

Systemic Risk and Stability in Financial Networks*

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Abstract

We provide a framework for studying the relationship between the financial network architecture and the likelihood of systemic failures due to contagion of counterparty risk. We show that financial contagion exhibits a form of *phase transition* as interbank connections increase: as long as the magnitude and the number of negative shocks affecting financial institutions are sufficiently small, more “complete” interbank claims enhance the stability of the system. However, beyond a certain point, such interconnections start to serve as a mechanism for propagation of shocks and lead to a more fragile financial system. We also show that, under natural contracting assumptions, financial networks that emerge in equilibrium may be socially inefficient due to the presence of a network externality: even though banks take the effects of their lending, risk-taking and failure on their immediate creditors into account, they do not internalize the consequences of their actions on the rest of the network.

Keywords: Contagion, counterparty risk, financial network, systemic risk.

JEL Classification: G01, D85.

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