

**Discussant comments on
Systemic risk, stress testing and financial contagion:
Their interaction and measurement**

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* These comments reflect the views of the author and not necessarily those of the BIS or of central banks participating in the meeting.

Systemic Risk, Stress Testing and Financial Contagion: Their Interaction and Measurement

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Motivation for the paper

- This paper focuses on some difficult and interesting questions
 - ① How can we *measure* systemic risk?
 - ② How does *contagion* between financial institutions contribute to systemic risk?

Main contributions of the paper

- The authors present a thorough discussion of past work on thinking about “systemic risk” and contagion
 - “Too big to fail”
 - “Too interconnected to fail”
 - Direct vs. Indirect contagion
- To quantify systemic risk, the authors make the point that it is better to study the distribution of losses for the system as a whole, rather than trying to aggregate losses from individual institutions.

Main contributions of the paper, cont'd

- The authors use a rich database of daily interbank exposures for the Mexican financial system
 - Contains all uncollateralized interbank lending, securities issued by other banks and credit components of derivative security transactions.
 - Available from January 2005.
- The authors then link the losses incurred by the banks to economic variables (via a VAR) and then study the impacts of shocks to economic variables on bank losses.

Comments on the paper

Comments on the paper

“Please sir, I want some more”



Comments on the paper

- I think the authors have a great data set and an important question.
- My main suggestion is only to give the reader some more details and analysis – I finished the paper wanting to read more!

The mapping from economic shocks to bank losses

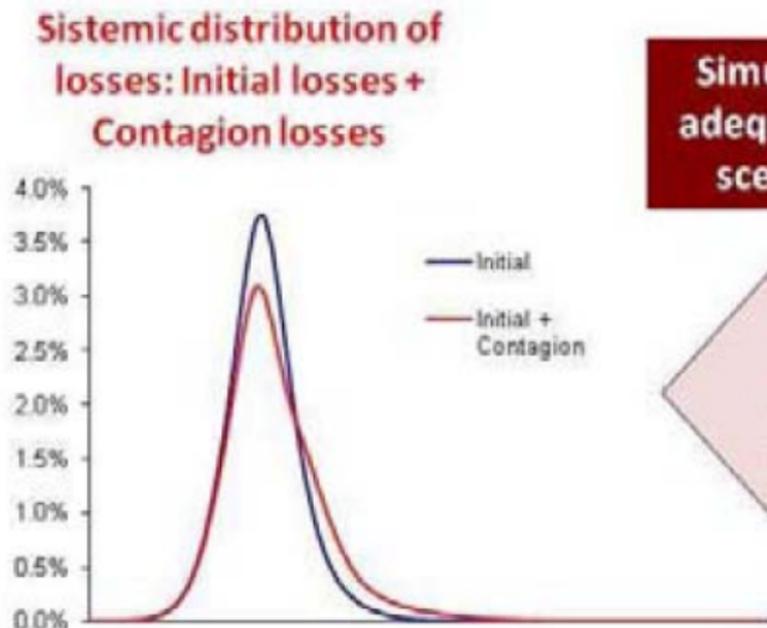
- In Appendix A the authors provide details on the vector autoregression (VAR) for the 10 macroeconomic variables they consider.
- However no detail is given on the VAR (mentioned on page 9) that links the macroeconomic variables to bank losses. This link is perhaps the most important in the whole paper, and a corresponding “Appendix B” would be a useful addition
 - How many lags are considered?
 - How is the specification of this VAR checked? (Are non-linearities an important feature?)
 - Does the sensitivity of a bank’s losses to macro variables vary with the size of the bank? The degree of inter-connectedness of the bank?

The valuation of the market portfolios

- The market portfolio of each bank needs to be valued for each scenario considered by the authors (they consider 5,400 scenarios in total), and on page 12 they note that this is computationally intensive.
- How are these portfolios valued? Is this standard, or are there important assumptions that need to be made? Is it possible to present some details on this?

Decomposing losses into “initial” and “contagion” losses

- In Figure 1 the authors present a fascinating picture, but it does not appear again – I would love to see this used more in their analysis



A case study on the contagion process?

- In Section 4.2 the authors briefly describe one scenario that lead to a small bank breaching its minimum capital requirement, which in turn caused problems for a medium-sized bank.
- I think it would be interesting and useful to expand on this scenario, perhaps turning it into some sort of “case study”
 - Exactly how big was the shock in this scenario? Which macroeconomic variables were shocked?
 - How did the shock affect banks in the first round?
 - Can we trace out the path of the shock through the system, either graphically or numerically?

Measuring the likelihood of “stressed” scenarios

- People (economists included) have a tendency to lump “low probability” events together into a general “unlikely” category.
- However, when dealing with low-probability events even apparently small changes can have big implications:
 - ① 1 in 1,000 event \Rightarrow once every 4 years \Rightarrow not really that rare
 - ② 1 in 10,000 event \Rightarrow once every 40 years \Rightarrow once-in-a-generation
 - ③ 1 in 100,000 event \Rightarrow once every 400 years \Rightarrow a few per *millennium!*
- There are many types of interesting scenarios, and by **quantifying the probability** (if only approximately) of each we have a better idea of how worried we should be.