

Report Type

Mid Term Award Report

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Faculty/Department

Economics

Project Title

Information and systemic risk in financial networks: An experiment

Project Start Date

Mar 30, 2016

Project End Date

Mar 30, 2018

Project Abstract

In 2009 the Bank of England stated that “better information on connections between firms in the financial network” is crucial to “building a more resilient financial system”. The aim of this project is to conduct the first experimental study of how the lack of information on where a shock hits the financial network increases the likelihood of contagion and a market freeze. The experimental design will vary both the information available to market participants as well as the financial network that connects them, and it will shed light on their role in determining contagion, price dynamics, and bidding behaviour.

Activities and Achievement

See attached document

Dissemination

See attached document

Outputs

See attached document

Major Difficulties and Any Other Issues

No major difficulties

Web Links

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2995918



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To CERF Board Members:

This is the report on progress for the research funded by the grant “Information and systemic risk in financial networks: An experiment.”

The 2008 global financial crisis highlighted the crucial role that the network architecture of the financial system plays in determining systemic contagion. In the aftermath of the crisis, the Bank of England argued that “the financial network should

be structured so as to reduce the chances of future systemic collapse” and “better information on connections between firms in the financial network [is crucial to] building a more resilient financial system”.

My project investigates experimentally the roles of network and information structures on financial contagion, price formation, and the behaviour of traders. Participants have heterogeneous valuations for assets and they are assigned to a position in a network of liabilities that leaves them exposed to counterparty risk. One participant is hit by a shock whose size is common knowledge. Participants can trade assets in a double auction market and they face a trade-off: buy to earn a long-term return from the assets vs. sell to raise liquidity to cushion the potential spillovers from the shock.

The experiments have been completed in the summer of 2016, and we have now completed the draft of the paper. It has been made available as a CERF working paper. We find that network structure has a significant impact on the resilience of the system to shocks. Financial contagion and individual bankruptcy are much more likely in core-periphery compared to circle networks. In core-periphery networks, the traders perceive this heightened risk leading to collapse in prices and a market freeze where everyone is trying to sell assets. In contrast, in circle networks the market functions normally. Whether market participants have information about the location of the shock in the network, however, has no substantial effect on financial contagion, individual bankruptcy, the evolution of prices, or traders’ bidding behaviour.

I have presented the results at the CERF Cavalcade, Paris School of Economics, University of Amsterdam, University of Nice, and the Stony Brook Game Theory Workshop.

Yours ever,

Edoardo Gallo