

Discussion of
“Interbank Networks in the Shadows of the Federal Reserve Act”
Anderson, Erol, and Ordoñez (2019)

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Financial Networks

- Growing literature on how financial linkages...
 - (i) function as a mechanism for propagation and amplification of shocks
 - (ii) generate systemic risk from micro shocks
- For the most part, the literature takes the financial network as a **model primitive**
Reasonable approximations for unanticipated shocks.
- More generally, however, financial interlinkages are endogenous and change in response to shocks, policy, and regulation.

Particularly challenging to address!

- ▶ **theory**: need models for how banks readjust their counterparty relations
- ▶ **empirics**: need (i) exogenous variations; (ii) detailed network data

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This Paper

- The interaction between introducing a central bank's lending facilities and endogenous financial network architecture
- **Theory:** endogenously formed financial interlinkages in response to the introduction of central bank lending facilities.
 - ▶ banks decide interbank deposits, cash holding, investments
 - ▶ liquidity provision not only distorts decisions of banks with access to discount window, but also those with no access to liquidity
- **Empirics:** Federal Reserve Act of 1913
 - ▶ membership was mandatory for national banks, but voluntary for state banks
 - ▶ did the Act have an impact on the balance sheets of state banks in Kansas?

Model: Market Structure

- A pair of banks:
 - ▶ x : state/non-member bank
 - ▶ y : national/member bank
- Each bank has access to a project with “lumpy returns”, r_x and r_y
- **Interbank deposits**: x can deposit cash in y with an exogenous rate of return

$$r \leq r_x, r_y$$

- **Short-term lending market**: y may lend short term to x at rate 1

State/Non-Member/Shadow Bank

- Bank x has access to deposits D , a random fraction of which is withdrawn randomly before the project's maturity \rightarrow liquidity shock
- The bank can divide the deposit between investments, deposit in bank y , or cash

$$D = I_x + L + \Phi_x$$

- Since $r < r_x$, the bank wants invest everything in the project; but since the project's return is lumpy, it saves some of the deposits as interbank deposits
- But since interbank lending is also **lumpy**, the bank also saves some of the deposits as cash.

National/Member Bank

- The member bank can also invest in the project or keep it as cash, and is subject to reserve requirements:

$$L = I_y + \Phi_y$$

$$\Phi_y \geq \phi L$$

- Access to a public liquidity of maximum size m
 - ▶ pre Federal Reserve: $m = 0$
 - ▶ post Federal Reserve: $m > 0$

Results

- Public liquidity provision by the central bank...

increases illiquid investments : $\frac{dl_x}{dm} > 0$

decreases cash reserves : $\frac{d\Phi_x}{dm} < 0$

increases short-term borrowing : $\frac{dB}{dm} > 0$

- Public liquidity spills over to the shadow banking system
- Intuition: public liquidity is a substitute for privately held liquidity (cash or interbank deposits), and the non-member bank can access the discount window indirectly via the member bank

Results: Systemic Risk

- An increase in public liquidity unambiguously reduces the likelihood of costly liquidations (*financial fragility*)

- But it increases *financial vulnerability*: suppose banks assume $m > 0$ but then it turns out that $m = 0$. Then, the likelihood of failures increases compared to the case with no public liquidity → increased reliance on public assistance

Result: Endogenous Financial Network

- Now suppose there are many banks in different regions.
- Accessing banks in New York is more costly, but allows co-insurance with other regions
- Availability of public liquidity to banks in reserve cities in Kansas reduces the attractiveness of co-insurance in New York

$$\frac{d}{dm}(\pi_{\text{NYC}} - \pi_{\text{KC}}) < 0.$$

- Provision of public liquidity replaces the big core in New York, with smaller cores in reserve cities in Kansas

Comment: Intensive vs. Extensive Margin?

- Financial network of state banks in Kansas in 1910 to 1920.
- (1) Shifts in the fraction of correspondents after the introduction of the Fed.
 - ▶ central reserve cities (New York, Chicago, St. Louis): **decreased**
 - ▶ reserve cities in Kansas (Kansas City, Topeka, and Wichita): **increased**.
 - (2) Reduction in average geographic distance between respondent state banks in Kansas and correspondent banks.
- Evidence of network core fragmentation → shifts from major financial centers towards local financial centers
 - Through the lens of the model: less need for coinsurance via the financial system because of the discount window

Comment: Intensive vs. Extensive Margin?

- Reported evidence is on the **extensive margin**: count of links and pairwise geographic distances
 - ▶ but extensive margin evidence can be very sensitive to mergers, entry, exit
 - ▶ specially when the number of respondent banks is not very large
 - ▶ example: a reduction from 24/106 to 27/131

- Why not also report the **intensive margin**, taking into account the volume of deposits?

Comment: Identification

- The Federal Reserve Act did not change how state banks were regulated, whose reserve requirements (quantity and what counts as reserves) remained the same.
- Nonetheless, the paper documents there was a significant change on interbank deposits, short-term lending, and the identity of correspondent banks
- Clear evidence for the shift and consistent with the model.
- What is less clear: [the mechanism](#)
 - ▶ the Act was a major overhaul of the financial, banking, and monetary system. Changed how member banks are regulated, their reserve requirements, their overall riskiness, etc.
- Direct evidence for the specific mechanism — working through the introduction of the discount window — hypothesized in the paper?

Minor Comments on the Model

- Pre-Fed area: cash demands of country banks drained cash balances held in New York City and led to seasonal spikes in interest rates.
- One of the main rationales for creating the Fed
- The channel is missing entirely from the model
 - ▶ all adjustment on the quantity side
 - ▶ interest rates on interbank deposits and short-term lending are exogenous.

- Maybe not so important for the specific mechanism the paper has in mind, but probably important for answering the main policy question in the end → welfare analysis