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Endogenous Banks' Networks, Cascades and Systemic Risk*

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Abstract

We develop a dynamic network model whose links are governed by banks' optimizing decisions and by an endogenous tâtonnement market adjustment. Banks in our model can default and engage in firesales: risk is transmitted through direct and cascading counterparty defaults as well as through indirect pecuniary externalities triggered by firesales. We use the model to assess the evolution of the network configuration under various prudential policy regimes, to measure banks' contribution to systemic risk (through Shapley values) in response to shocks and to analyze the effects of systemic risk charges. We complement the analysis by introducing the possibility of central bank liquidity provision.

Keywords: Network formation, tâtonnement, contagion.

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