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Date: 24/03/2017

To CERF Board Members:

This is the report on progress for the project "An experimental study of financial contagion in networks" which I am pursuing during my CERF Fellowship.

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 are now finishing the draft of the paper. We expect the paper to be made available as a CERF working paper within the next two months.

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 University of Oxford, Nanyang Technological University (Singapore), National University of Singapore, University of Macau, the BiNoMa Workshop on the Economics of Networks at the University of East Anglia, and the Cambridge-INET Networks Working Group. I am scheduled to present the paper 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