Comments on "*Complexity, Concentration and Contagion*", by Gai, Haldane and Kapadia.

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Model background

- Network model of banks:

1. 250 banks acting according to an average behavior,
2. Banks take the price (haircuts) as given
3. Connections follow a probabilistic structure
4. Shock triggering liquidity hoarding: banks withdraw their deposits
5. Tipping points based on a threshold for liquidity ratio

Optimizing behavior

- Banks' behavior is driven by tipping point based upon the liquidity ratio
- Future development: optimizing choice for the positions on the balance sheet
- Fusion of agent based and neoclassical models (optimizing agents): behavioral rules fall short of game theoretics, agents' interactions and Lucas critique

Equilibrium and fire sale

- Banks take price as given and exogenous. Further development: construction of equilibrium/disequilibrium concept
- With heterogenous banks: walrasian auctioneer can be substituted with tatonnement processes (Bluhm, Faia and Krahnen 2010)
- Endogeneity of price function would naturally induce indirect fire sales externalities (indirect risk diffusion)

Complexity and expectations

- If a model is complex, it should follow that agents' information set is limited (Jackson 2008, Learning in Networks)
- Caballero and Simsek (2010): banks in complex models only have local knowledge (Knightian uncertainty induces them to to optimize according to worst scenario)
- Heterogenous agents likely have diversity of opinions and updating occurs through herds from neighborhoods

Conclusions

- Interesting and competent analysis pioneering the frontier of those topics
- Many extensions can be considered along the lines indicated above