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A network model of financial system resilience

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Abstract

We examine the role of macroeconomic fluctuations, asset market liquidity, and network structure in determining contagion and aggregate losses in a stylised financial system. Systemic instability is explored in a financial network comprising three distinct, but interconnected, sets of agents — domestic banks, overseas banks, and firms. Calibrating the model to advanced country banking sector data, this preliminary model generates broadly sensible aggregate loss distributions which are bimodal in nature. We demonstrate how systemic crises may occur and analyse how our results are influenced by fire-sale externalities and the feedback effects from curtailed lending in the macroeconomy. We also illustrate the resilience of our model financial system to stress scenarios with sharply rising corporate default rates and falling asset prices.

Key words: Contagion, financial crises, network models, systemic risk.

JEL classification: C63, G01, G17, G21.

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