

LIQUIDITY PROVISION DURING THE CRISIS OF 1914: PRIVATE AND PUBLIC SOURCES

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INTRODUCTION

- Compares 1914 to the outcomes of the National Banking Era panics of 1873, 1893, and 1907
- Explores why crisis prevention mechanisms were better in 1914 than in the other crises
 - 1914 supported stable deposit levels to promote the expansion of the aggregate money supply
- Investigates the previously overlooked palliative role of clearing house loan certificates in the New York City

OUTLINE

- Background
- Data
- Empirical Methods and Results
- Discussion/Extensions
- Conclusions

BACKGROUND

- Crisis of 1914 in the United States
 - Not a major event
 - But could have been
- Before the Federal Reserve System was operational
 - Fed “operational” in mid-November 1914
- Liquidity crisis – but no banking panic
 - Intervention by policymakers and market participants
 - Policymaker intervention (public liquidity provision)
 - Issuance of Aldrich–Vreeland emergency currency
 - Market participants (private liquidity provision)
 - Clearing house loan certificates (CHLCs)

CONDITIONS IN JULY 1914

- Trepidations in European financial markets
 - Political situation – impending war
- July 27–July 30 European stock markets, bourses close
 - Prevent stock market dislocations and gold outflows
- July 31 New York Exchange closed by Secretary of the Treasury William McAdoo
 - After consulting with and with support from the New York Stock Exchange

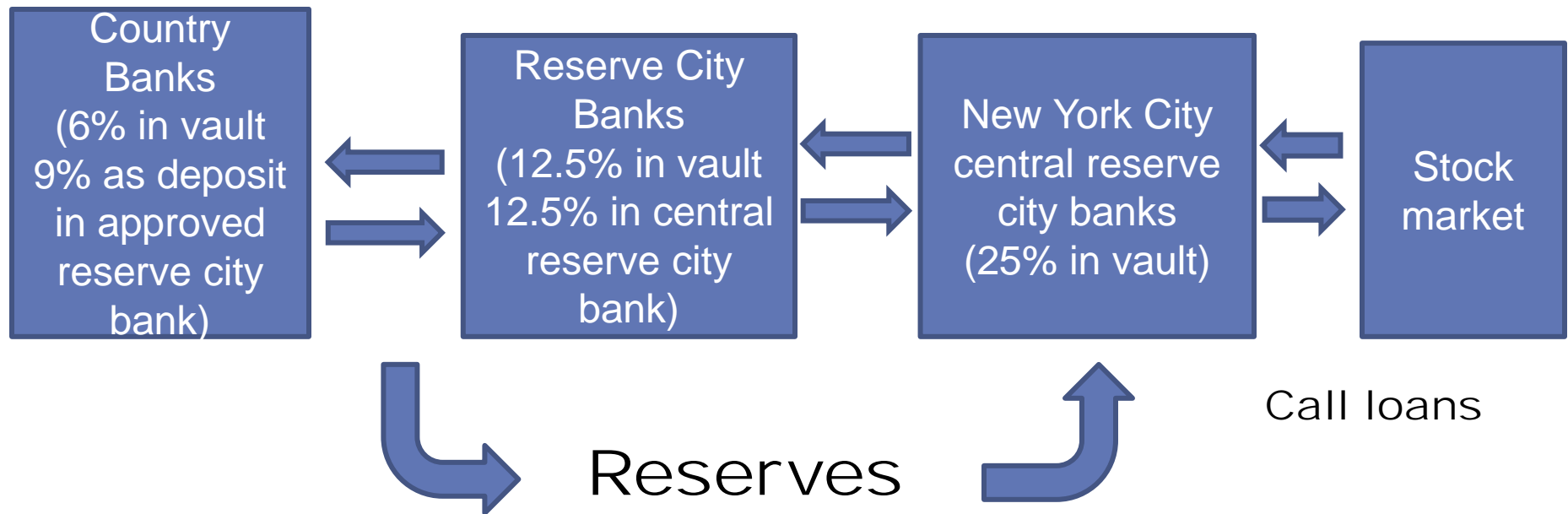
NEW YORK STOCK EXCHANGE

- Financial conditions in New York were benign
 - Compared to Europe
- Stock market closure prevented:
 - Liquidation of the US gold supply
 - Throughout July, foreign investors were liquidating US stocks into gold and shipping the gold to London
 - Gold standard implied that gold outflows could induce a contraction the base money supply
 - Stock liquidations
 - Policymakers feared fire sales of assets
 - Silber (2007) suggests that fears were unwarranted

CRISIS CONDITIONS

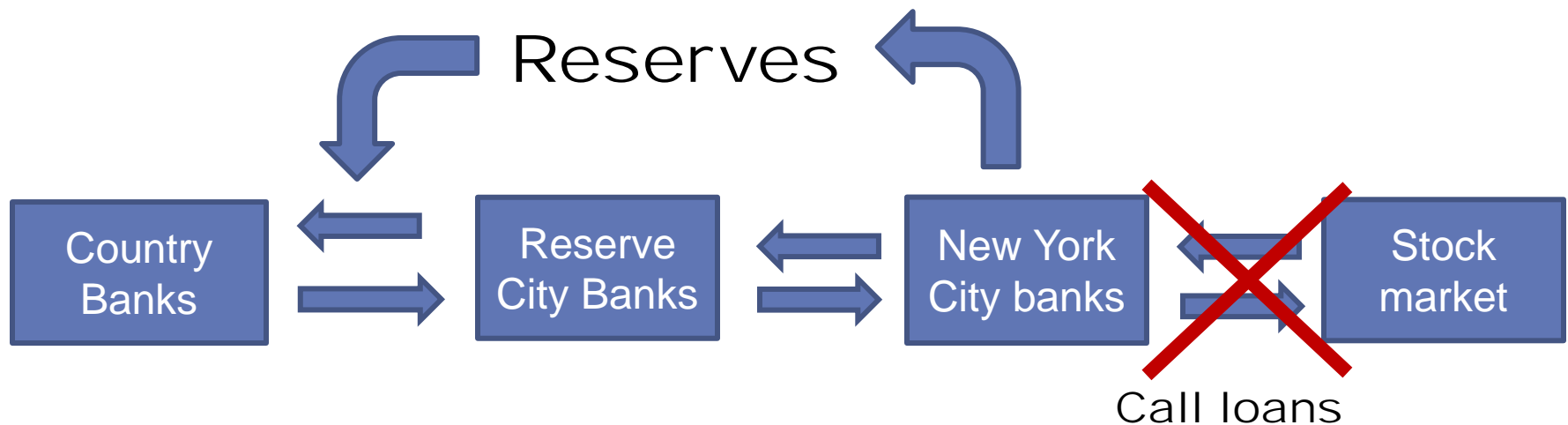
- **Structure of the National Banking System**
 - No explicit lender of last resort
 - No mechanism to adjust base money supply rapidly
 - Financial system prone to runs by banks, depositors
- **New York national banks – reserve depositories**
 - Pyramid structure of bank reserves
 - New York City national banks held their excess reserves in the call loan market at the New York Stock Exchange
 - “Demand” loans as ‘liquid’
- **Closure of the New York Stock Exchange**
 - Made call loans illiquid – clear risk of cash scramble

RESERVES IN THE NATIONAL BANKING ERA



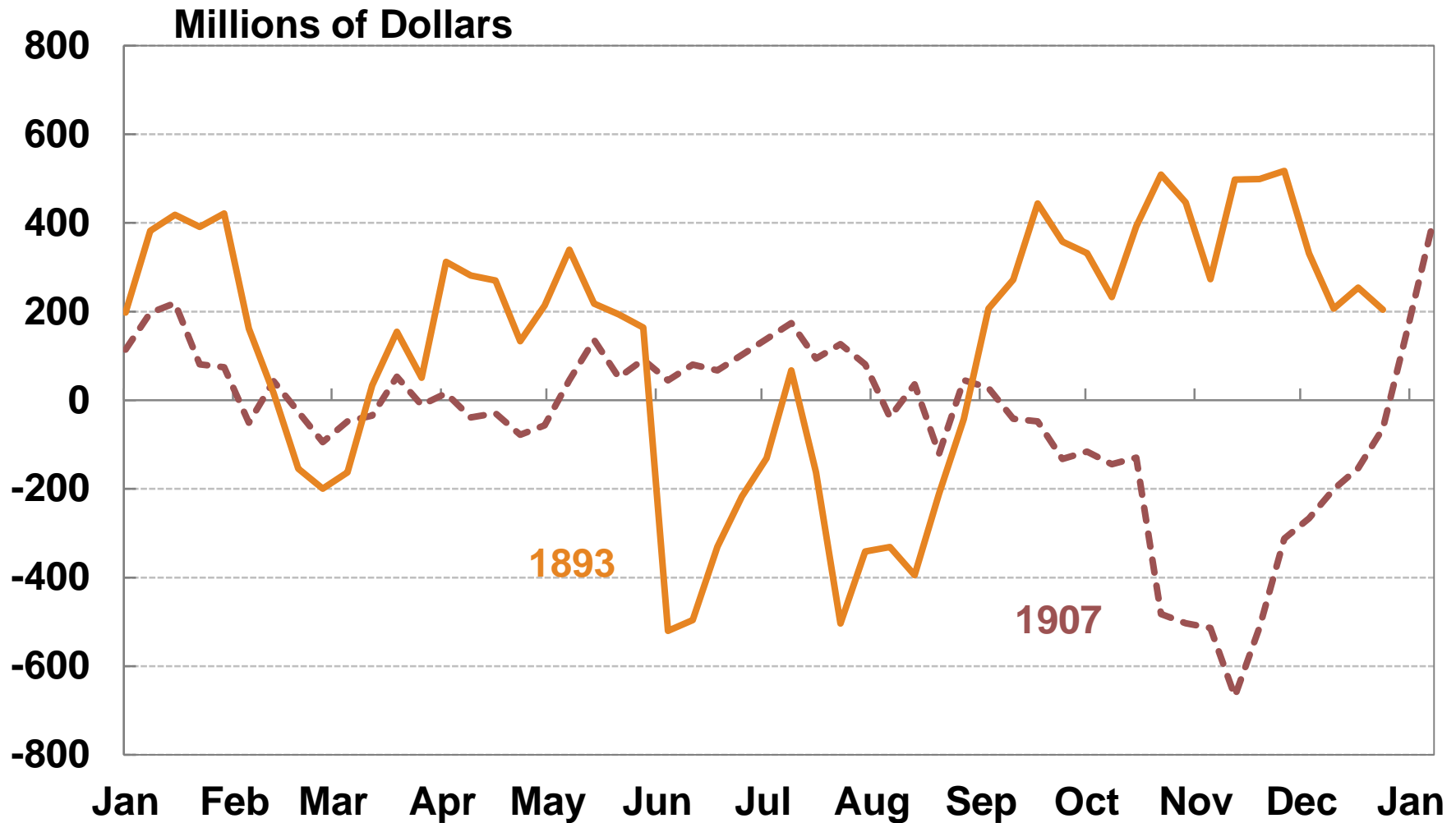
- Reserves of interior banks held as deposits at NYC national banks
 - NYC banks fund call loans with these deposits
- Deposit behavior during National Banking Era crises
- Removal of deposits by depositors and by interior banks led to issues of CHLCs and during major crises, a suspension of cash payments
- Money supply contracted as credit contracted

RESERVES IN 1914



- Stock market closure in 1914 prevented New York City banks from adjusting short term balances using call loans.
 - No federal funds market to adjust reserves
 - Commercial paper market was still small
- But there was no banking panic and money supply grew

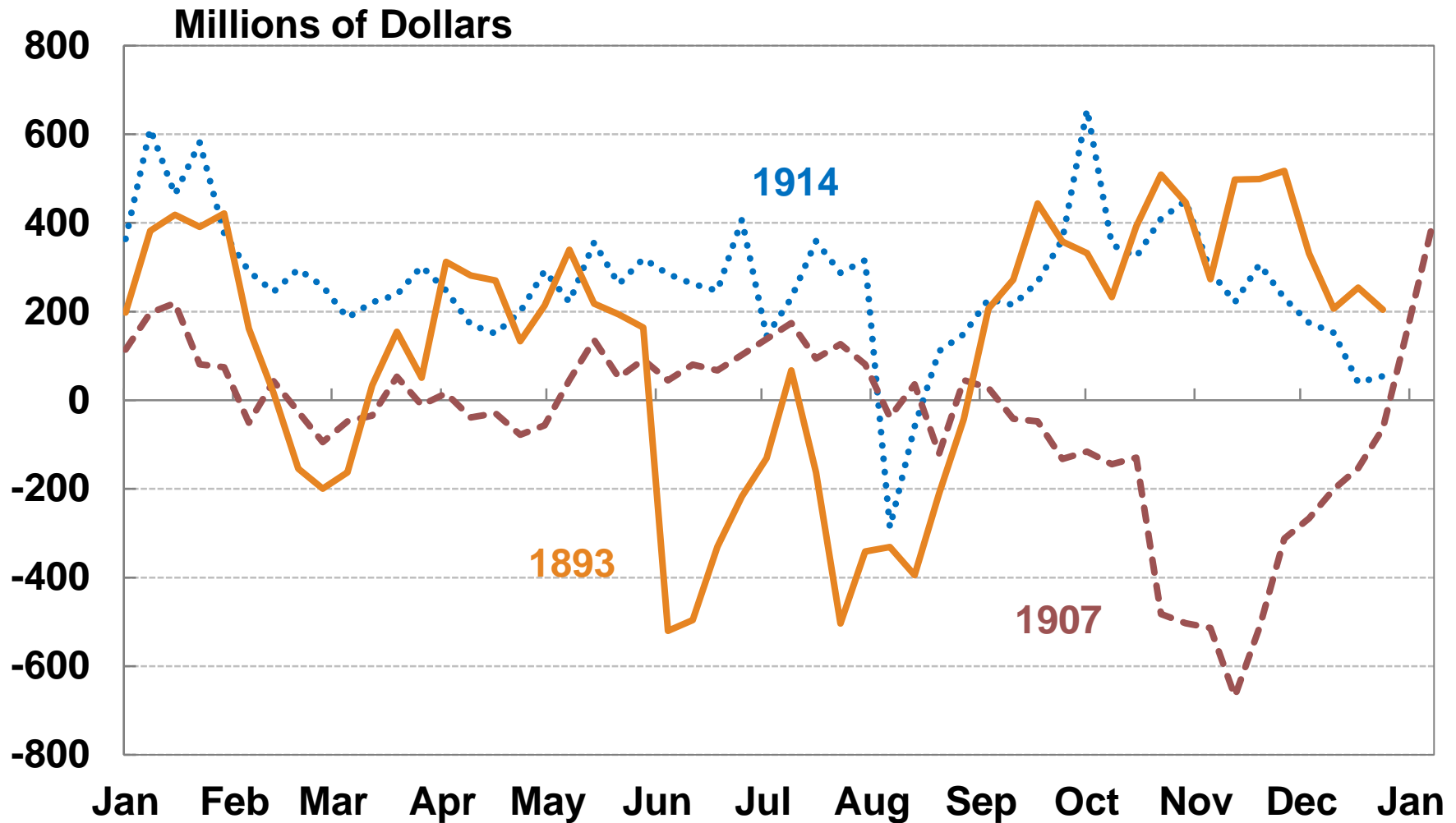
REAL NET FLOWS TO THE INTERIOR BANKS FROM NEW YORK CITY BANKS



Note: series are deflated using nominal GDP for each respective year

Source: Commercial and Financial Chronicle, various volumes
Johnston and Williamson, MeasuringWorth, 2013

REAL NET FLOWS TO THE INTERIOR BANKS FROM NEW YORK CITY BANKS

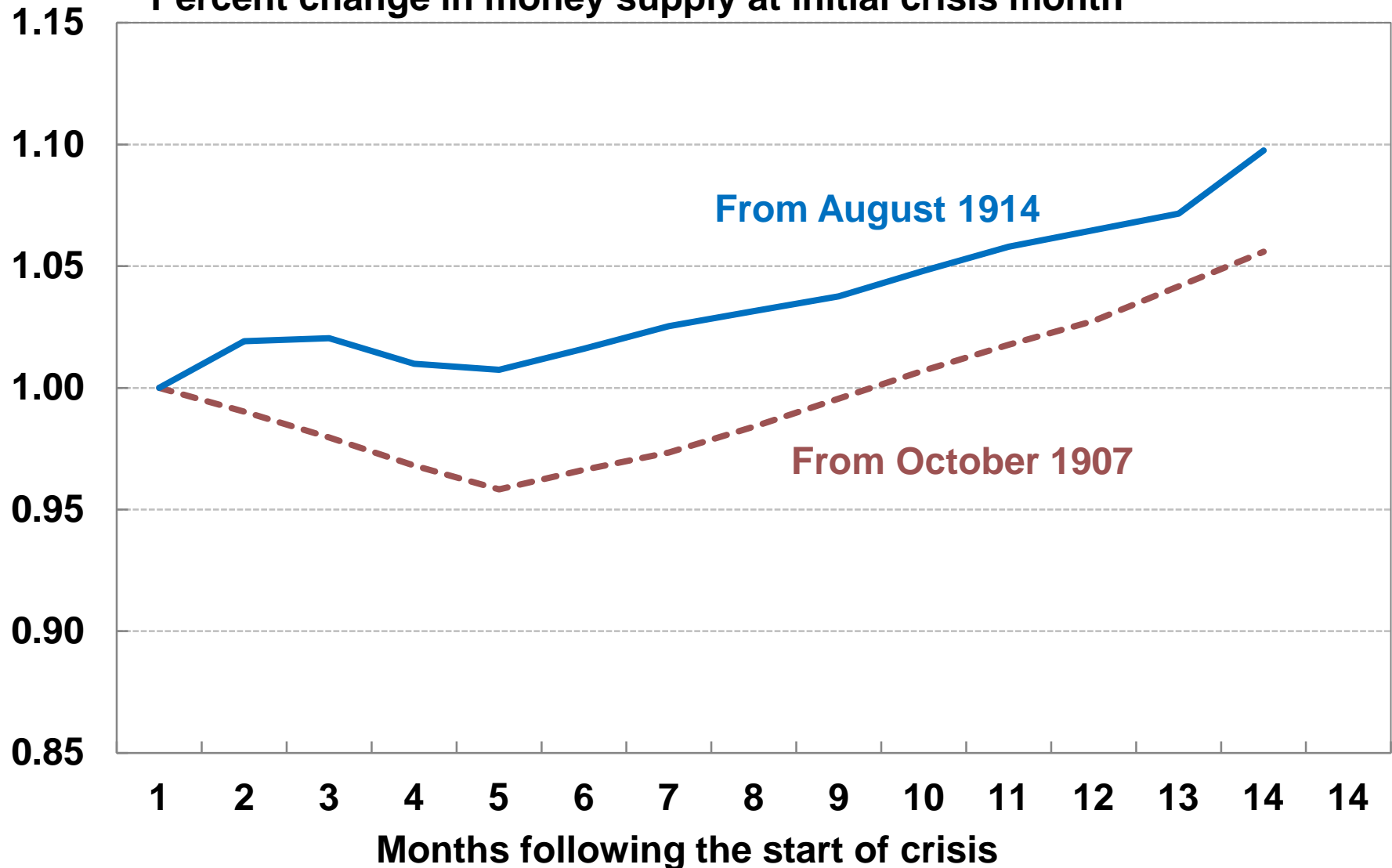


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Source: Commercial and Financial Chronicle, various volumes
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AGGREGATE US MONEY SUPPLY FOLLOWING CRISIS OR DISTRESS

Percent change in money supply at initial crisis month



QUESTIONS TO BE ADDRESSED

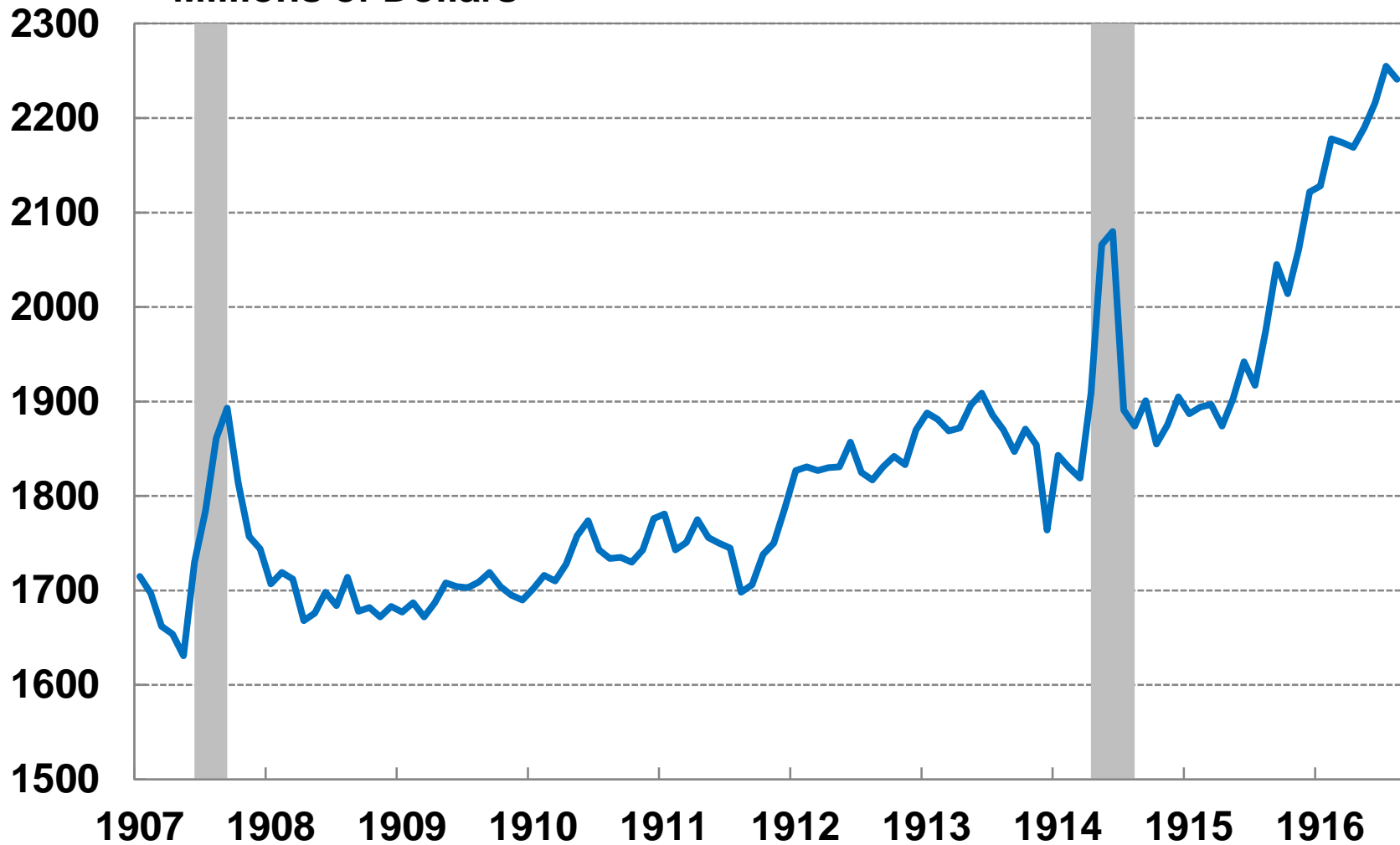
- New York City banks were shut off from their main source of financial liquidity in 1914
 - Why was there no banking panic in 1914?
 - Why was the outcome of 1914 so different from the previous panics of the National Banking Era?

EXISTING LITERATURE

- The success in 1914 associated with:
 - Actions of policymakers (Silber 2007)
 - The invention of emergency currency (Friedman and Schwartz 1963, Wicker 2005, Silber 2007)
- Clearing house loan certificates seen as a relics
 - But contemporary observers of the 1914 distress attribute success to both forms of liquidity
 - Noyes (1916)
 - Commercial and Financial Chronicle (1915)

CURRENCY HELD BY THE PUBLIC

Millions of Dollars

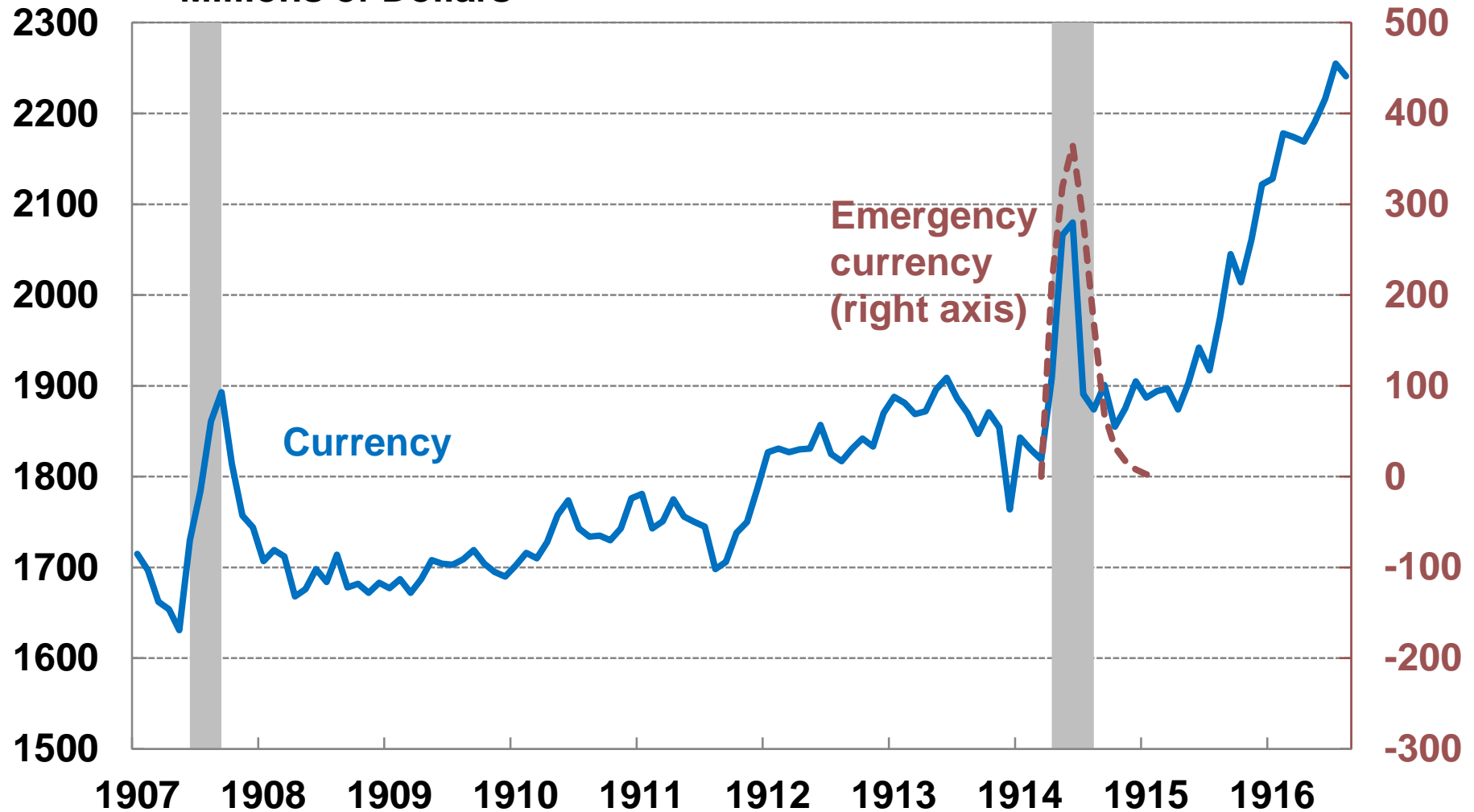


Note: Shaded areas indicate crisis periods
Currency held by the public is defined as currency in circulation outside of the Treasury and Federal Reserve banks minus vault cash of all banks

Source: Friedman and Schwartz (1970)

CURRENCY HELD BY THE PUBLIC

Millions of Dollars



Note: Shaded areas indicate crisis periods
Currency held by the public is defined as currency in circulation outside of the Treasury and Federal Reserve banks minus vault cash of all banks

Source: Friedman and Schwartz (1970)

DATA

- New York City clearing house member banks
 - New York Clearing House banks represented:
 - Nearly half of U.S. banking assets in 1914
 - Most acutely affected by stock market closure
- What we have:
 - Daily data on *emergency currency* and *clearing house loan certificates* requested and received by bank
 - Weekly balance sheet items (a subset) for each bank leading up to and following the onset of the distress
 - Aggregate banking data weekly for clearing house member banks during the distress

COMPARING CLEARING HOUSE LOAN CERTIFICATES AND EMERGENCY CURRENCY

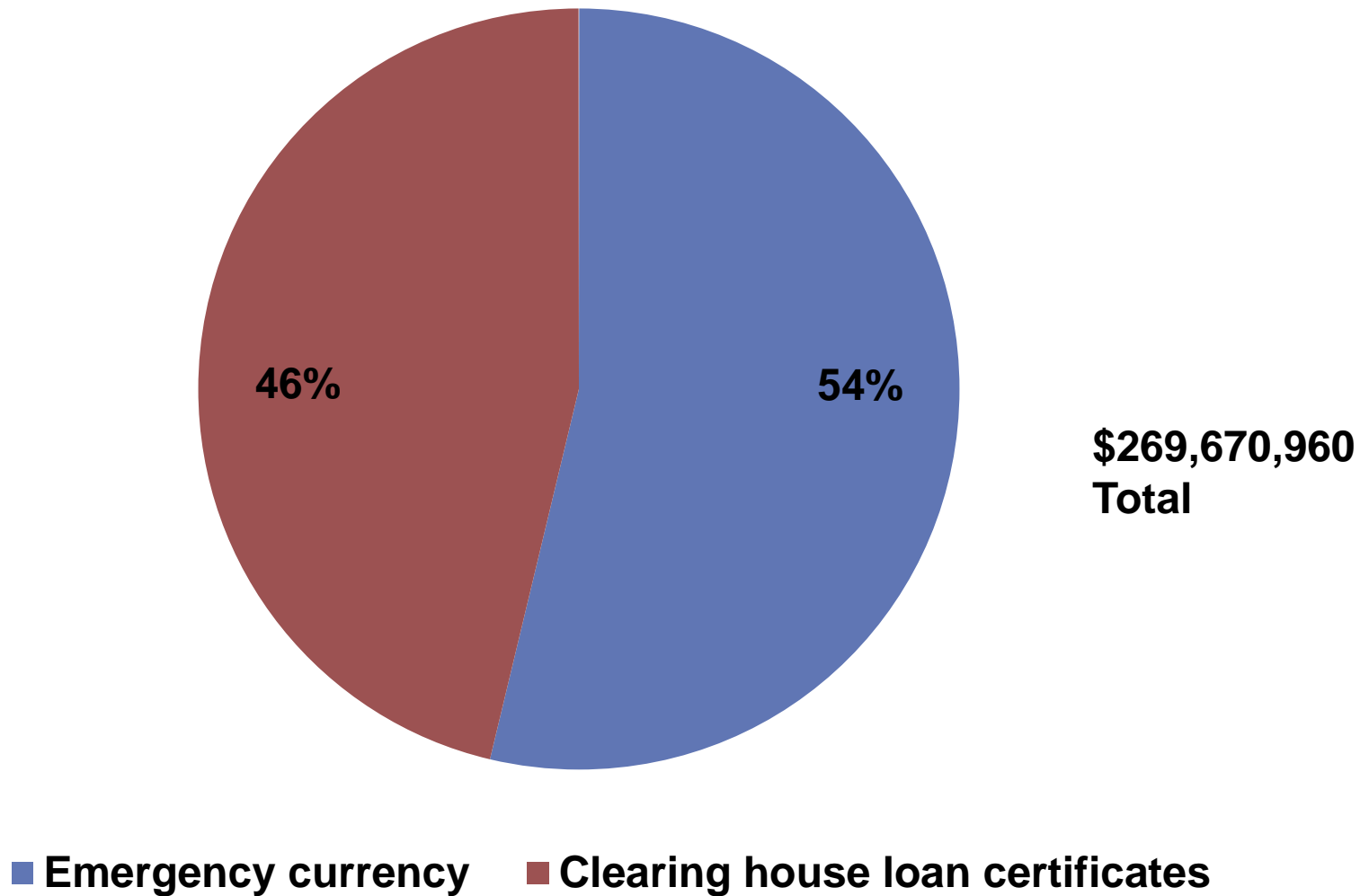
Clearing house loan certificates

- 6% interest to holder
- Guaranteed by entire clearing house
- Could not circulate to public as currency
- State banks, trusts, and national banks
- Issued throughout national banking era

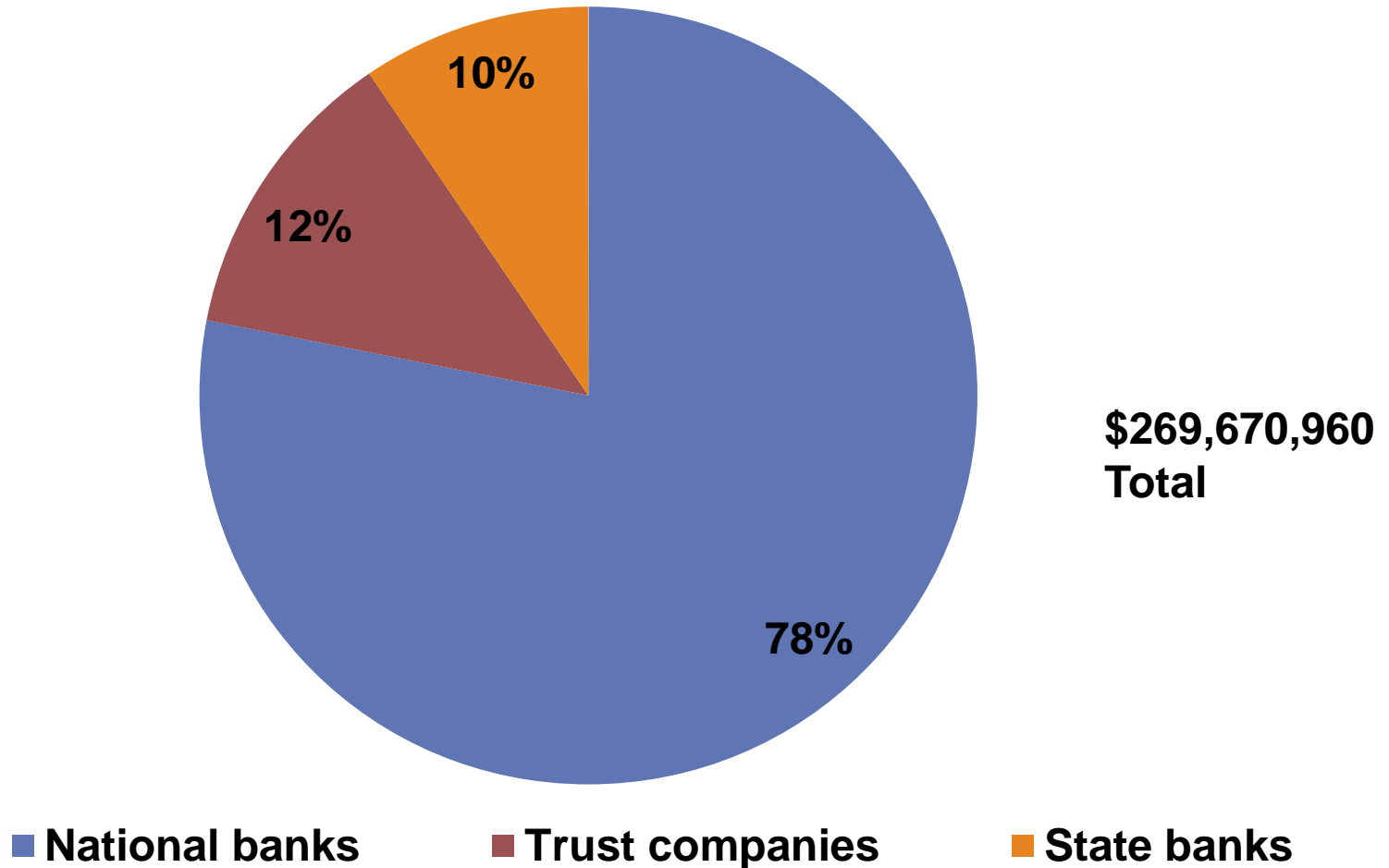
Aldrich Vreeland Emergency Currency

- 3% interest for 3 months, 0.5% after
- Issued by the U.S. Treasury
- Could be paid out to depositors
- Only national banks
- Only issued in 1914
- Borrow up to 125% of capital and surplus

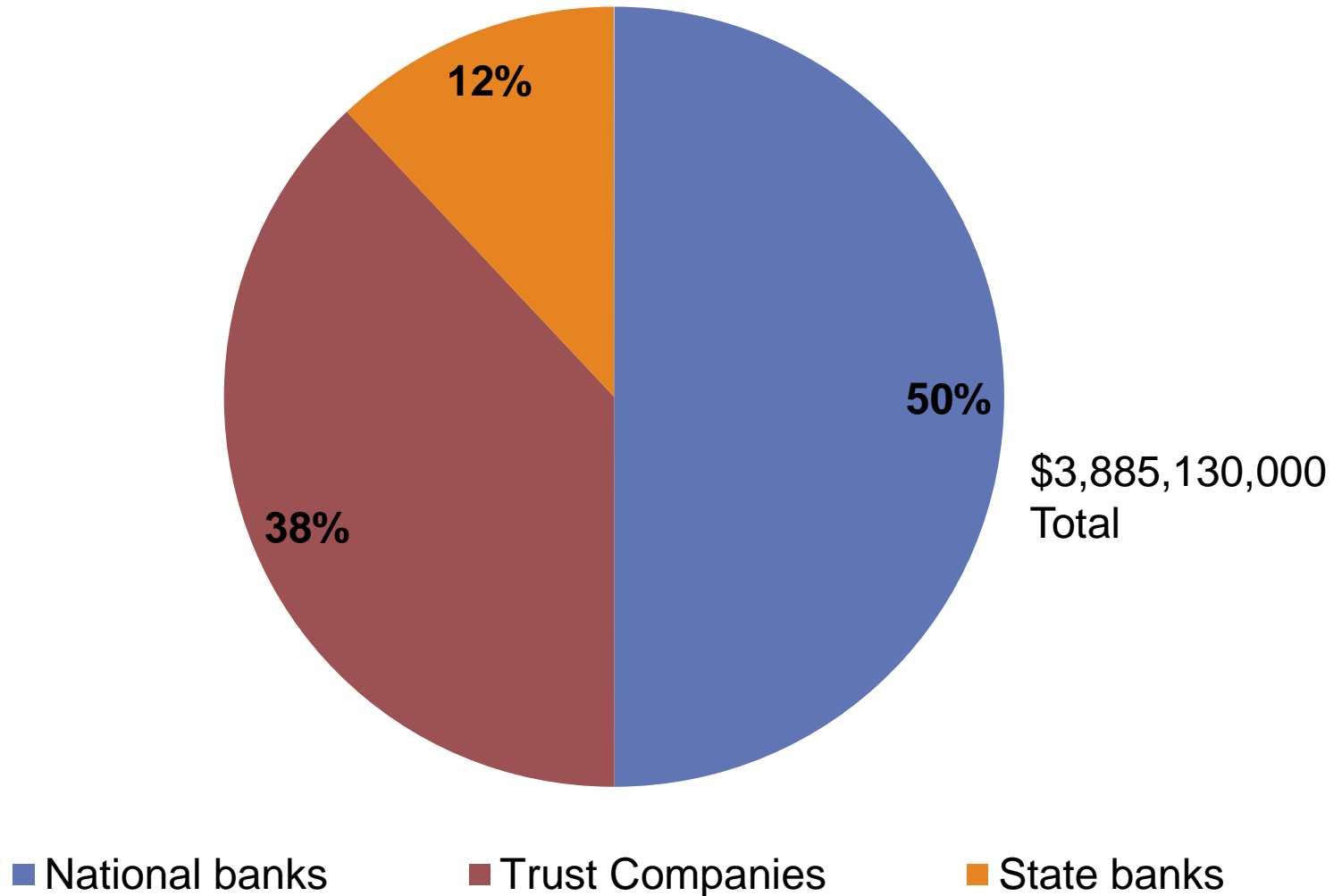
TOTAL **BORROWING** NEW YORK CITY: BY LIQUIDITY PROVISION



TOTAL **BORROWING** NEW YORK CITY: BY INTERMEDIARY TYPE

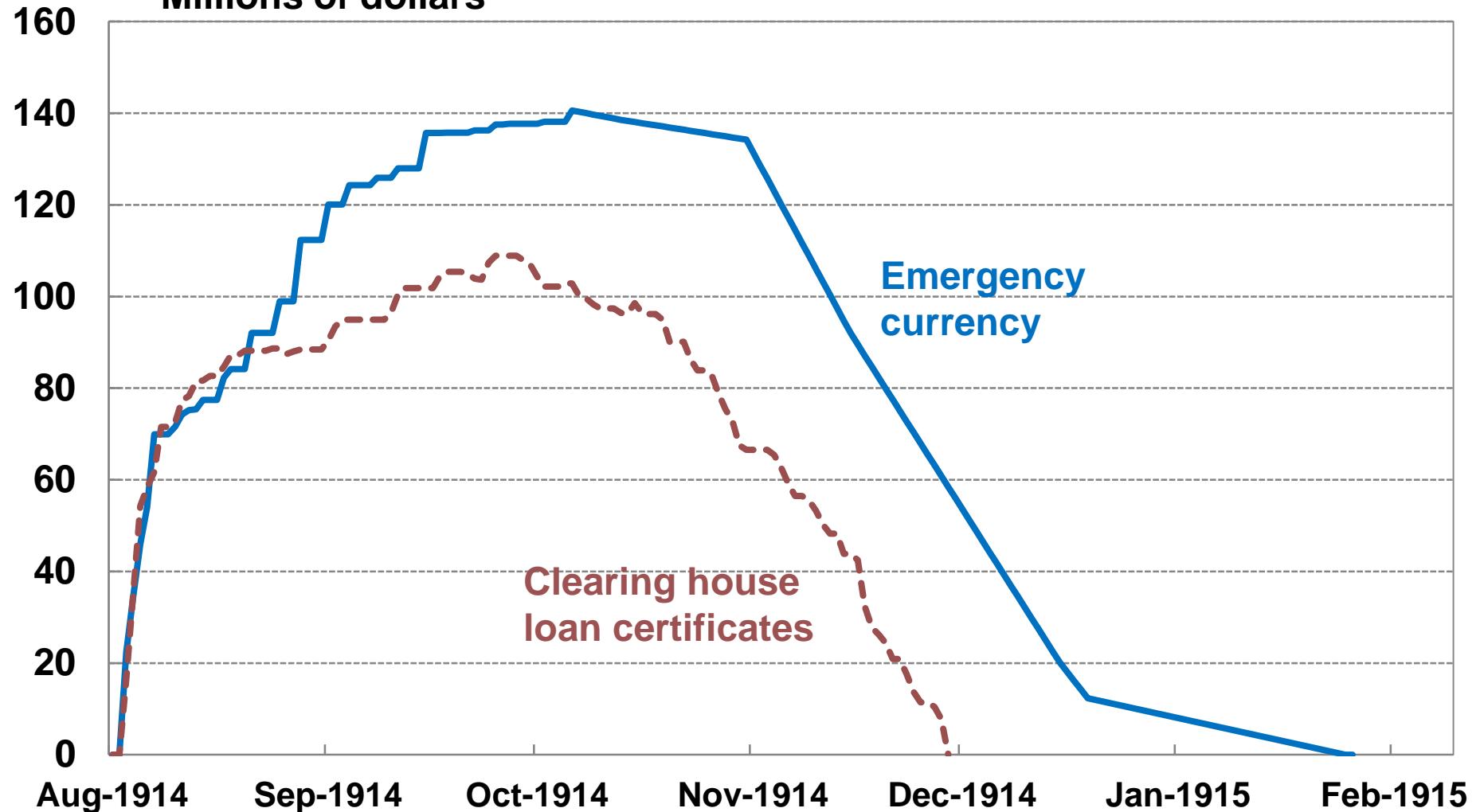


TOTAL BANKING ASSETS NEW YORK CITY: BY BANK TYPE



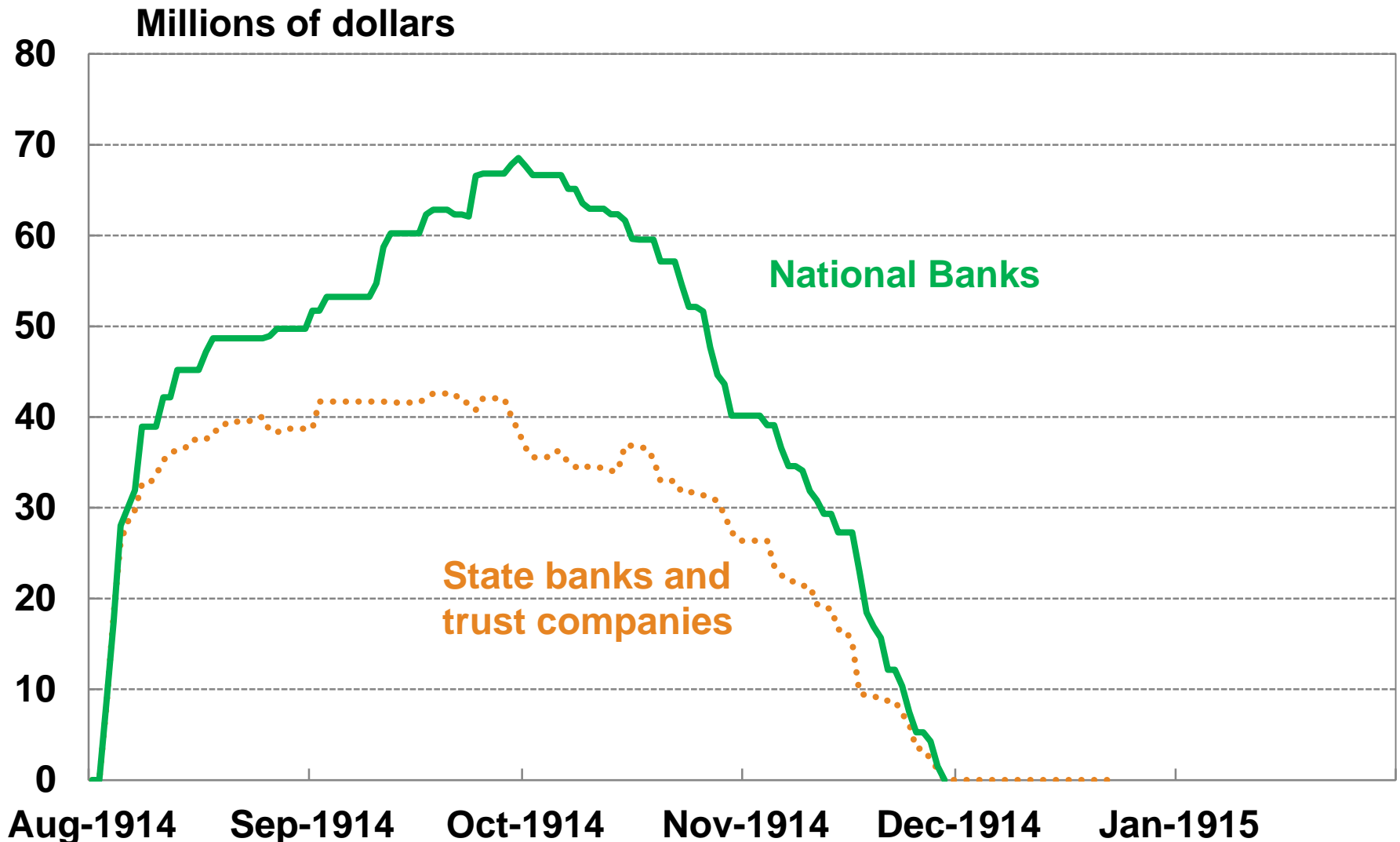
COMPARISON OF LIQUIDITY PROVISIONS, NEW YORK CITY

Millions of dollars



Note: emergency currency cancellations are linearly interpolated from aggregate values

CLEARING HOUSE LOAN CERTIFICATES, NEW YORK CITY



Note: Cancellations from November 20-28 are estimated to match the Clearing House Loan Committee Report of November 30, 1914.

HYPOTHESIS

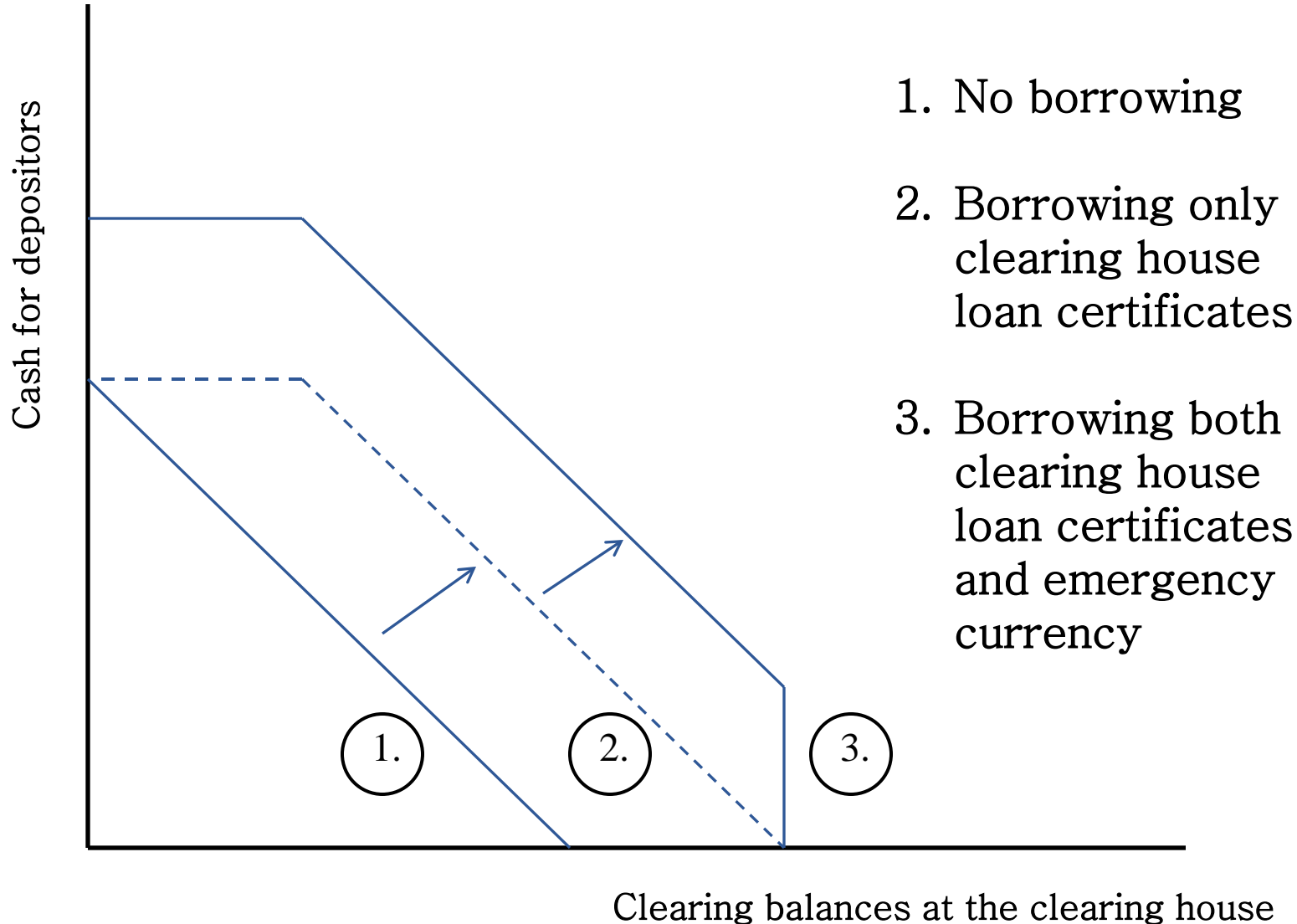
National Banks borrowed for different reasons:

- Aldrich-Vreeland emergency currency to satisfy cash withdrawal demands from depositors or interior banks
- Clearing house loan certificates to offset adverse balances at the clearing house (local bank drains)

State bank and trust companies

- Had no alternative liquidity mechanism at hand
- Used clearing house loan certificates as a means to accommodate withdrawal demands from any source
 - Liquidity enhanced with clearing house loan certificates
 - Institutions that borrowed CHLCs were in better position to increase deposits and loans than otherwise

Base Money Supply Constraint



EMPIRICAL METHODS

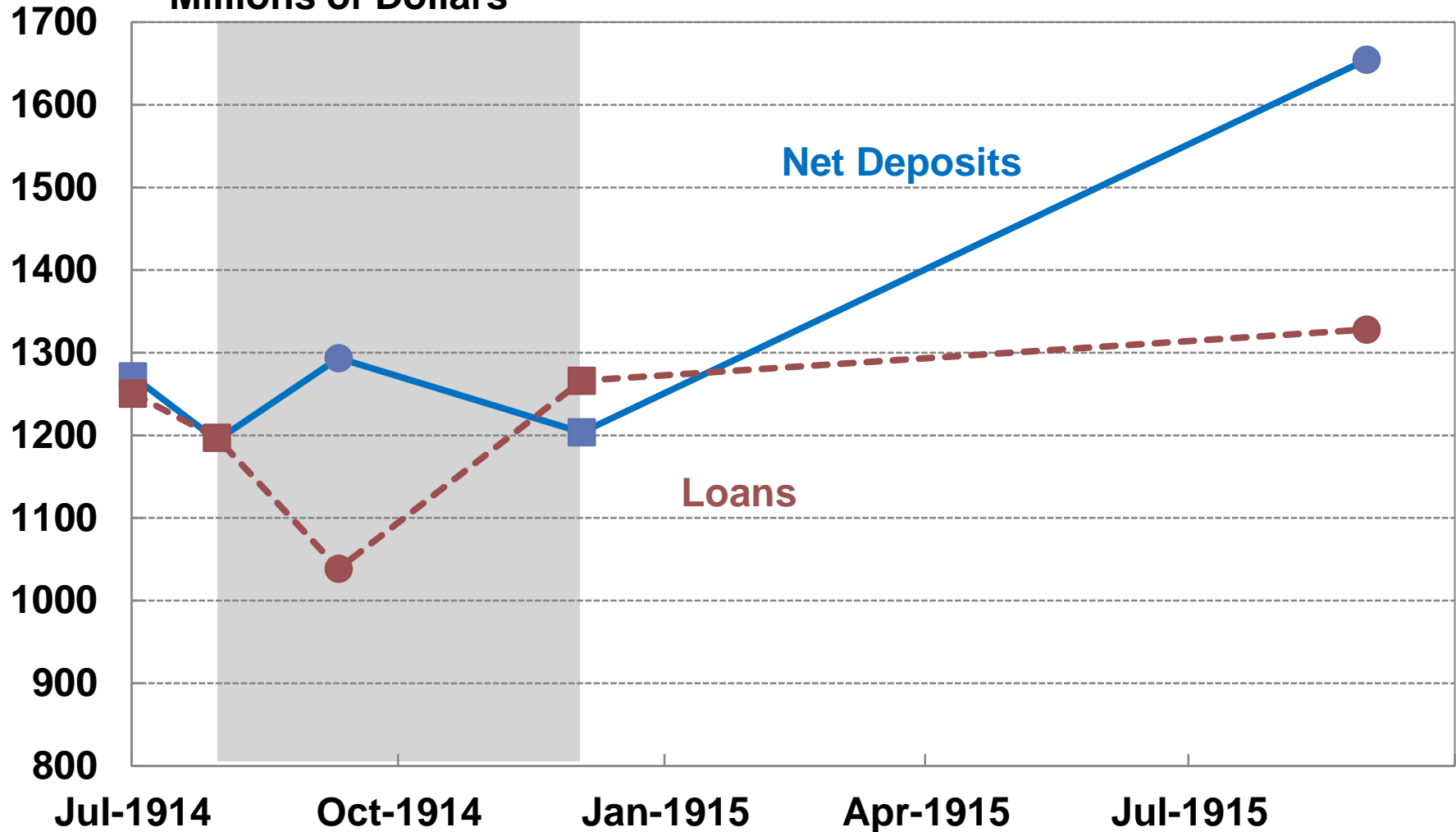
- Simple comparison of grouped deposit level
 - Deposit levels before distress and after it
- Four groups; banks that borrow:
 - NEITHER form of temporary liquidity
 - ONLY CHLCs (state and trusts)
 - ONLY ECs emergency currency (national banks)
 - BOTH emergency currency and clearing house loan certificates (again, national banks)

EMPIRICAL METHODS

- Hypothesis:
 - 1: Borrowers of temporary liquidity in either form should maintain deposit levels in midst of distress.
 - Examine data for 1914 to assess evidence
- Further: Compare with earlier NBE panics
 - Compare pre- and post-distress deposit levels to analogous measures from previous NBE crises

NET DEPOSITS FOR NATIONAL BANKS

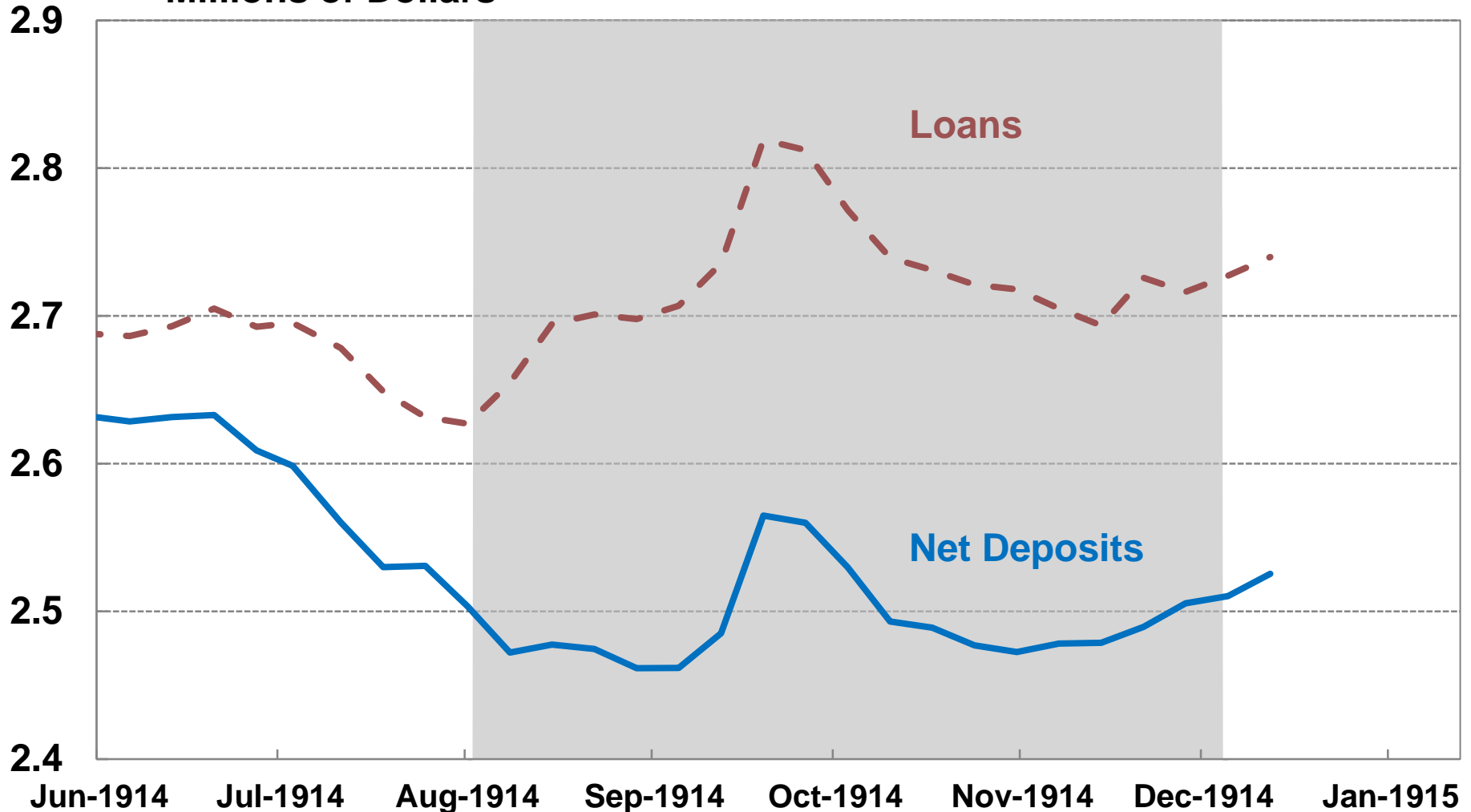
Millions of Dollars



Note: Shaded area indicates duration of crisis

CLEARING HOUSE TRUSTS AND BANKS IN NEW YORK

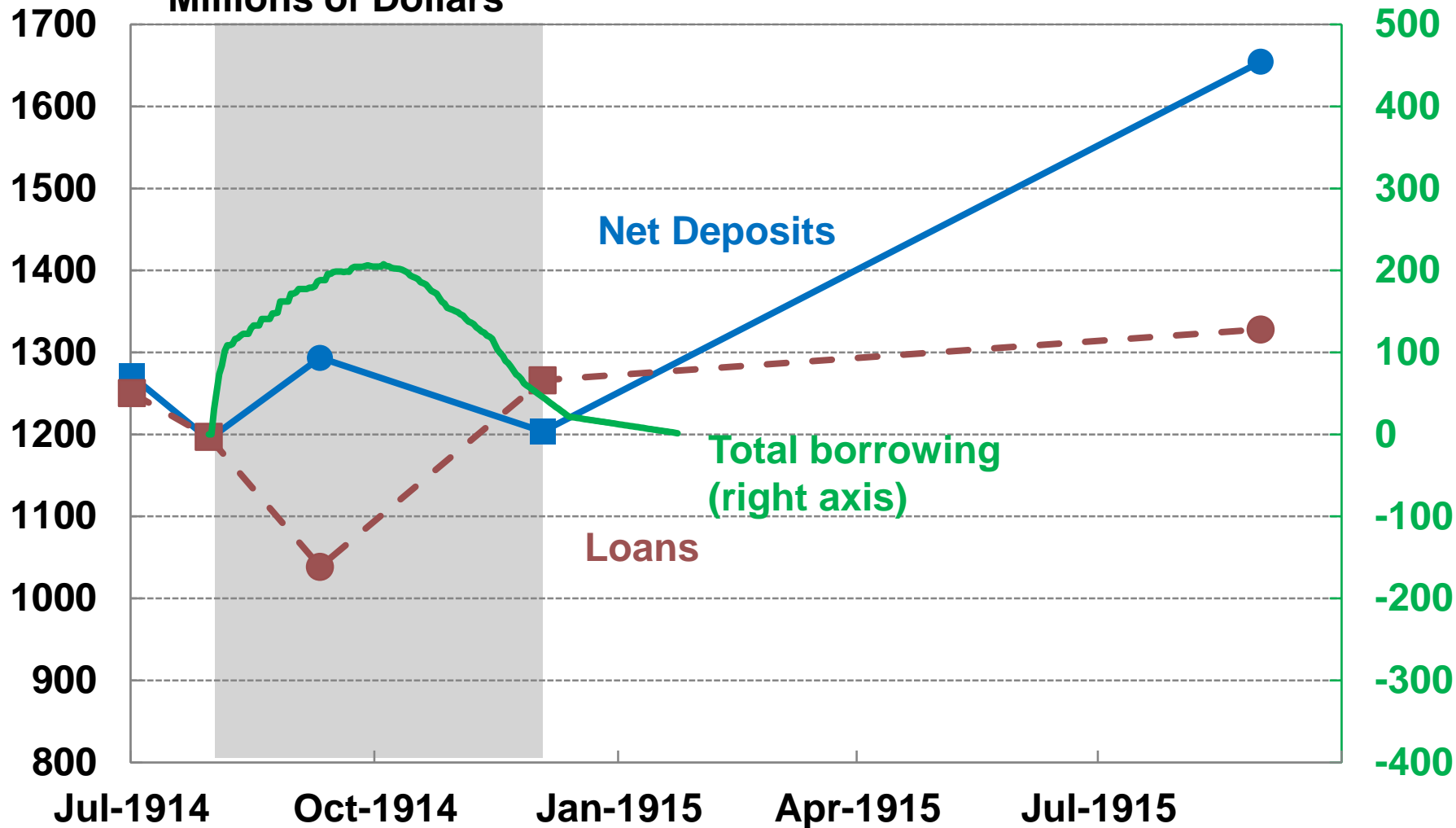
Millions of Dollars



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NET DEPOSITS FOR NATIONAL BANKS

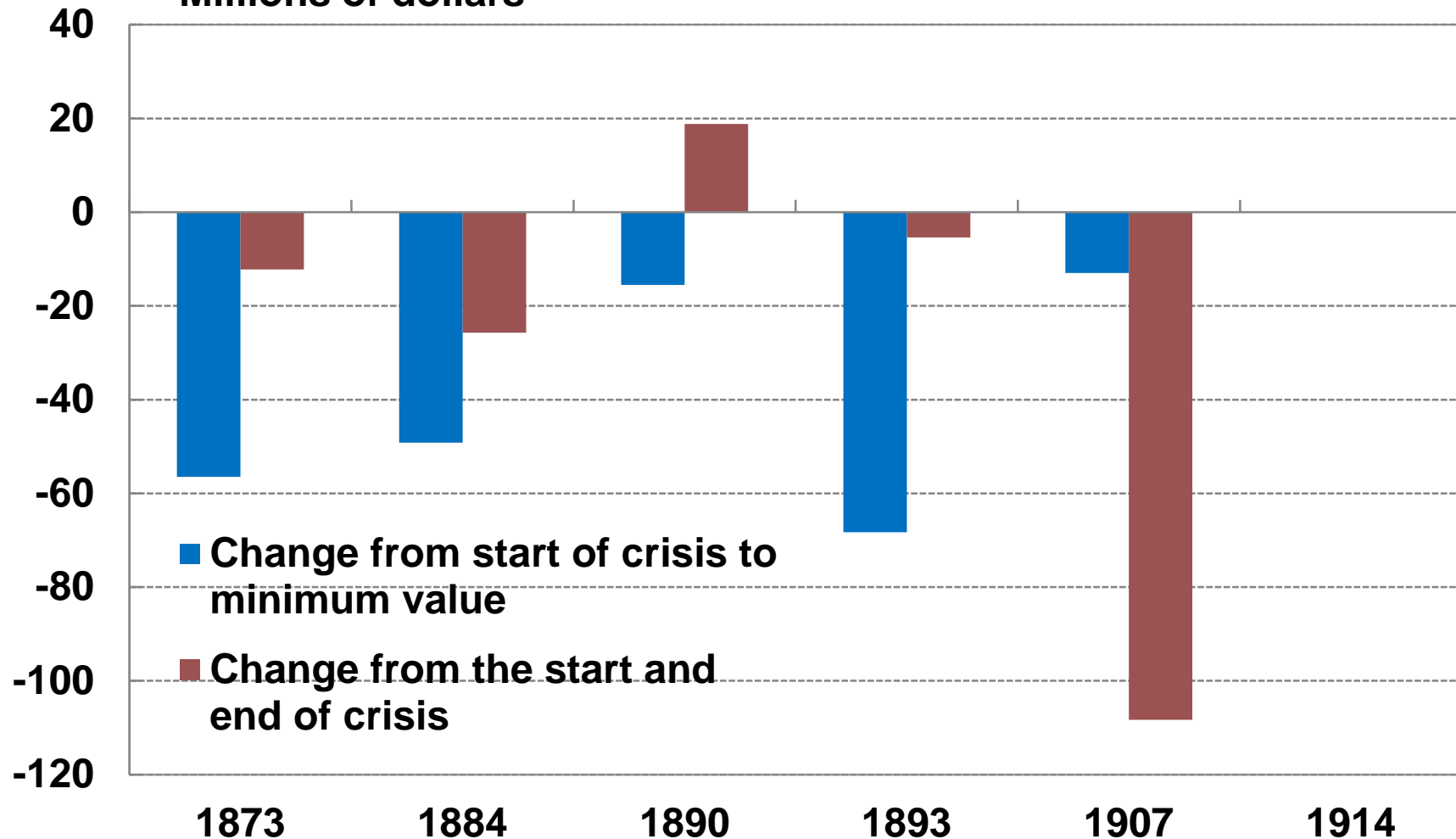
Millions of Dollars



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CHANGE IN NET DEPOSITS CLEARING HOUSE BANKS

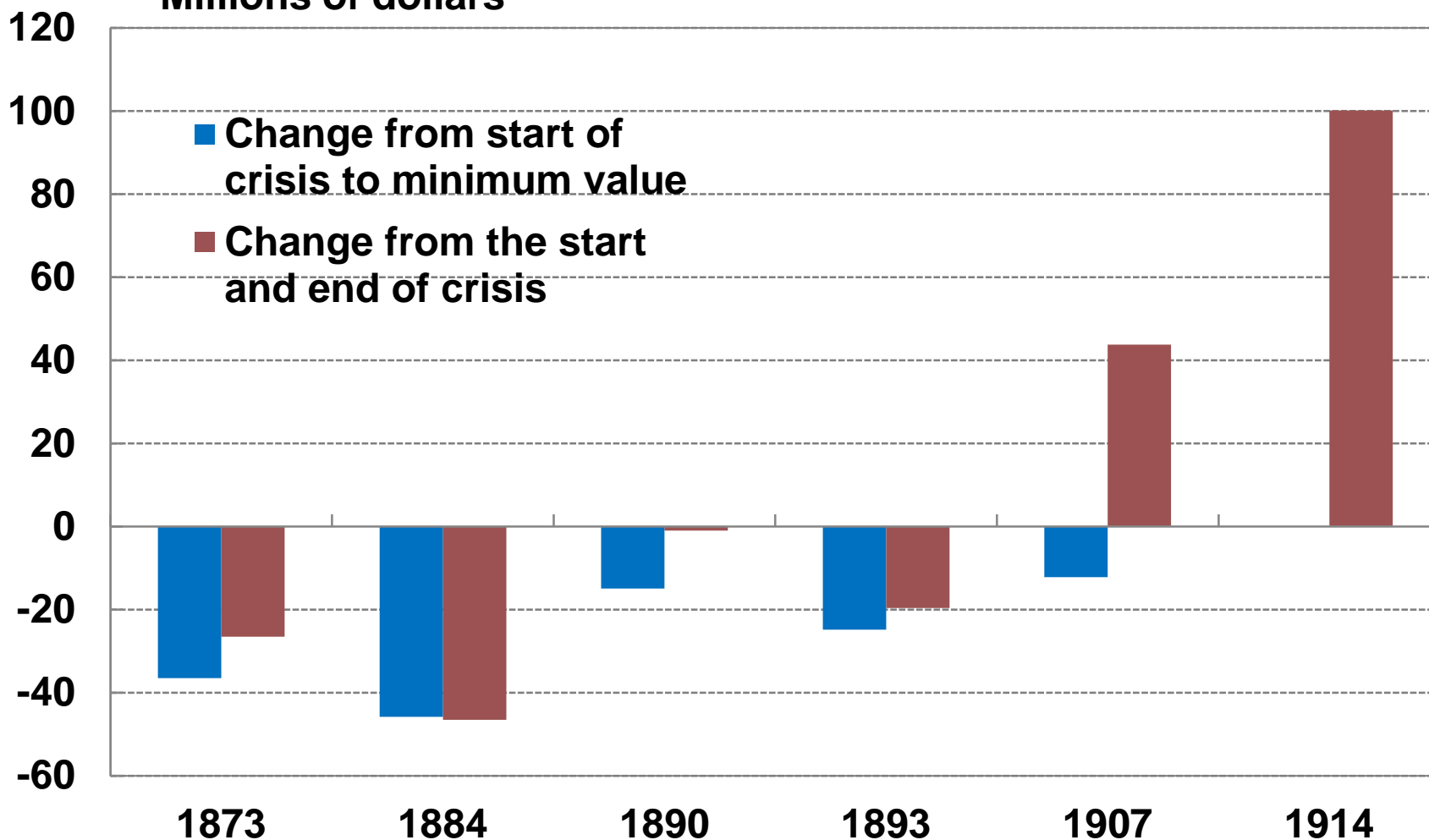
Millions of dollars*



*Scaled by nominal GDP for each respective year

CHANGE IN LOANS AMONG CLEARING HOUSE BANKS

Millions of dollars*

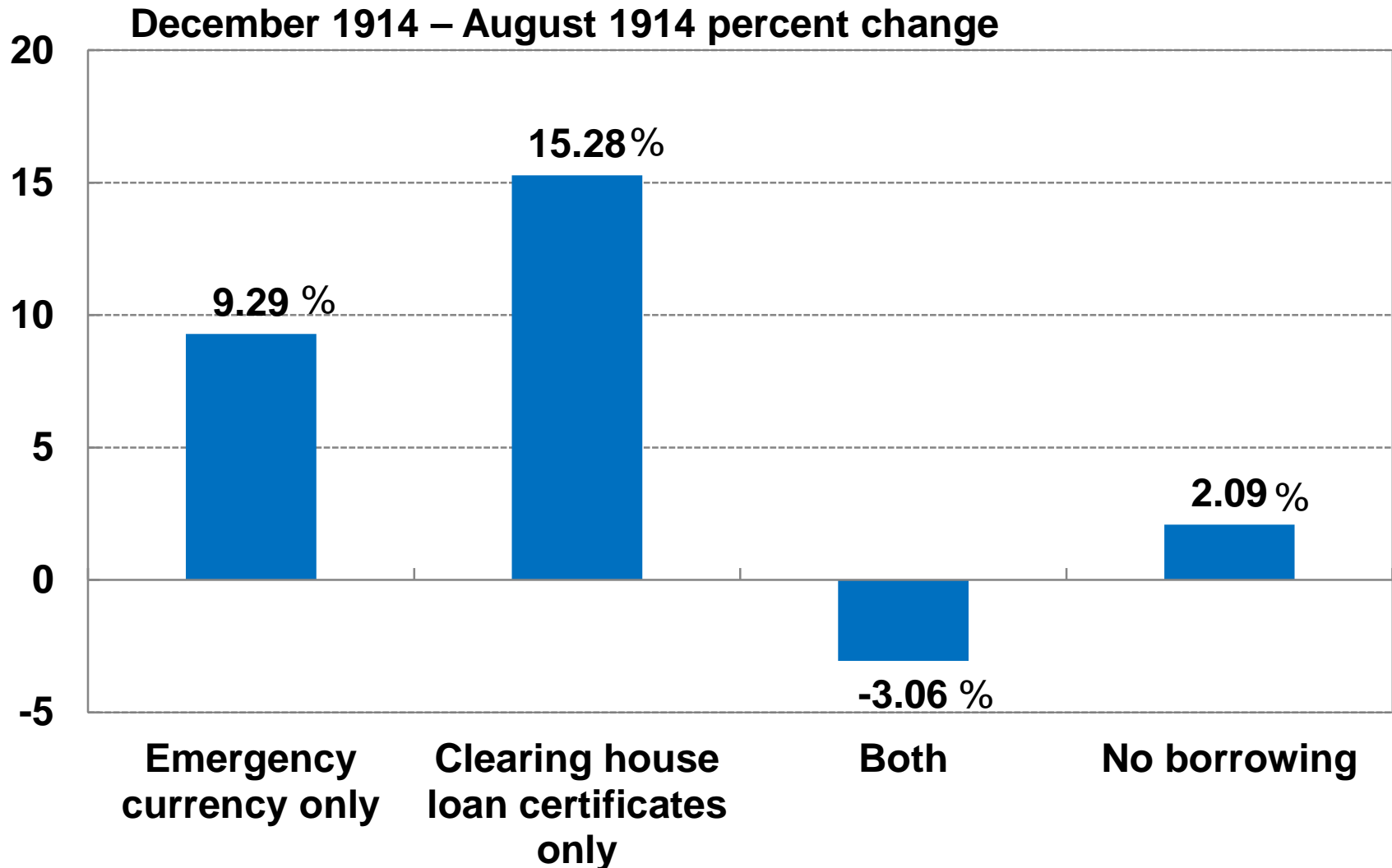


*Scaled by nominal GDP for each respective year

DATA SUMMARY

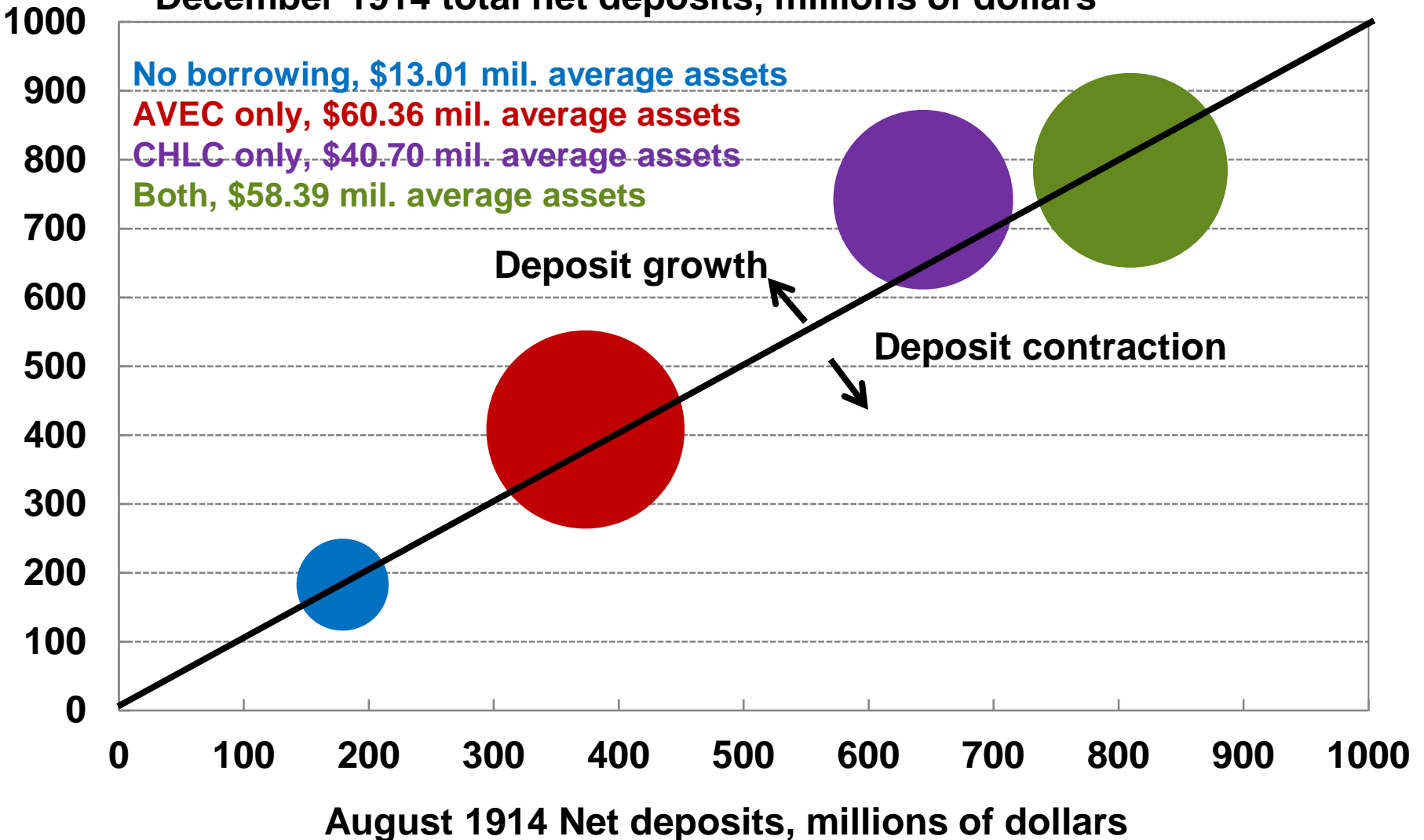
- Banking activity and intermediation
 - Contracted during the three major NBE panics
 - Remained flat in 1914.
- Is borrowing status associated with deposit level changes?
 - Examine net deposit levels from the August and December weekly reports in the Commercial and Financial Chronicle
 - Group data by borrowing status – four groups

TOTAL NET DEPOSITS BY BORROWING STATUS



DEPOSIT CHANGE BY BANK SIZE

December 1914 total net deposits, millions of dollars



August 1914 Net deposits, millions of dollars

Note: the area of circle represents the average bank assets in that respective borrowing category

DISCUSSION

- During National Banking Era panics
 - Clearing house loan certificates were “only choice”
 - Unable to generate an increase in the money supply
- In 1914, a different association
 - CHLCs taken out by many intermediaries
 - Even those able to borrow emergency currency
 - CHLCs were associated with deposit growth
 - Trust and state banks (no alternative)
 - National banks – a secondary source of liquidity with less stringent collateral requirements

EXTENSIONS

- Compare the roles of core and peripheral liquidity creation to the 2008 crisis
- Comparison of 1893, 1907 and 1914
 - Isolate where the breakdowns begin
 - And how 1914 avoided the breakdown
- Other ideas
 - Formalize CHLCs and emergency currency as a composite good -- a closer substitute for legal tender
- Further empirical work (more technical)
 - Tobit regression using balance sheet measures to predict those banks that borrow clearing house loan certificates, emergency currency or both

CONCLUSION

- Financial intermediaries in NYC maintain deposit levels, despite the closure of the NYSE in 1914
- The Distress of 1914 stands out among National Banking Era panics because deposits, loans, and the aggregate money supply all increased
- Temporary liquidity was issued to a wide range of financial institutions
 - Emergency currency and CHLCs
 - Borrowers maintained and increased deposit levels to a greater extent than non-borrowers
 - *Counter factual thought experiment* – would deposits have grown at non-borrowing banks if there was no borrowing by any banks?