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

Alireza Tahbaz-Salehi
Northwestern University

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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- Bank $x$ has access to deposits $D$, a random fraction of which is withdrawn randomly before the project’s maturity $\rightarrow$ liquidity shock.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.
The member bank can also invest in the project or keep it as cash, and is subject to reserve requirements:

\[ L = l_y + \Phi_y \]
\[ \Phi_y \geq \phi L \]

Access to a public liquidity of maximum size \( m \)

- pre Federal Reserve: \( m = 0 \)
- post Federal Reserve: \( m > 0 \)
• Public liquidity provision by the central bank...

- increases illiquid investments: \( \frac{dI_x}{dm} > 0 \)
- 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
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.
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.

\[ \frac{d}{dm} (\pi_{NYC} - \pi_{KC}) < 0. \]

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