

Research Statement

Firms or agents are connected via various linkages which have significant impact on the asset pricing, investors' behaviors, firm decision, information propagation, and systemic risk. My current work spans several fields linked to networks – Macro, Finance, Machine Learning, Theory, and Chinese Economy. I am also an expert in big data and especially interested in using huge dataset to reveal a micro channel to support a vivid macro picture.

Under the theme, my work can be divided into three branches: i) Equity-holding network and its implication on corporate finance, governance, and monetary policy; ii) Innovation network and its implication on business cycle, asset pricing, and investment; iii) Use machine learning to learn hidden networks or predict in a linked world, especially incorporating behavior bias.

Project on equity-holding networks

In this project, we construct a proprietary and dynamic update dataset covering the universal firms registered in China till 2019. This comprehensive dataset records detailed information on firm shareholders, outside investment and historical update. Use the information on the historical shareholders, we construct the dynamic equity-holding networks that can be traced back to 1990. Combining with other datasets, we conduct a sequence of researches trying to understand several important questions – the impact of equity-holding networks on firm growth, innovation, and monetary policy, and the driving forces of network formation.

Project on innovation networks

Innovation is nothing but learning from others. In this project, I construct a new and comprehensive patent dataset to study the implication of the innovation network on business cycles, asset pricing, and portfolio investment.

Project on machine learning

In most of the cases, the networking data is rare available because: i) the prohibitive collection cost of such dataset; 2) large noise on the linkage between agents or firms due to measure errors or sampling bias. In this project, we use machine learning to recover the underlying linkages between firms or agents, and then use the recovered linkage to study a sequence of topics – prediction, portfolio management, and information acquisition in linking work.