of the relationship between three risk measures**
- **Tail risk spillover** can be interpreted as the (expected) conditional tail loss of firm i given all other firms being in the distress state, taking into account the intensity of the direct and indirect links of the insurer to the other insures in the network
  - Follows Chen and Sun, JRI 2020
- **Reinsurance interconnectedness** measures the amount of reinsurance that an insurer receives or delivers from/to other (re)insurers
  - Follows Chen et al. JRI 2020
- **Catastrophe risk exposure** measures the intensity of insurance premiums in NatCat exposed areas
  - Follows Jung et al. 2023

COMMENT 1: Robust yet fragile network

- The basic idea of the paper is to explore which of the two measures, tail risk or reinsurance are driving catastrophe risk exposure
- What is the economic mechanism that the estimation uses to frame these dependencies?
- Financial networks: Dense network improves the ability of the financial system to deal with small shocks but increases the financial system vulnerability to large shocks
  - Acemoglu, D., A. Ozdaglar, and A. Tahbaz-Salehi, 2015, Systemic Risk and Stability in Financial Networks, American Economic Review, 105(2): 564-608
  - In this paper, the supply of liquidity dries out due to interconnectedness/insolvency. But see Chen et al. 2023.

COMMENT 2: Overlap/interdependencies of the measures

- The reinsurance and tail risk measures are treated at two independent measures
- However, they are strongly dependent in a sense that in part they measure the same exposures driven by the liability side of insurers balance sheet.
- Is it possible to create the integrated measure or isolate the systematic/industry wide vs insurer-specific measures?
- Otherwise, the documented correlations can be spurious

COMMENT 3: Endogeneity

- Endogeneity of measures used in the analysis
  - The risk exposure is the decision of the insurer
  - The reinsurance purchase is the decision of the insurer, in part depends on the availability/price of reinsurance
- Endogeneity of reinsurance decisions
  - External reinsurance has dual purpose – risk capacity and information
  - For large groups, information may be the main reason to purchase external reinsurance
  - For small companies, capacity may play the dominant role (though information is also important)
  - The current approach is unable to distinguish between these motives