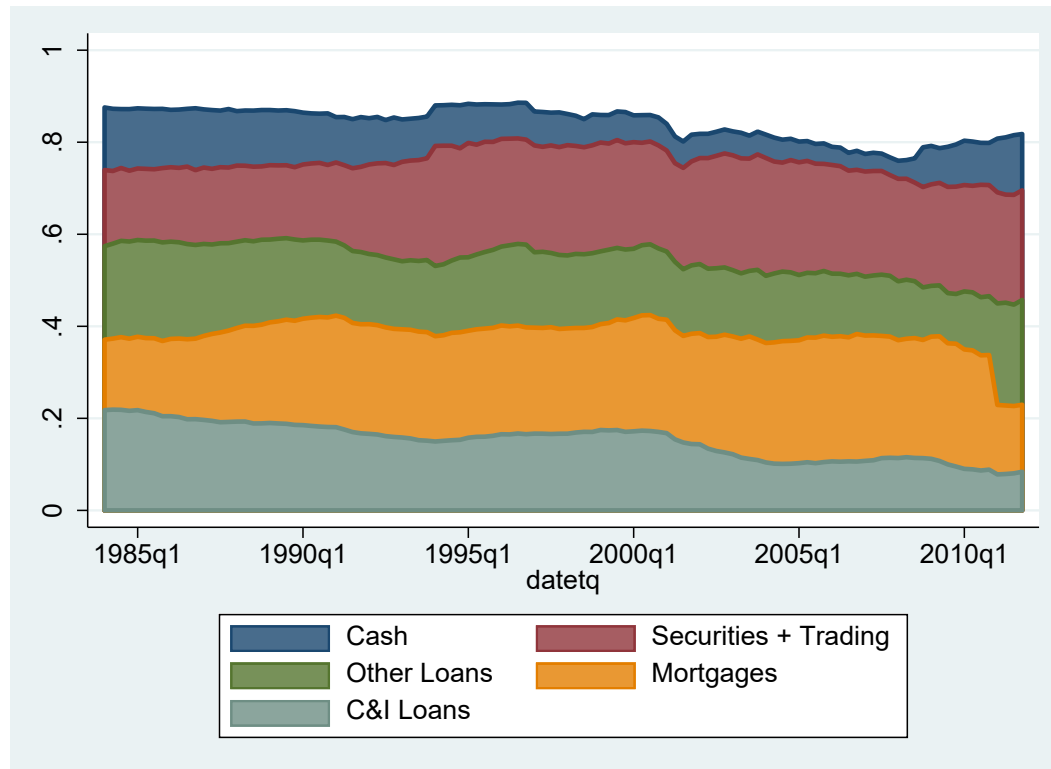


Discussion of  
"Running Out of Time (Deposits)"  
by Dominik Supera

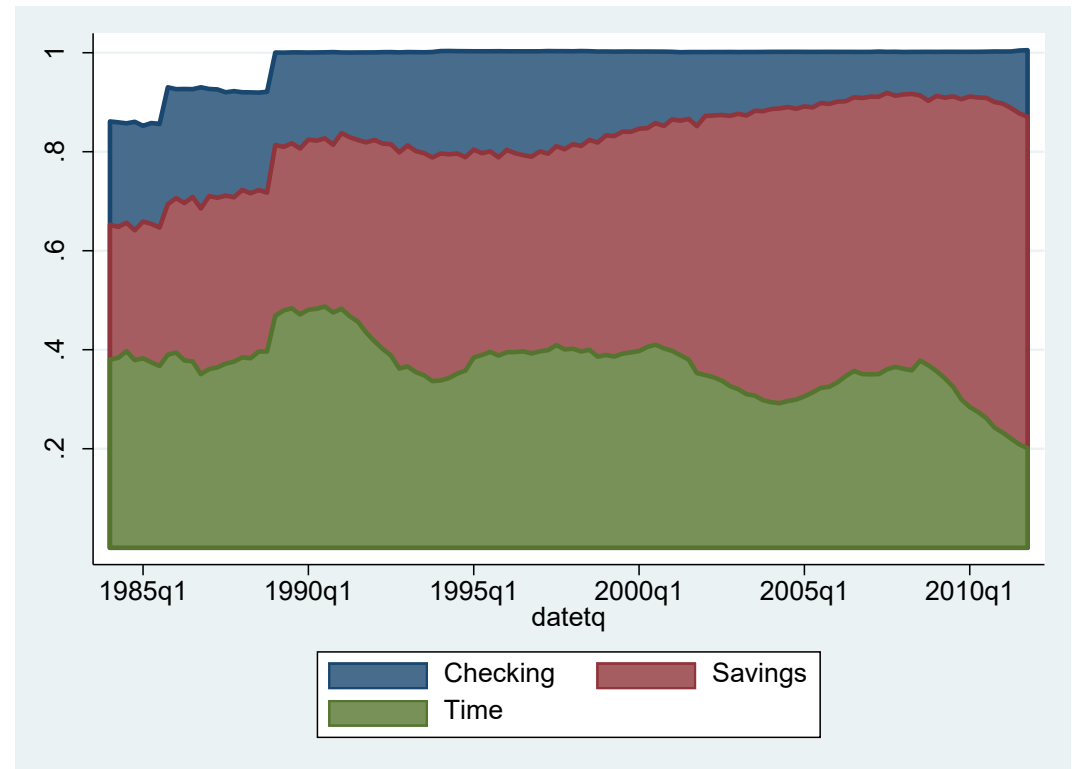
Vadim Elenev  
Johns Hopkins Carey  
Fischer-Shain Center Research Conference | September 2023

# Evolution of Bank Balance Sheets

## Assets



## Deposits



# Overview

1. Conventional wisdom: banks use deposits to back loans  
But digging under the hood a bit more:
  - Banks use **time deposits** to back **business loans** b/c they're
    - stable ← loans are illiquid
    - rate-sensitive ← business loans are floating rate i.e. short duration
  - They use **savings deposits** to back **mortgages (and long-term securities)**
    - More subject to liquidity shocks ← mortgages are easier to sell
    - Rate-insensitive (procyclical liquidity benefits or more sleepy depositors) ← mortgages are long duration
2. Household demand for deposits is cyclical in interest rates
  - **Time deposits: procyclical** | **Savings deposits: counter-cyclical**
  - 1980s-2010: decline in rates → switch from time deposits (CDs) to savings deposits
  - Lead to decline in business lending by banks due to matching
3. Reduced investment, growth, dynamism of the kinds of firms that most rely on bank lending

# Overview

1. Conventional wisdom: banks use deposits to back loans. But digging under the hood a bit more:
  - Banks use **time deposits** to back **business loans**
    - stable ← loans are illiquid
    - rate-sensitive ← business loans are floating rate
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  - **Time deposits: procyclical** | **Savings deposits: countercyclical**
  - 1980s-2010: decline in rates → switch from time to savings deposits
  - Lead to decline in business lending by banks
3. Reduced investment, growth, dynamism due to reduced bank lending

- Important contribution to our understanding how banks work!
- Particularly the point about interest rate risk hedging
- Higher time deposit rate sensitivity wasn't obvious to me at all!

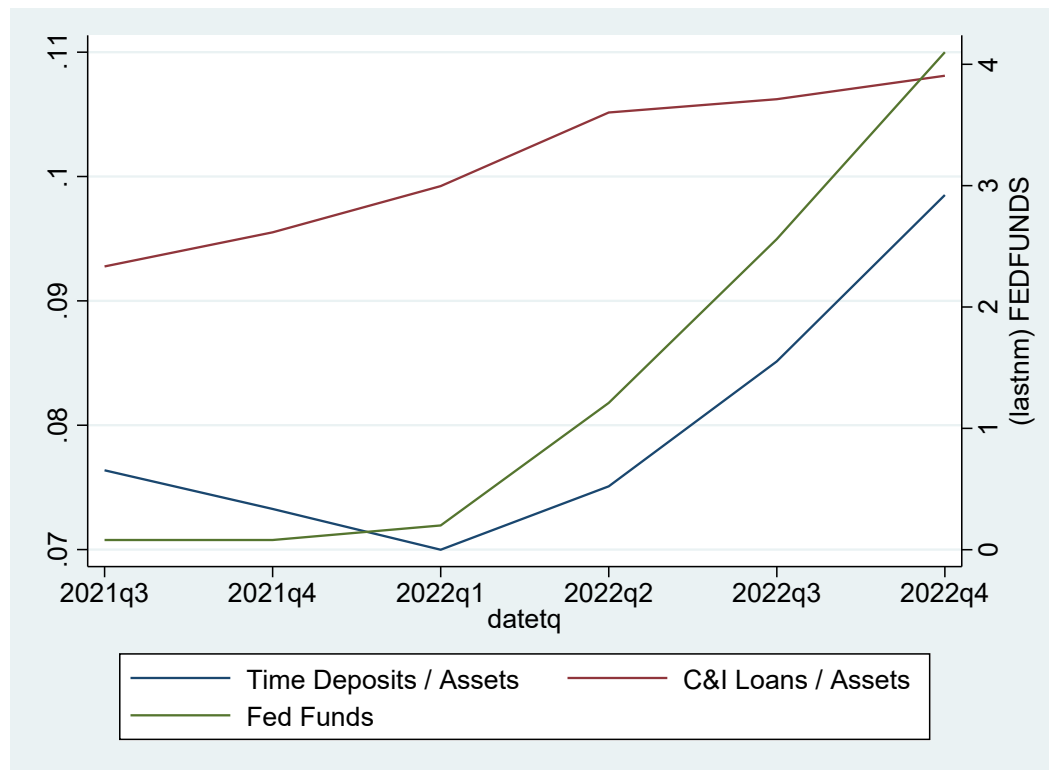
- Empirically convincing and theoretically grounded understanding of liquidity demand dynamics

- How crucial are banks to this story?
- How much has "dynamism" really decline?

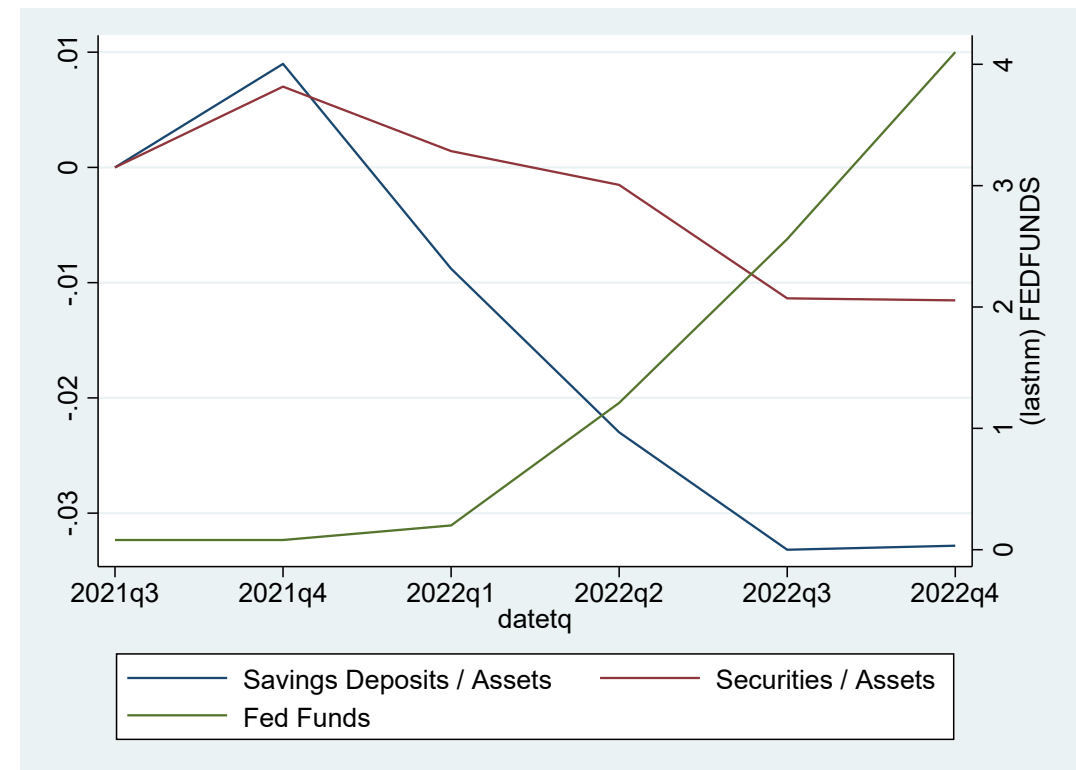
# Now that rates are rising...



## Time Deposits and C&I Loans (Levels)

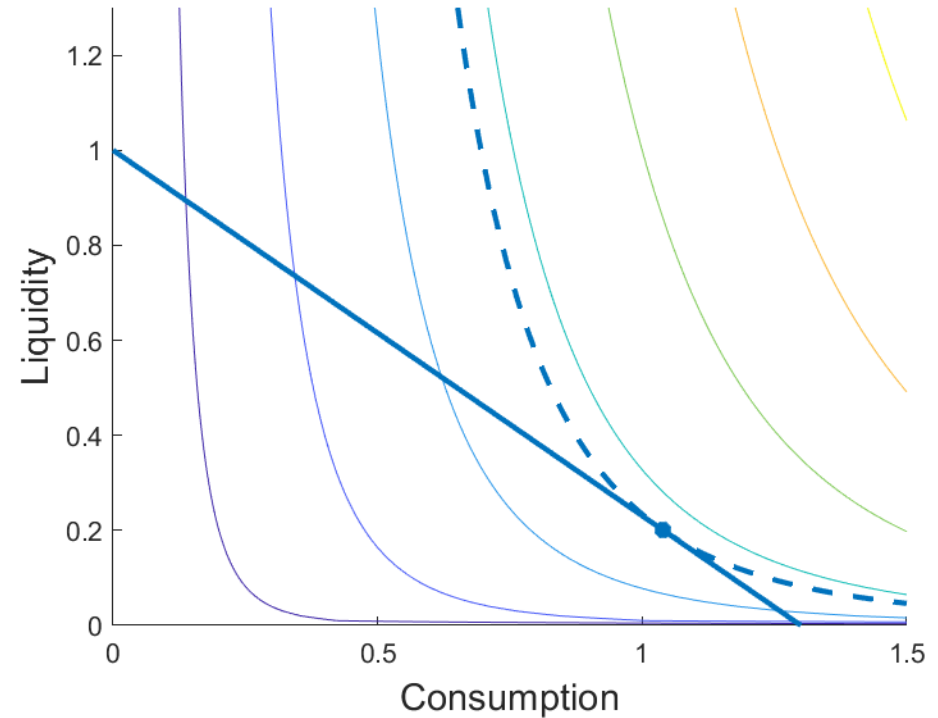


## Savings Deposits and Securities (Cumulative Changes)



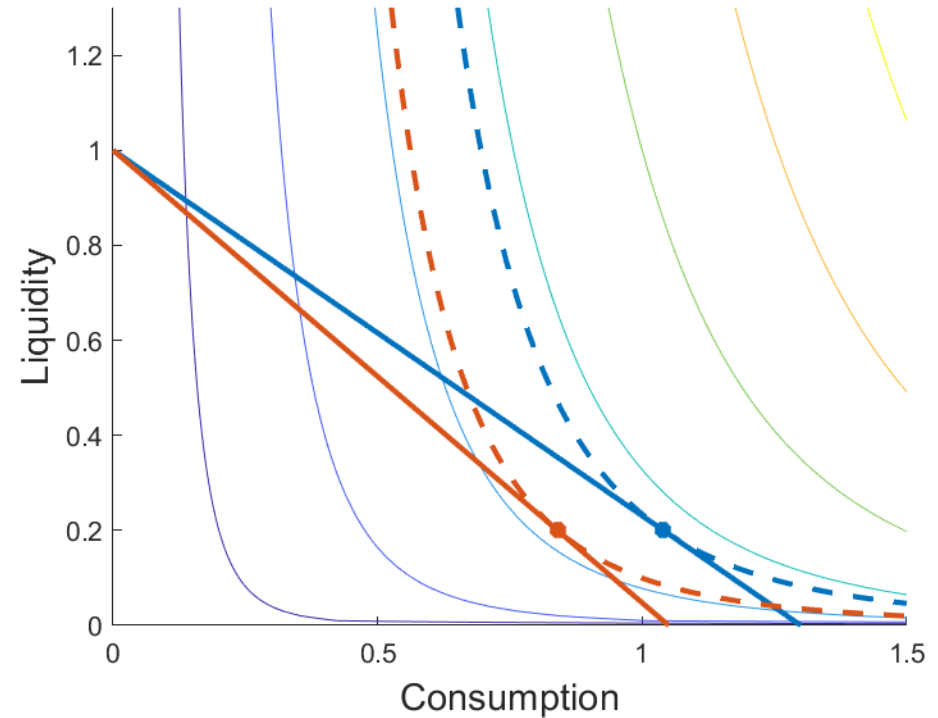
# (Frictionless) Conceptual Framework

- Representative household with an endowment of 1
- Preferences  $u(c, d)$  over consumption and liquidity
- Chooses to allocate investment into production of consumption  $k$  and liquidity  $1 - k$
- Production functions:
  - $c = (1 + r)k$
  - $d = 1 - k$
- Intertemporal interpretation:  $r$  is both
  - growth rate
  - interest rate



# What if $r$ drops?

- Lower growth / lower interest rate
- Lower *opportunity cost* of liquidity
- More liquidity *per unit of consumption*
- Declining growth prospects from 1980s to 2010s explain both
  - Lower interest rates
  - Lower investment
  - Rise in liquidity, e.g., shift from time to savings deposits
- Only assumption: existence of a production possibilities frontier





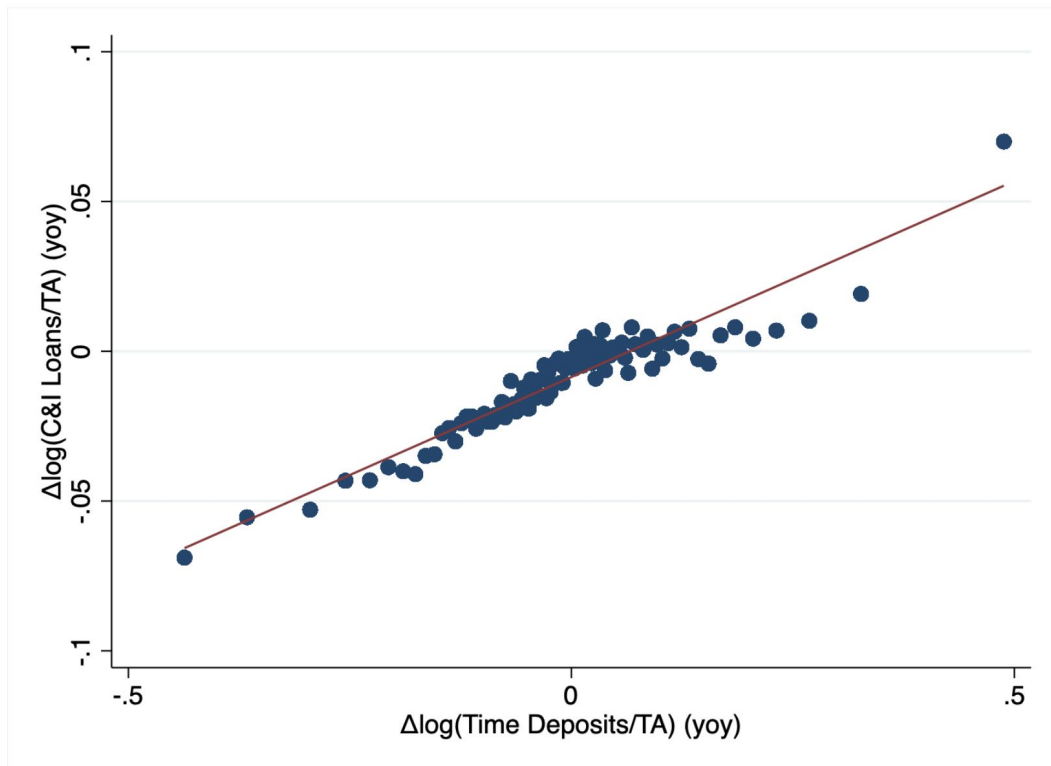


# Do banking frictions still matter?

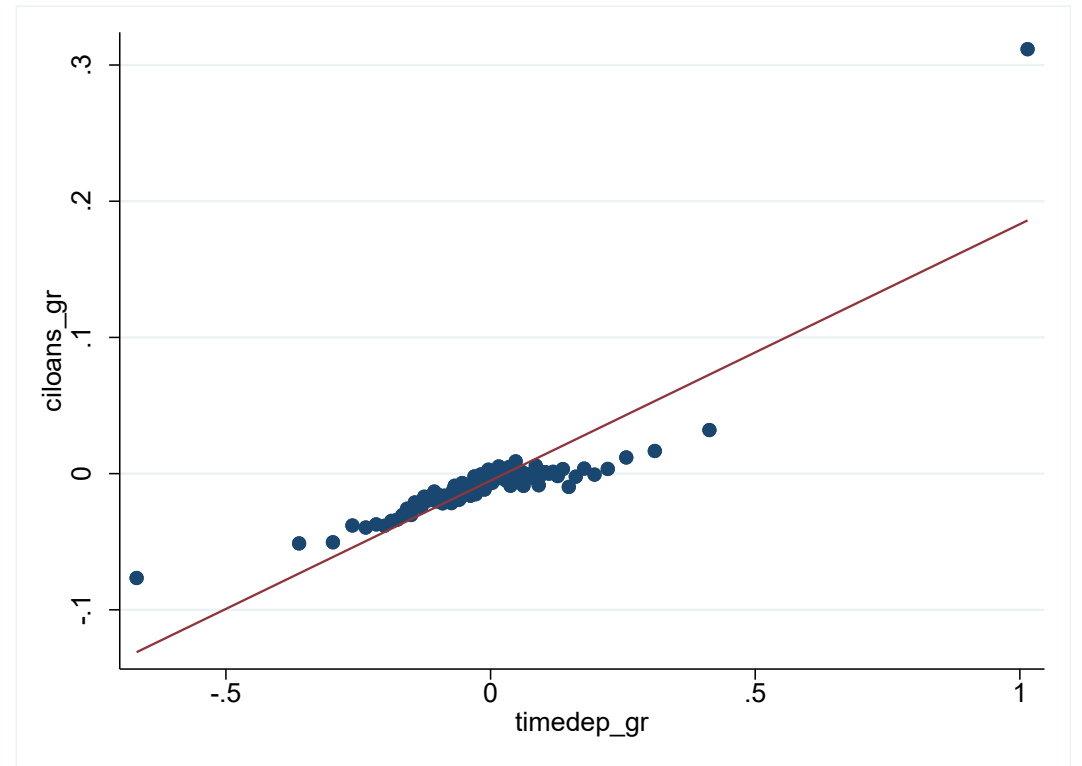
- Frictionless model explains aggregate low-frequency patterns
  - Decline of  $r^*$  is a story with a 30-year horizon
- To see if banking frictions are a necessary part of the story, ask: what does the frictionless model FAIL to explain?
- Let's look at
  - Cross-sectional evidence
  - Evidence from higher (i.e., business cycle) frequency
  - Evidence from a 1970s policy reform

# TD vs. C&I Shares Growths in Cross-Section

**Paper**

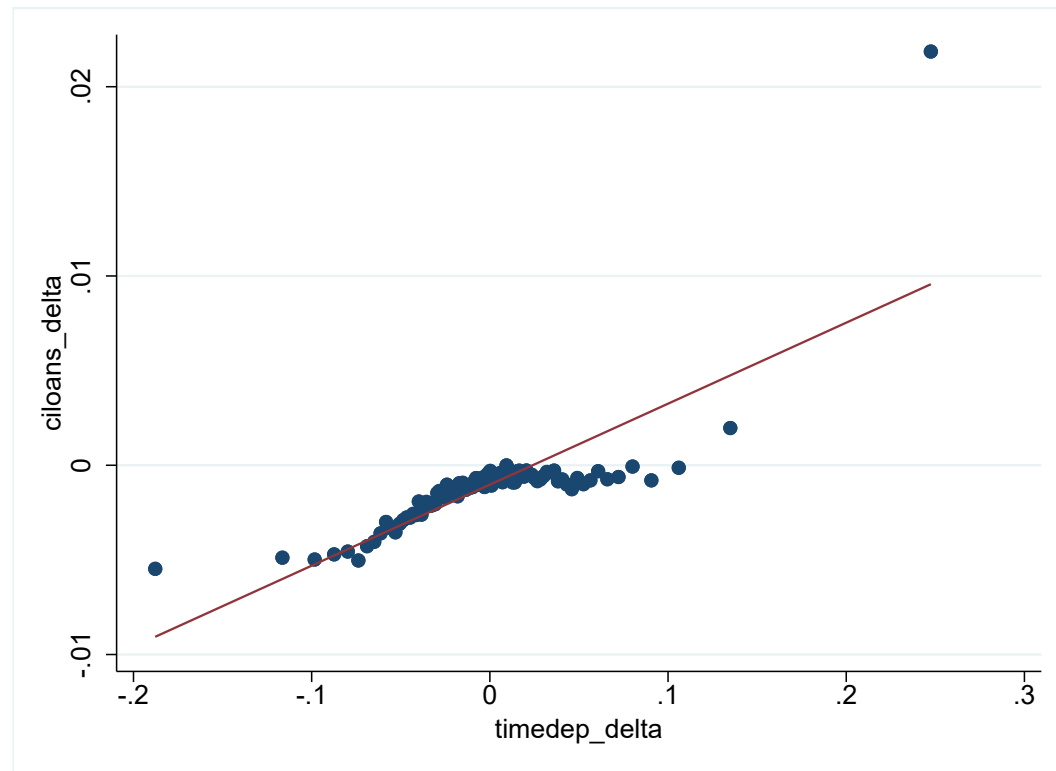


**My Replication\***



\*Unless otherwise noted, I use the processed Call Reports dataset from Philipp Schnabl's website

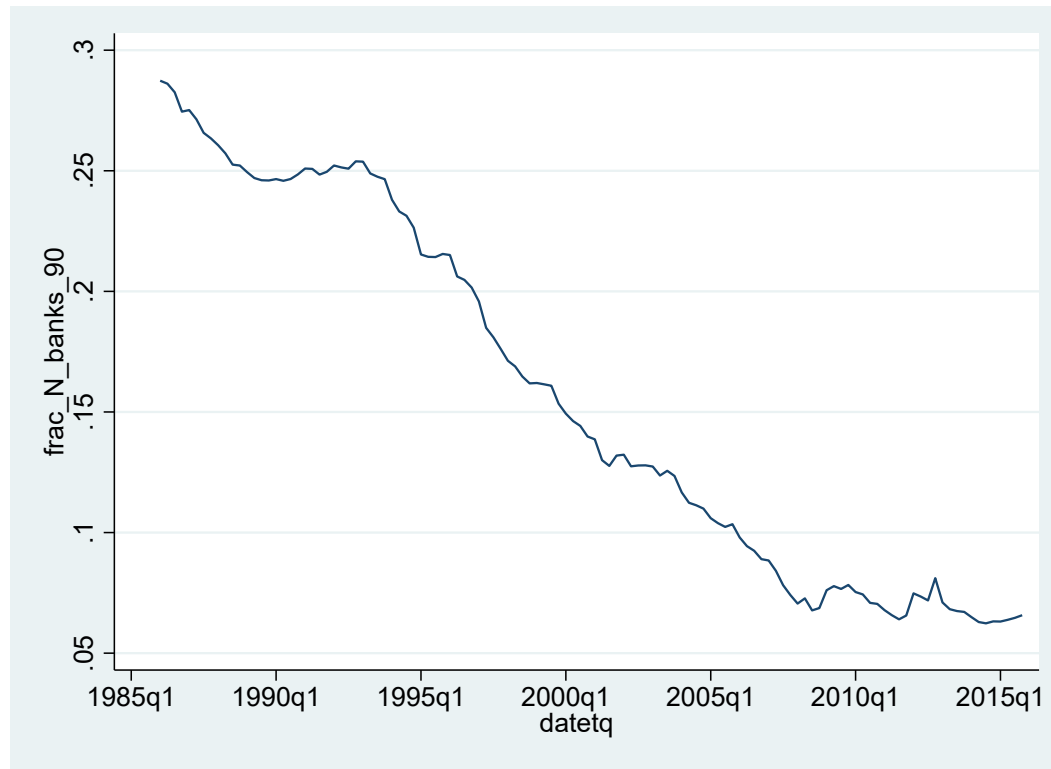
# Deltas Instead of Growth Rates



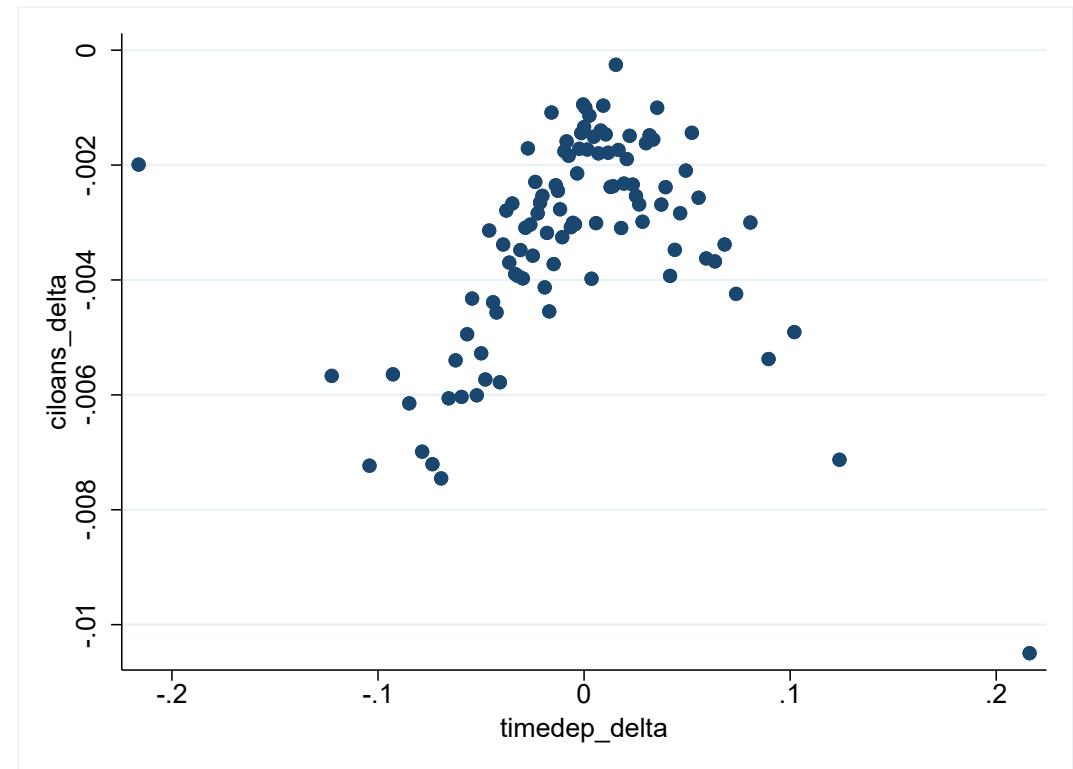
- Percentage point changes more intuitive than percentage changes in percent
- 10pp decline in the time deposit share associated with 0.5pp decline in C&I loans
  - Robust to time FEs, bank FEs, both, asset growth rates

# Caveat to cross-sectional bank regressions: most banks are small

**Smaller and smaller fraction of large  
banks control 90% of all bank assets**



**Limiting to just these banks**



Is the cross-sectional relationship between time deposit declines and C&I loan declines driving aggregates?

# Business/Fed Fund Cycles

- Can the simple model explain co-movements over the cycle?
  - Possibly, depending on link between rates and growth

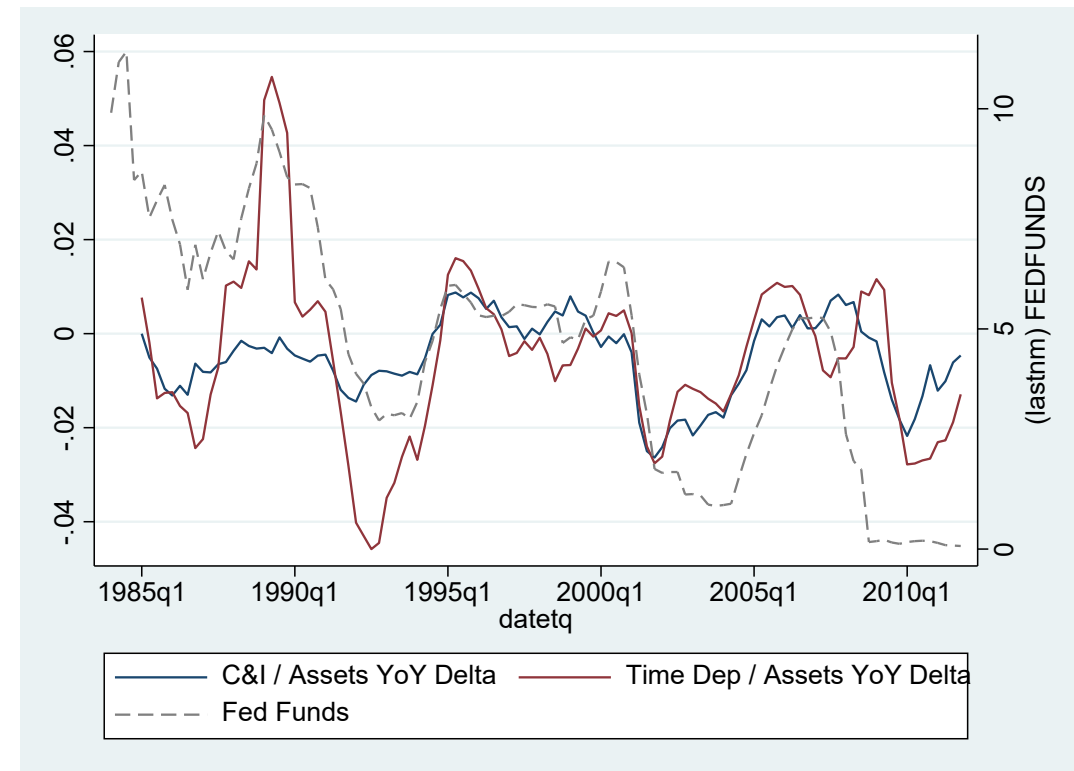


Expected rate hikes: If expected growth  $\uparrow \rightarrow$  rates  $\uparrow$ , then

- Investment  $\uparrow$ , relative liquidity  $\downarrow$

- MP shocks: if rate  $\uparrow \rightarrow$  expected growth  $\downarrow$ , then

- Investment  $\downarrow$ , relative liquidity  $\uparrow$



# Business/Fed Fund Cycles

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✓ Expected rate hikes: If expected growth  $\uparrow \rightarrow$  rates  $\uparrow$ , then

- Investment  $\uparrow$ , relative liquidity  $\downarrow$

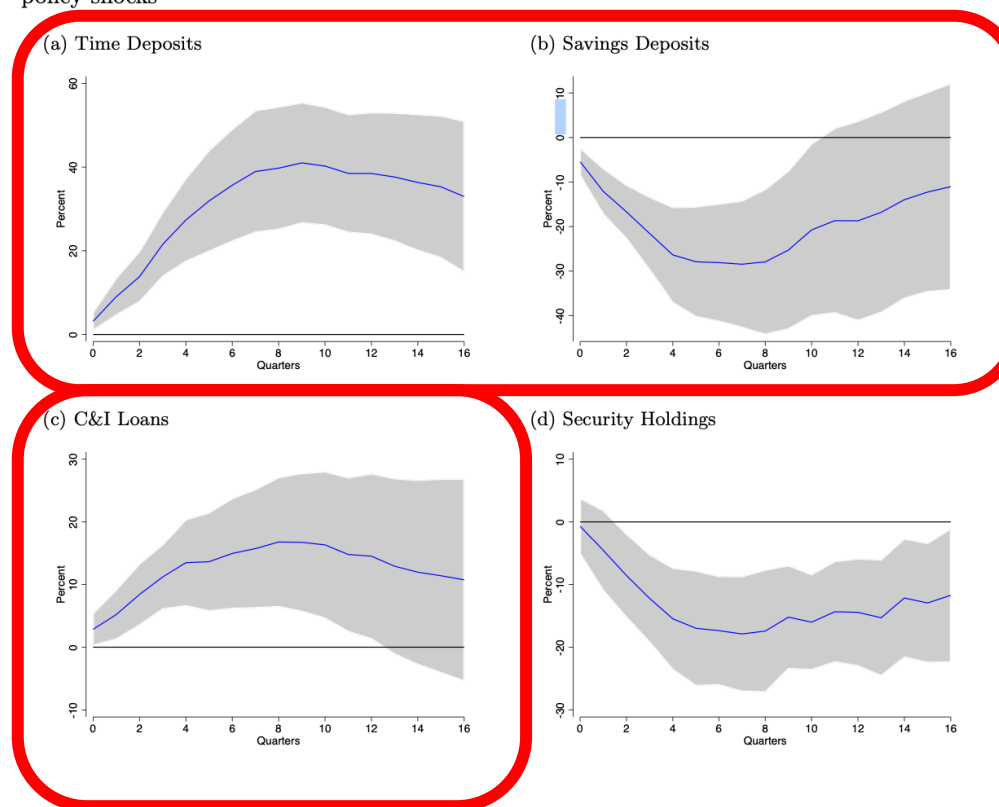
✗ MP shocks: if rate  $\uparrow \rightarrow$  expected growth  $\downarrow$ , then

- Investment  $\downarrow$ , relative liquidity  $\uparrow$

Rejected by data?

## A Additional Figures and Tables

Figure A1: Monetary policy and bank balance sheet items: Local projections with monetary policy shocks



# How "contractionary" are MP shocks?

- Nakamura and Steinsson's information effect: unexpected rate hikes raise growth expectation



Recall: then

- Investment  $\uparrow$ , relative liquidity  $\downarrow$
- Consistent with the frictionless model

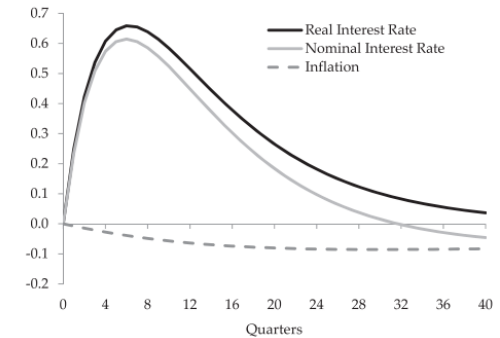


FIGURE III  
Responses of Nominal and Real Rates and Inflation to a Contractionary Shock

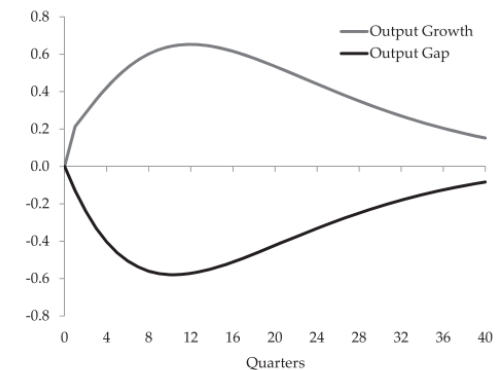
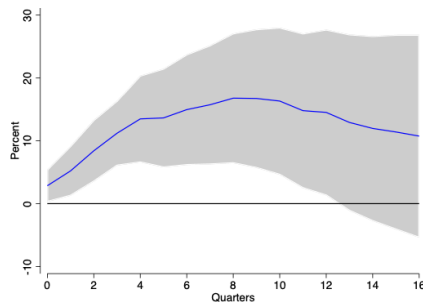
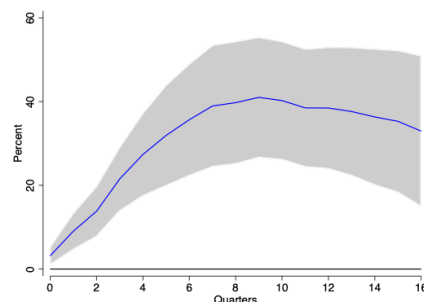


FIGURE IV  
Responses of Expected Output Growth and Output Gap to a Contractionary Shock

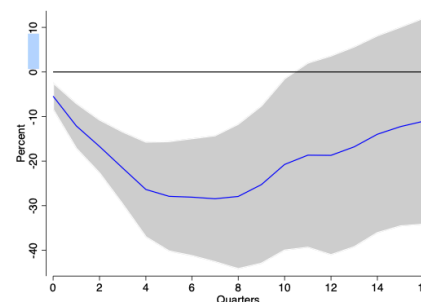
(c) C&I Loans



(a) Time Deposits



(b) Savings Deposits

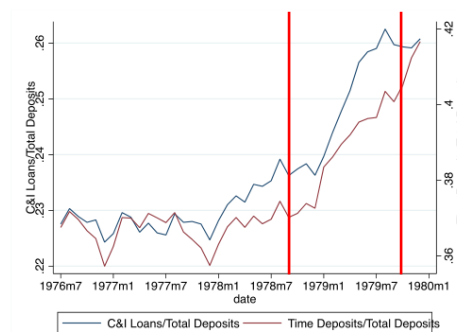


# 1970s Deregulation

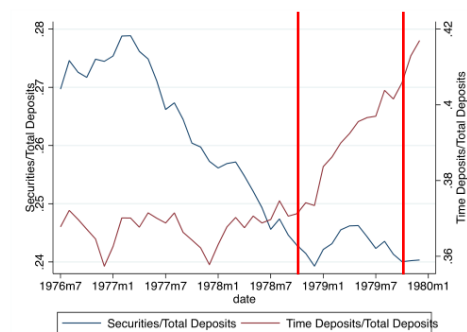
- Repeal of interest rate ceilings on two types of time deposits in 1978q3 and 1979q3
  - Increase in share of time deposits
  - Increase in share of C&I loans
  - Holds in the cross-section too

Figure 4: Deregulation of small time deposits

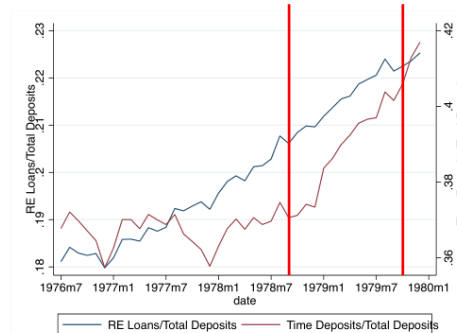
(a) C&I loans and time deposits



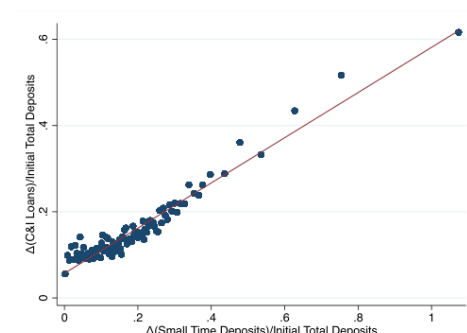
(b) Securities and time deposits



(c) RE loans and time deposits



(d) C&I loans and time deposits: Cross-section





# 1970s Deregulation

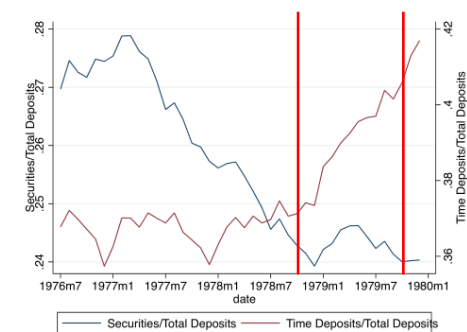
- Repeal of interest rate ceilings on two types of time deposits in 1978q3 and 1979q3
  - Increase in share of time deposits
  - Increase in share of C&I loans
  - Holds in the cross-section too
- "Shock" is *opportunity* to issue time deposits
  - Decision to do it is endogenous
  - Cross-sectional variation in TD growth may reflect lending opportunities

Figure 4: Deregulation of small time deposits

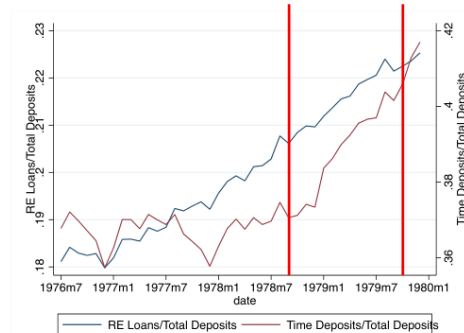
(a) C&I loans and time deposits



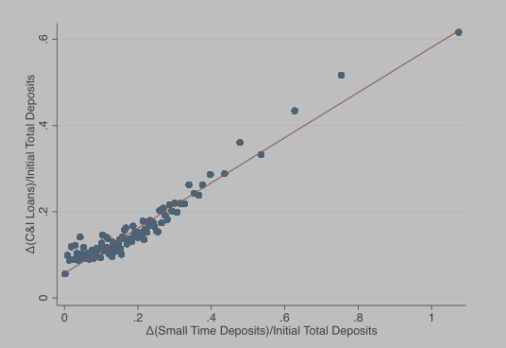
(b) Securities and time deposits



(c) RE loans and time deposits



(d) C&I loans and time deposits: Cross-section

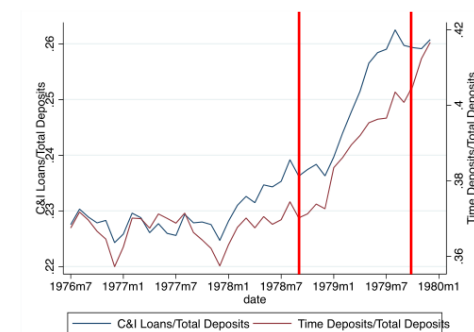


# 1970s Deregulation: Aggregates Convincing!

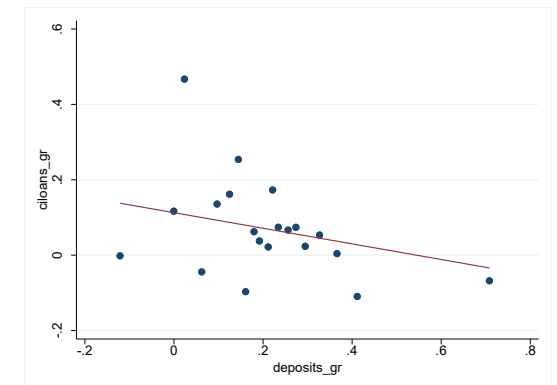
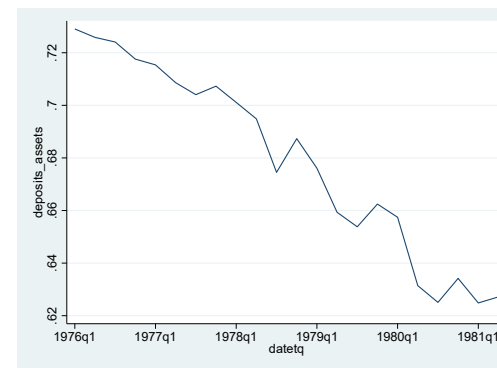
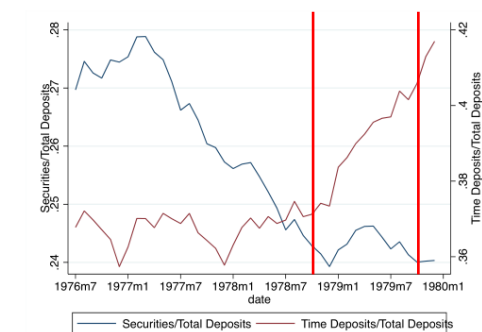
- Could the rise in lending just reflect the end of financial repression?
  - Financial repression: lots of high NPV projects don't get funded because banks are too small (fin friction but not related to TD → C&I matching)
  - Now money flowing into banks
  - Projects finally get funded
- But: total deposits actually shrink!
  - Deposits just get reallocated from savings to time deposits!
  - Close to "ideal" experiment!
  - Why?
- How much does this one episode teach us?

Figure 4: Deregulation of small time deposits

(a) C&I loans and time deposits



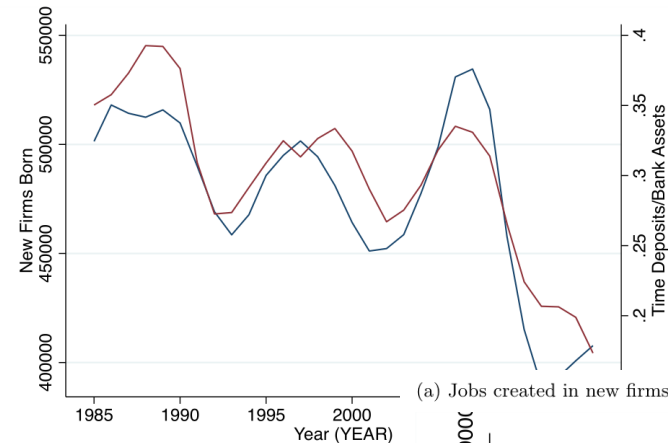
(b) Securities and time deposits



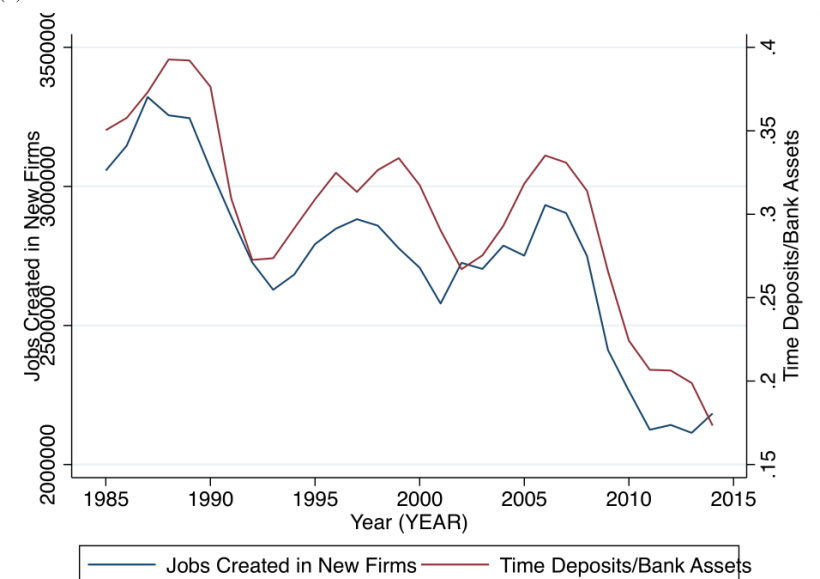
# Is Business Dynamism Declining?

- Overall investment has declined from 1980s to 2010s
- How much is funding supply vs. demand? I.e.,
  - due to banks lending less because they can't match loans with enough time deposits?
  - Vs. running out of good ideas
- Compare more vs. less bank dependent firms
  - Unrated firms
  - **New firms**
- Fewer new firms, fewer employees at new firms

(b) Newly created firms

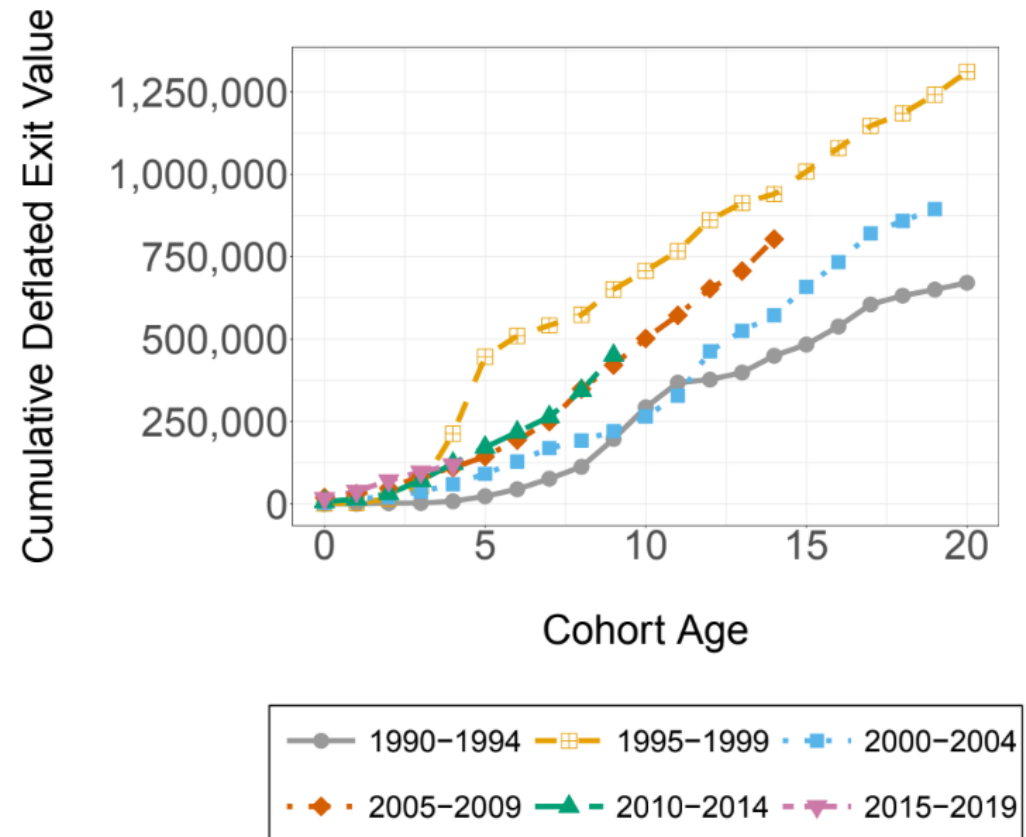


(a) Jobs created in new firms



# Is Business Dynamism Declining? Maybe not!

- But NOT less value created
  - Barkai and Panageas (2023)
- Total exit values of new firms have only been higher during the dot-com boom
  - Otherwise, recent cohorts create more value than previous ones
- Relationship between labor intensity and bank finance dependence of new firms?



# To conclude...

- I really liked the paper and learned a lot reading it about how banks work
- Oh, and by the way, there's a full-fledged DSGE model with financial frictions rationalizing the empirical findings too
- Suggestions for the next draft (or next paper?)
  - Explore real effects of the time deposit  $\leftrightarrow$  C & I loan matching further
  - Add a data appendix
    - Lots of judgment calls needed when working with call reports data, esp. over time