

Contagion and Security in Inhomogeneous Financial Networks

Hamed Amini *

amini@math.miami.edu

We derive rigorous asymptotic results for the magnitude of contagion in a large financial network and give an analytical expression for the asymptotic fraction of defaults, in terms of network characteristics. Our results extend previous studies on contagion in random graphs to inhomogeneous directed graphs with a given degree sequence and arbitrary distribution of weights. We introduce a criterion for the resilience of a large financial network to the insolvency of a small group of financial institutions and quantify how contagion amplifies small shocks to the network. We then study the problem of optimal investment in security, under network contagion risk.

This is joint work with Rama Cont and Andreea Minca.

*Department of Mathematics, University of Miami, 1365 Memorial Drive, Coral Gables, FL 33124, USA