The Secular Decline of Bank Balance Sheet Lending

Greg Buchak, Gregor Matvos, Tomasz Piskorski, Amit Seru

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Bank Balance Sheet View

FORTUNE

JPMorgan warns 86 million customers they might have to start paying for their bank accounts

"If these standards are adopted, they will have a devastating impact on our efforts to increase Black homeownership and disadvantage all first-time, and, in particular, first-generation homebuyers who do not have the benefit of multi-generational wealth or higher-than-average incomes."

– National Housing Conference, NAACP and Coalition of Housing and Consumer Groups

HOW DOES REQUIRING HIGHER BANK CAPITAL AFFECT LENDING?

When capital requirements are set excessively high, it makes it much harder to secure a loan or credit — this is especially true for working families and small businesses.

We must also acknowledge that in our American financial system – and the world's markets – there are some things that **can only be done by large, complex banks** – things that are **essential to a thriving U.S. economy and American competitiveness**. Large banks on this panel serve America's interests overseas and serve America's multinational

The proposed Basel III Endgame Rule will harm everyday Americans.

Jamie Dimon,
Senate Committee on Banking, Housing, and Urban Affairs
December 6, 2023

Bank Balance Sheet View

- Bank balance sheets Centrality: Primary way to connect savers and borrowers
  - Bank issues deposits to savers
  - Bank uses proceeds to lend to borrowers

- Implicit assumptions around “bad” effects of regulation due to lack of substitutes

- How special is bank intermediation?
  - Do shocks to bank balance sheet lending affect aggregate lending?
  - Are non-banks substitutes? Are banks complements to non-bank lending?

This paper: banks’ evolving role in intermediation in the last 60 years

Facts: Decline of Bank Balance Sheet Banking Since 1960

- Fact 1 (Lending): Decline in "informationally sensitive" bank balance sheet leading
  - 55% to 35%
  - Across all major segments (corporate loans, auto loans, credit cards, mortgages)
- Fact 2 (Saving): Decline in deposits as a share of savings
  - 21% to 13%
- Fact 3 (Banks): Decline in bank loan to asset ratio and tilt towards securities
  - 70% to 55%

Micro evidence on forces:

Securitization technology: Improvements and substitution to OTD & increase in lending

Substitution towards OTD

Saver preferences: shadow money & decline in bank balance sheet lending

Bank regulation & subsidies: Post GFC regulation & bank size cutoff

Bank balance sheet & OTD are MORE interconnected

Quantitative model of intermediation

I. Quantitative model of intermediation

- Households/Rest of world save; Firms/Households borrow
- Financial intermediation sector
  - Banks: Issue deposits, & info sensitive loans, and manage balance sheet
  - OTD lenders: issue debt securities & informationally insensitive loans
- Banks can purchase OTD securities; also joint production (e.g., CLOs)
  - Banks act as a substitute AND complement for non-bank intermediation
  - Bank centric intermediation possible with large OTD sector

II. Model decomposes macro trends into

- *Borrower-driven*: shift in demand curve for bank loans vs. non-bank loans
- *Saver-driven*: shift in demand curve for deposits vs. other savings techs
- *Bank-driven*: changing costs of bank balance sheet activities

(New) provide some interpretation of what these are

Main Insights

- Main drivers of trends:
  - *Borrower demand shifts (fin tech):* aggregate lending quantities & composition
  - *Saver demand shifts (saver pref.)*: bank balance sheet size
  - *Bank costs (regulatory changes):* bank balance sheet composition

- Counterfactually impose *high* capital requirements
  - <u>Large impact on bank balance sheet lending but small effect on aggregate lending</u>
    - Non-bank lending is a good substitute for direct bank lending
    - Banks sell securities, but other sectors can absorb them
      (i.e., bank complementarity in OTD is not quantitatively important on the margin)

  ≈ "MM in aggregate" due to substitutes for bank balance sheet lending

Data and Aggregate Trends

Total Lending and Market Segments

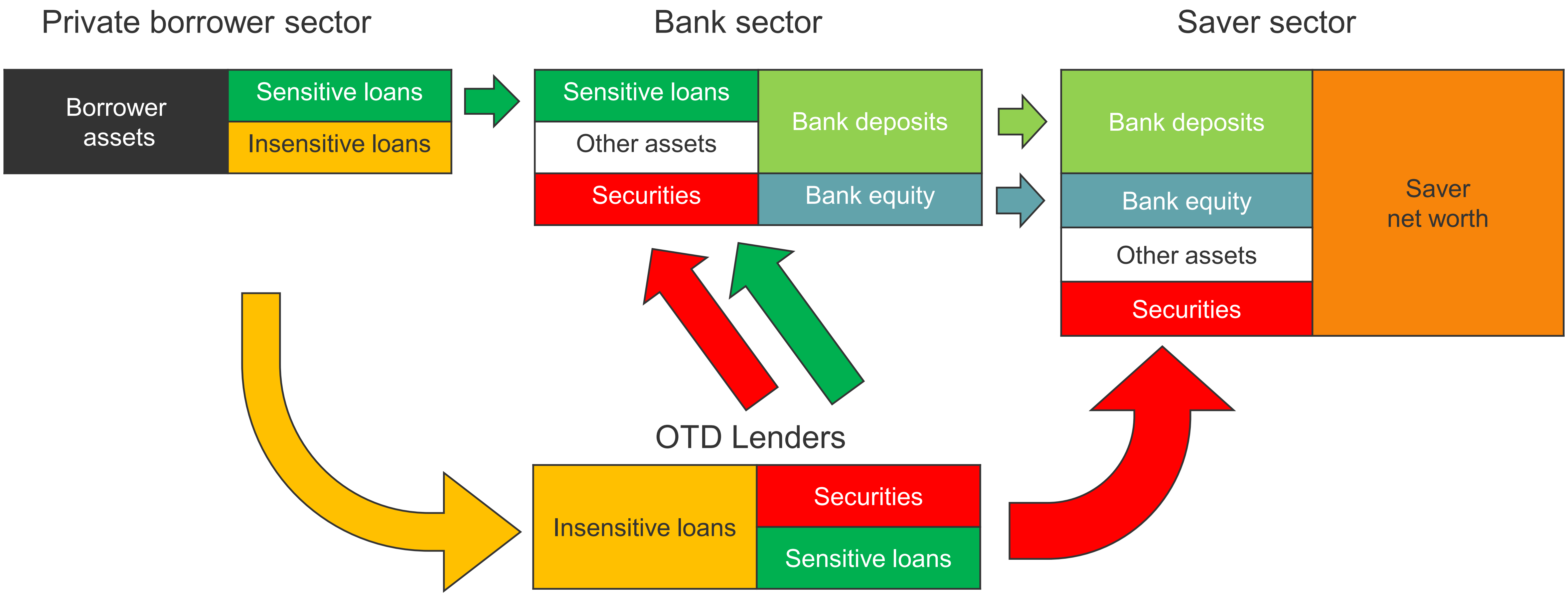
- Data: Flow of Funds of the United States, Federal Reserve System

- Total Lending: Outstanding debt of households and non-financial businesses

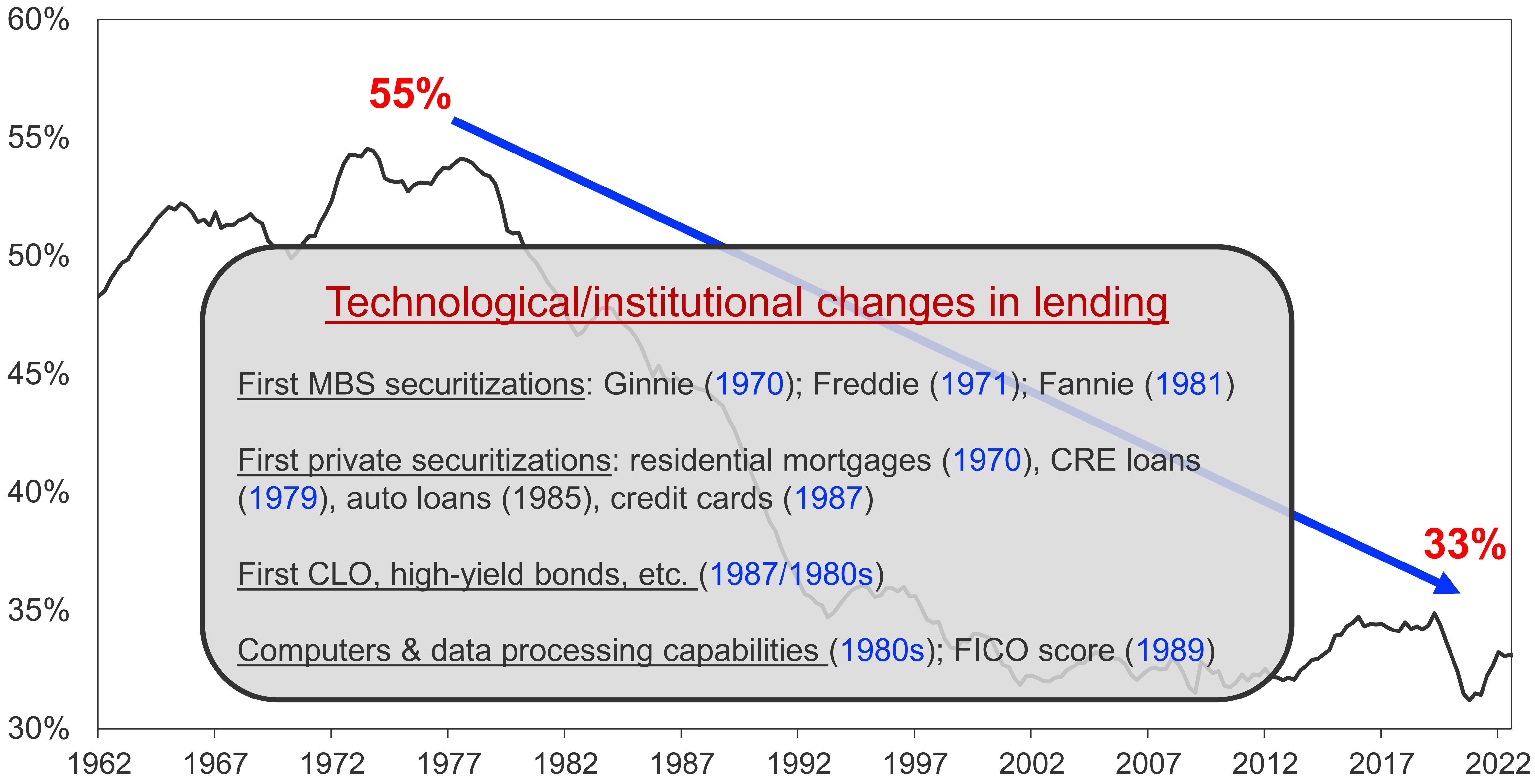
- Lending Market Segments
  - "Informationally sensitive" bank balance sheet lending
    - Loans on balance sheets of depository institutions
    - Requires bank screening/monitoring
    - Implicit *qualitative* assumption of bank specialness (data will tell us how special *quantitatively*)

  - "Debt securities": Total lending less "informationally sensitive" lending
    - *Government–affiliated debt securities* (Agency/GSE MBS)
    - *Private debt securities (E.g., corporate bonds, private debt)*
    - *Exclude directly-on-government-balance sheet lending (e.g., federal student loans)*

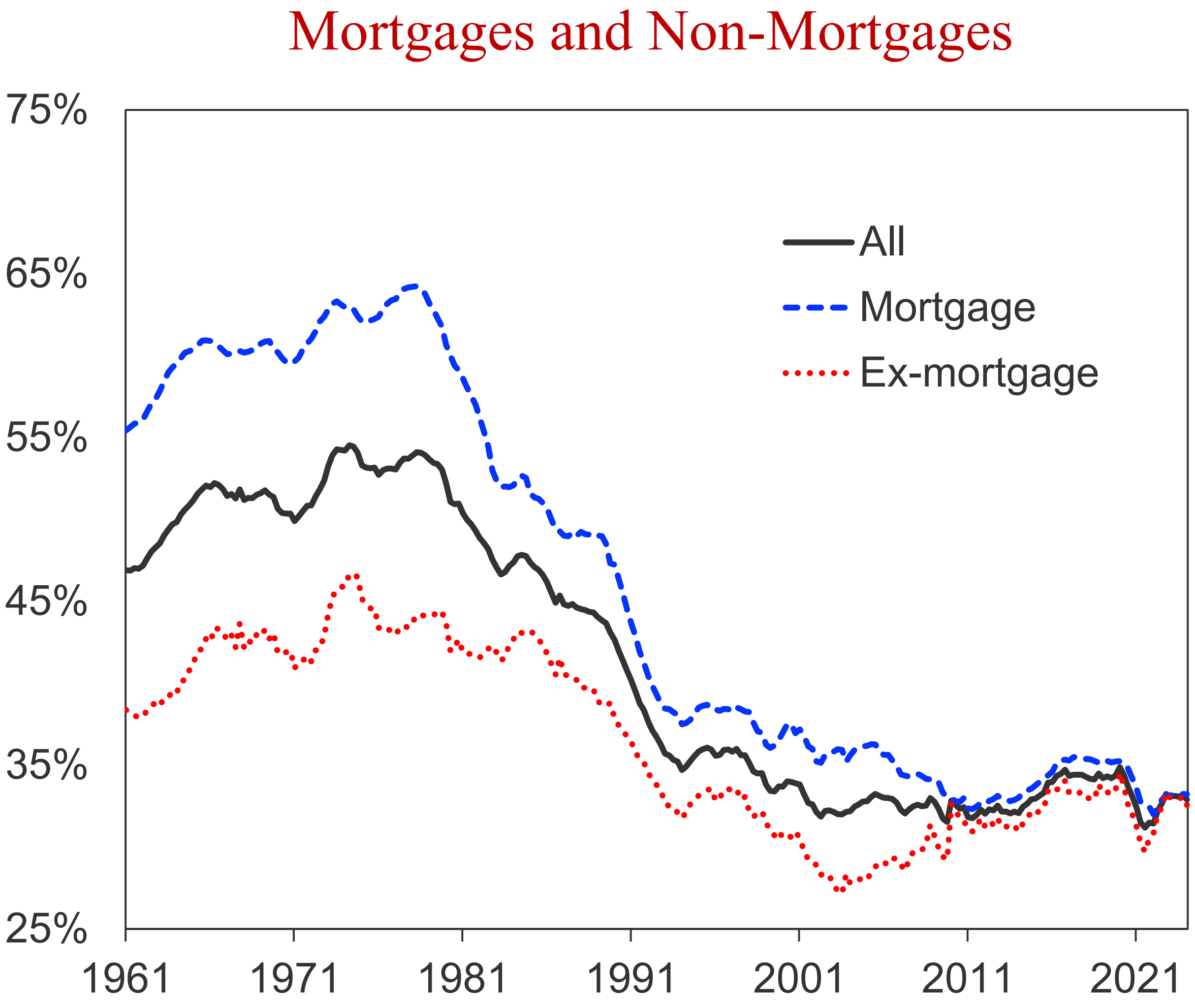
Stylized Flow of Funds

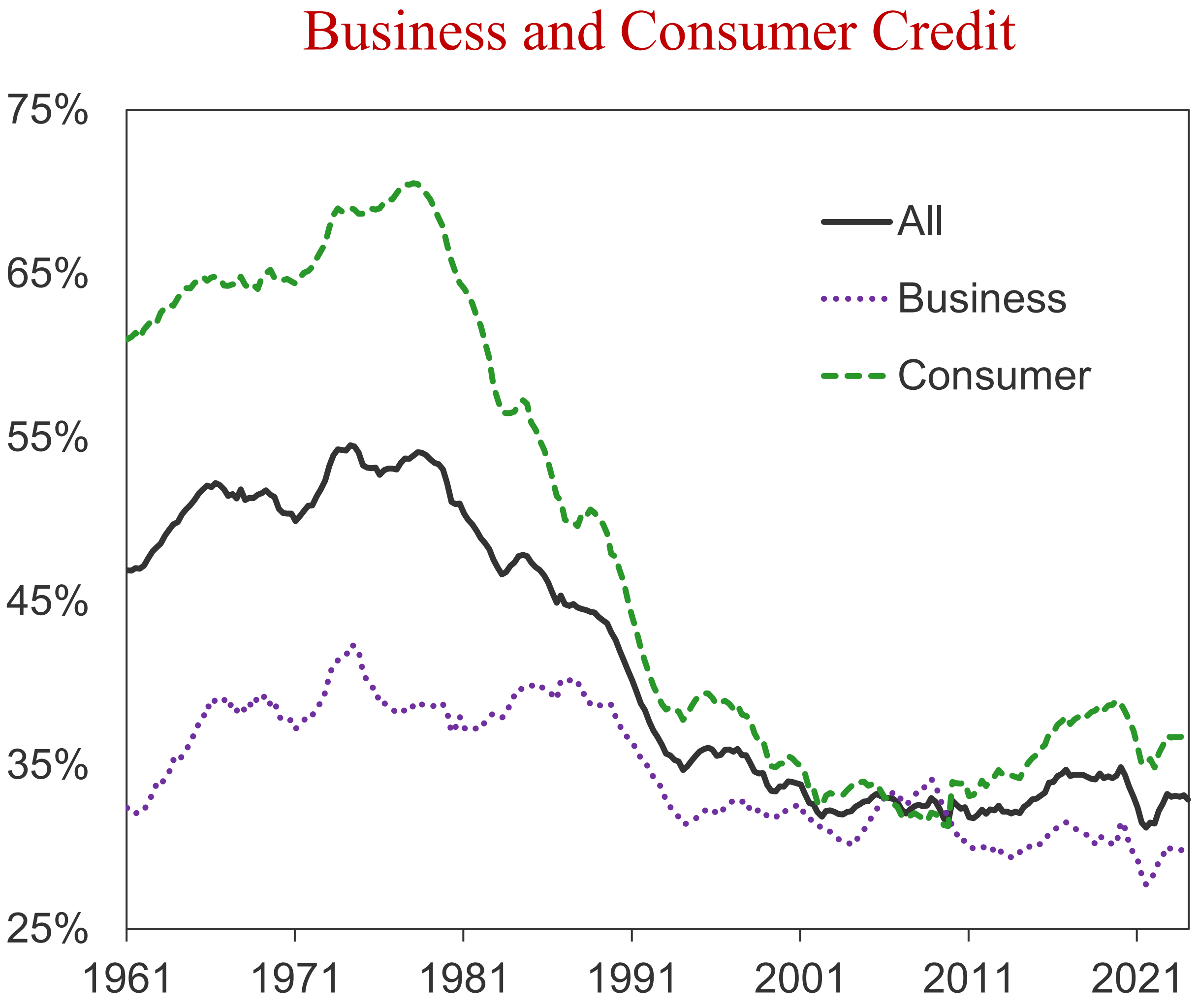


Fact 1: Bank Balance Sheet Share in Total Lending

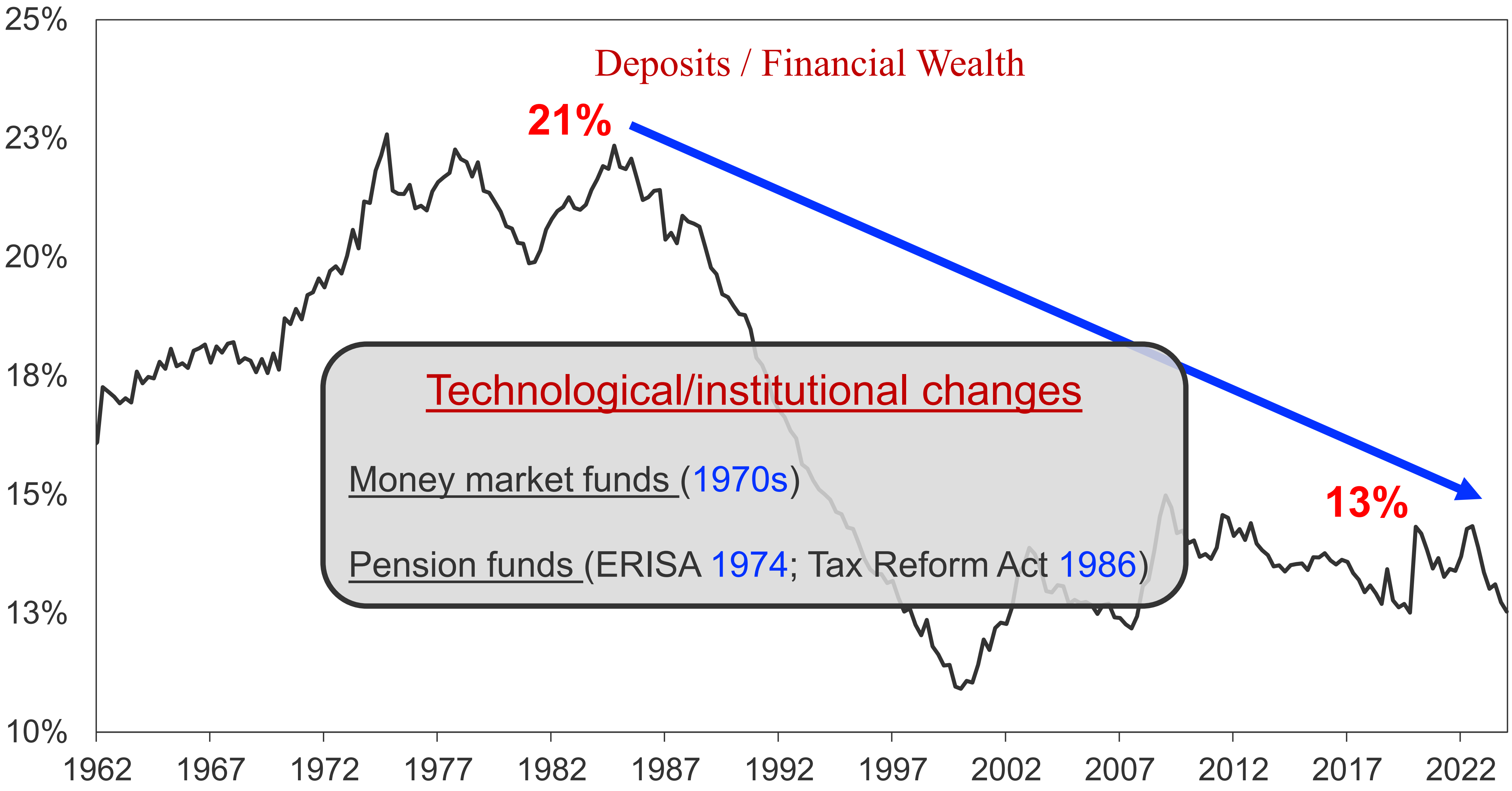


Consistent trends by borrower segment

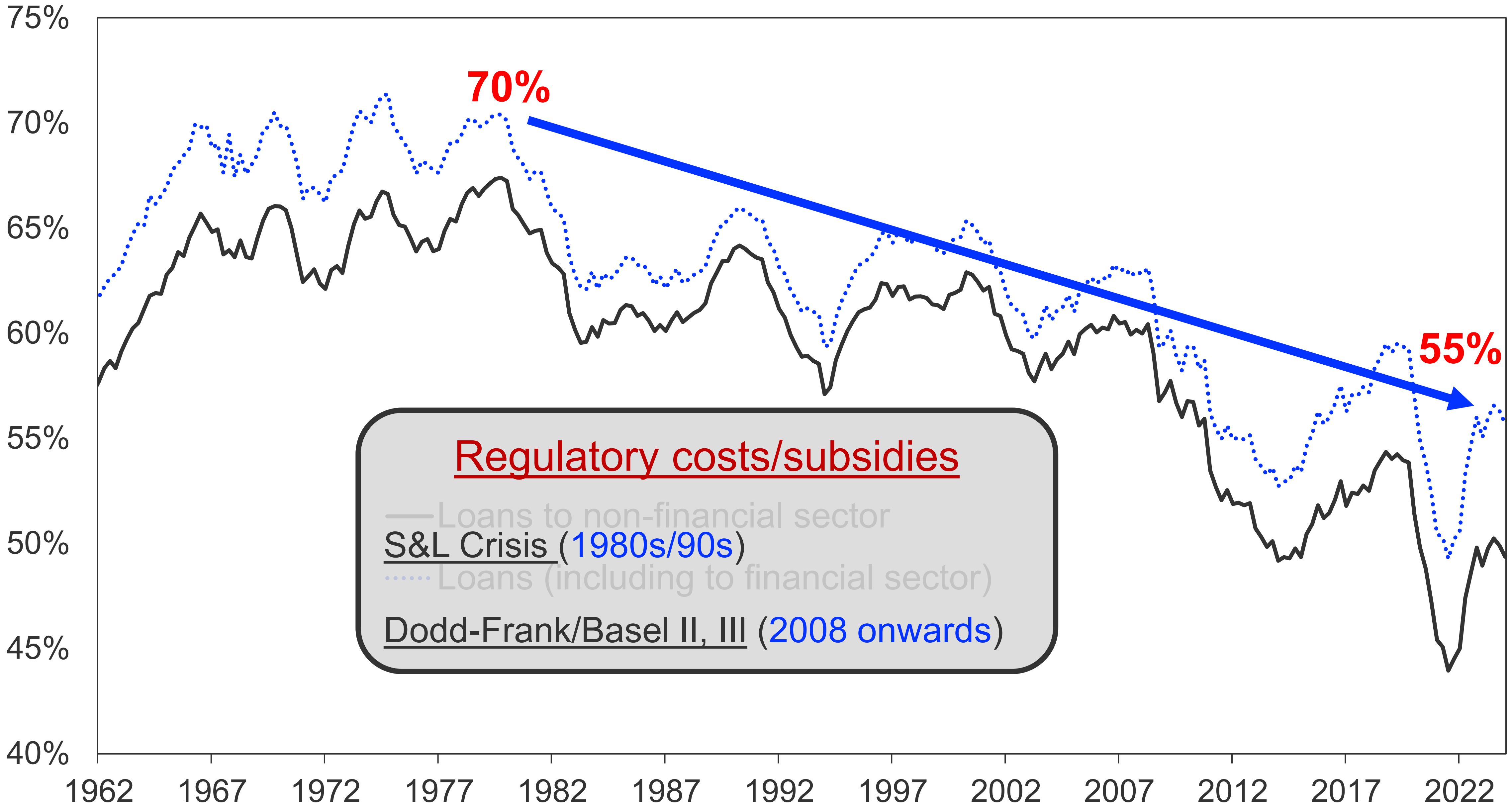




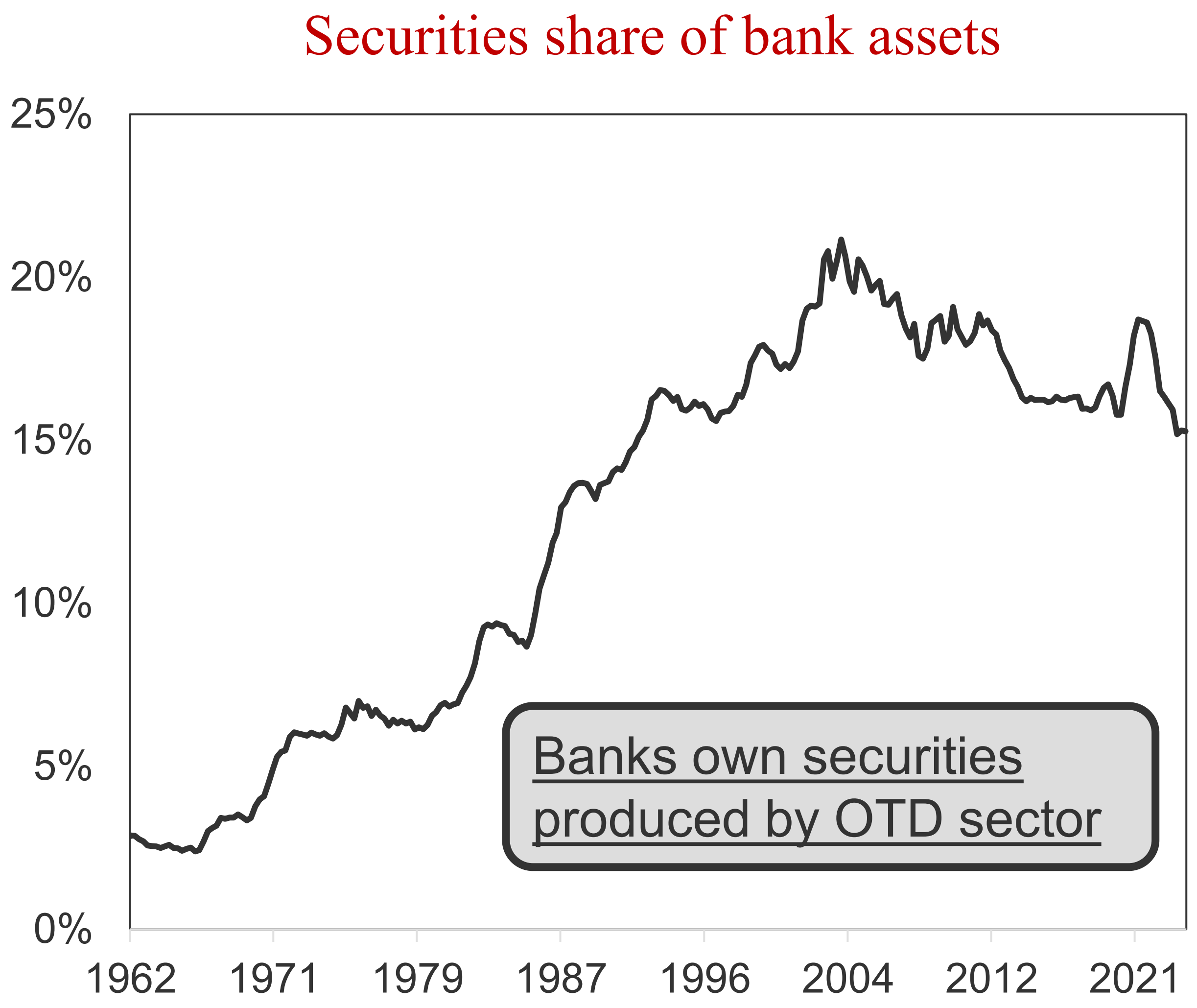
Fact 2: Deposits Share of Financial Wealth

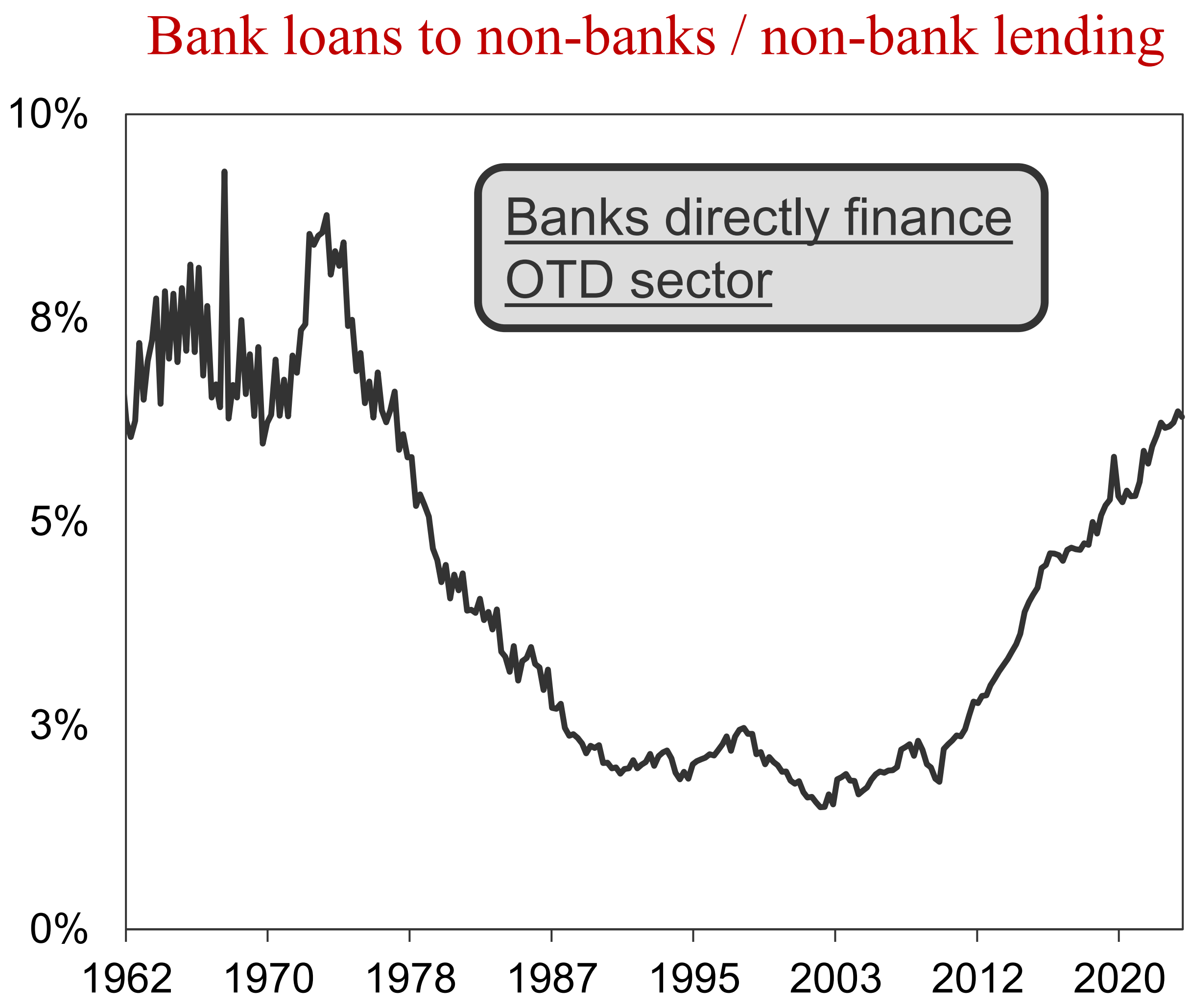


Fact 3: Loan Share of Bank Assets



Bank/Non-bank lending complementarities





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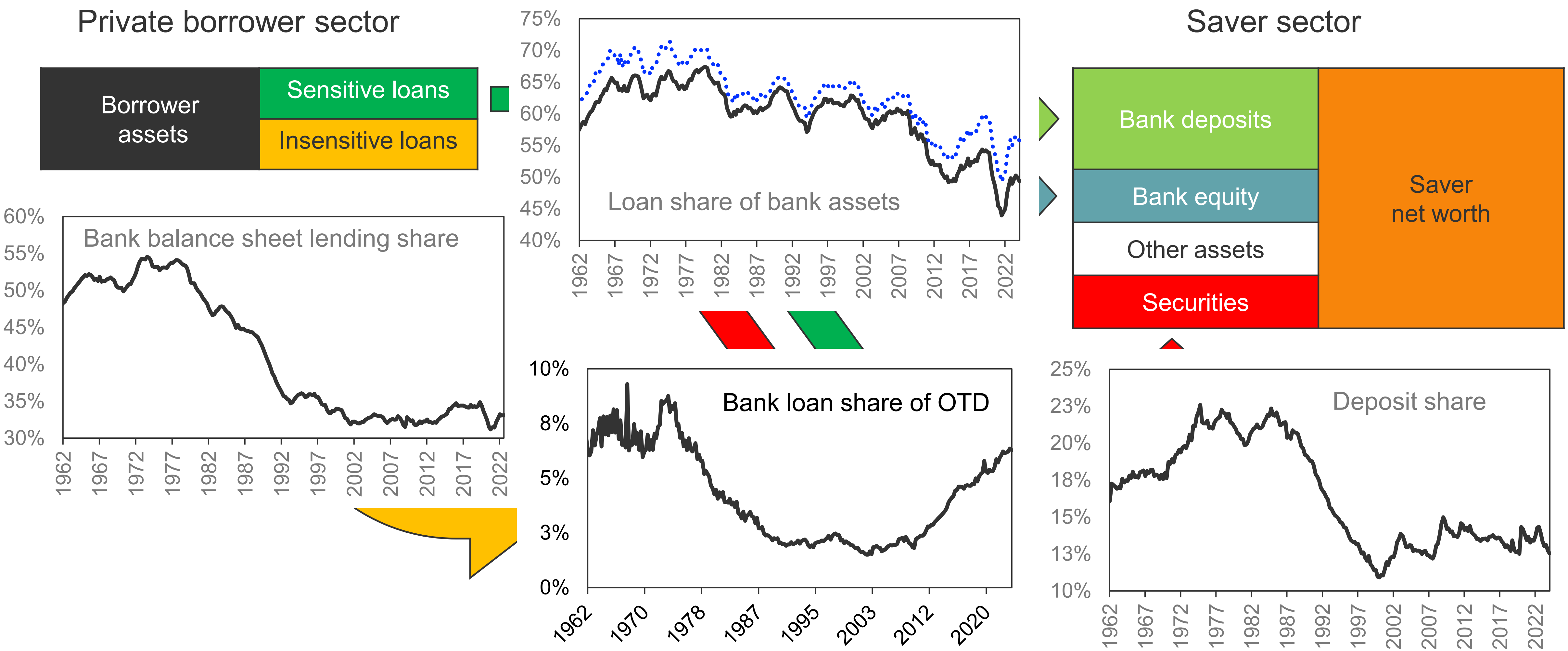


Micro Evidence on Mechanisms

Micro Evidence on Mechanisms

1. Relaxation of GSE conforming limit makes more lending amenable to securitization
   - Exposed banks loans, increase securities

2. Rise of MMF/non-deposit “money”
   - Shadow money share of saver financial assets rises

3. Post GFC liquidity regulation
   - Exposed banks increase securities holdings

Model Setup

Model Overview

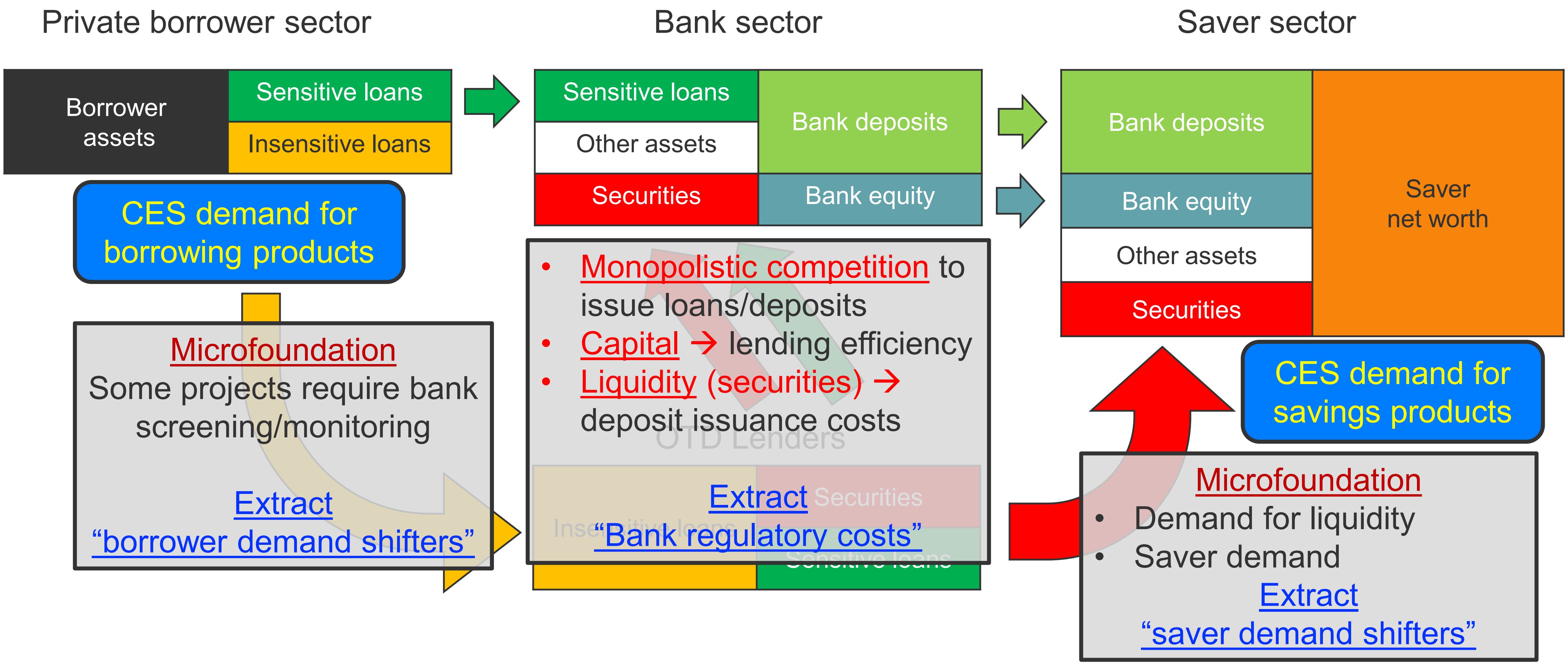
- Sectors:
  - Borrowers: borrow using lending technologies
  - Savers: allocate their capital among savings technologies
  - Financial intermediaries: produce savings and lending technologies

- Setup: repeated static cross-sections
  - Focus on secular trends (not business-cycle frequency)
  - E.g., will not have much to say on consumptions/savings or bank capital *shocks*
  - Not fully GE, i.e., risk-free rate given exogenously

- Allow (but don't impose) MM deviations: data informs importance of deviations
  - E.g., deposits can be "special"/"deposit franchise" (but don't have to be)
  - E.g., banks can be special in lending (but don't have to be)
  - E.g., better capitalized banks can be more productive in lending (but don't have to be)

Financial Intermediation

Bank balance sheets and OTD
- Can own securities
- Joint production in securitization (e.g., bank monitor in CLO)



Estimation 1: Passthrough of Treasury Rates (IV)

- Bank FOC imply relationship between observed returns and balance sheet variables
- Returns and balance sheet observable in data
- Overidentified GMM to recover parameters
  - Instrument r_0 with treasury supply

Parameter	Value	Std Error
ξ	0.04	-
ϕ	0.10	-
σ_s	$\boxed{4.38}$	(0.44)
σ_b	$\boxed{3.87}$	(0.91)
δ_d^1	-0.18	(0.12)
δ_d^2	$\boxed{-0.08}$	(0.10)
δ_e^1	-0.20	(0.09)
δ_l^1	0.33	(0.12)
δ_l^2	$\boxed{0.015}$	(0.008)

Comment 1: Elasticities in line with literature (e.g., Buchak et al. 2024).

Comment 2: Deposits cheaper to provide when bank has more liquid securities (ability to meet deposit outflows)

Comment 3: Higher loan returns when bank is well capitalized (screening/monitoring incentives)

Estimation 2: Exactly-identified Demand Parameters

- Demand parameters recoverable directly with some normalizations

1. Fix $\alpha_d = 1, \beta_s = 1$
   (saver demand measured relative to deposits)
   (borrower demand measured relative to informationally sensitive loans)

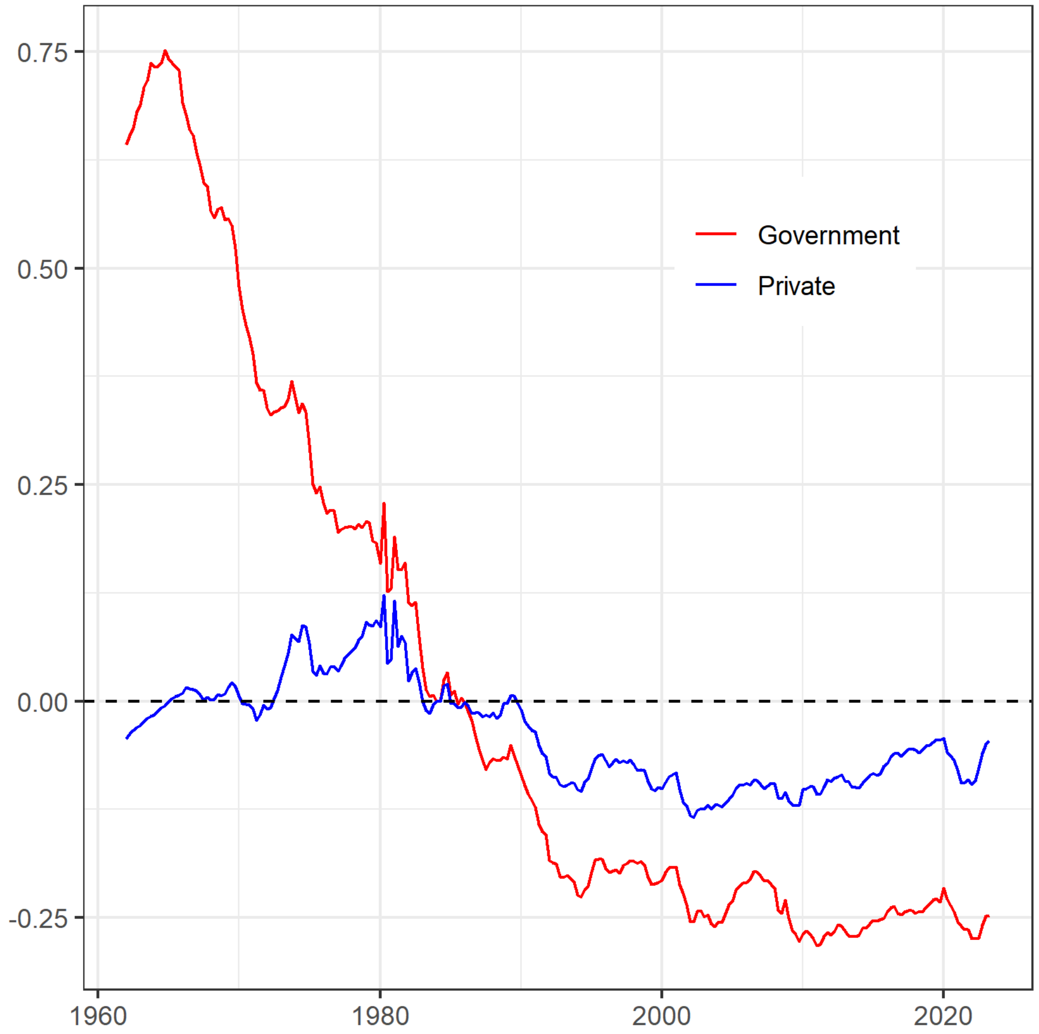
2. Fix β_{Ip}, β_{Ig} over entire sample period
   (no change in composition of investable projects vis. amenability to info sensitive or insensitive lending)

Parameter	Value
α_d	1 (normalization)
β_s	1 (normalization)
β_{Ip}	0.91
β_{Ig}	0.25

- Remaining parameters vary over time

Estimation: Securitization Technology & Saver Preferences

Securitization technology (implicit cost)



Saver preferences for debt securities

Estimation Results: Implicit Banks' Subsidies

Interpreting Demand Shifters (and Epsilons)

Counterfactuals

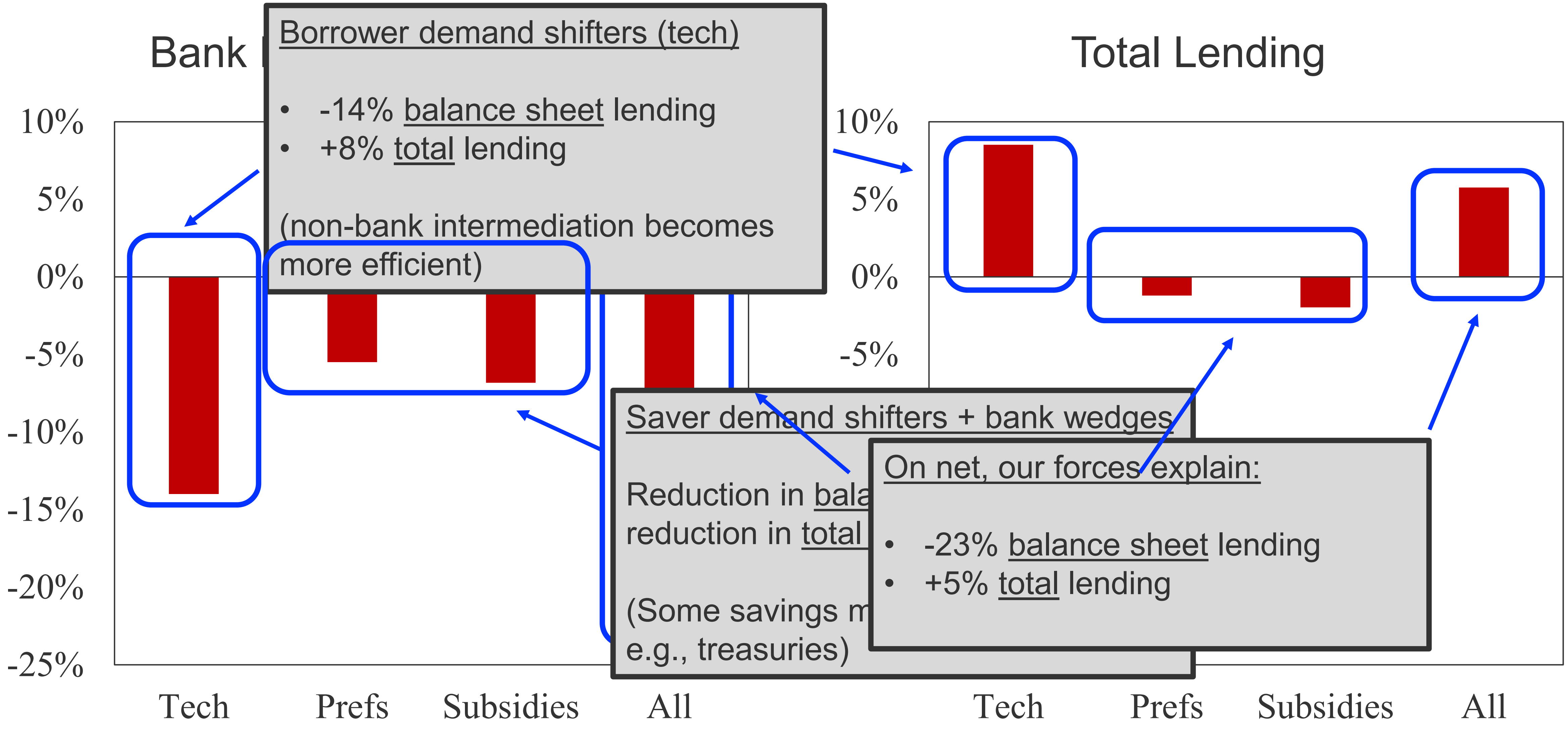
Decomposition: Lending on- and off-balance sheet

Compare world with 1963 parameters…

- …to a world with
  - 2023 intermediation tech
  - 2023 saver preferences
  - 2023 subsidies/regulation

- One-at-a-time and all together

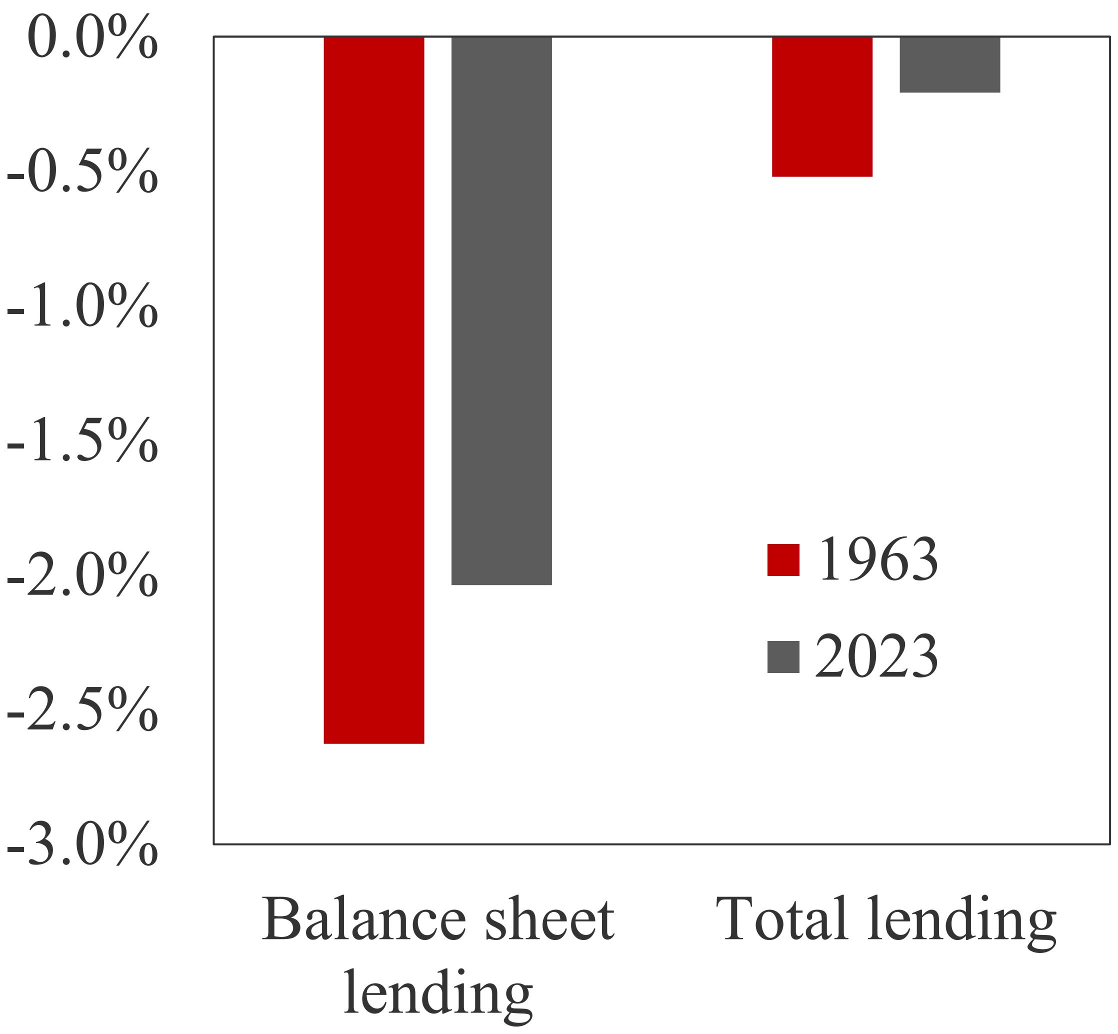
Decomposition: Lending on- and off-balance sheet



Counterfactual: 25% capital requirements, 1963 vs. 2023

- Large effect on balance sheet lending
  - 2-2.5% reduction in 1963 & 2023
- Small effect on total lending
  - 1963: -0.50%
  - 2023: -0.20%
- Why such a small effect?
  - Good substitutes for bank credit
  - …and first-order adjustment is on bank securities holdings!
- Why a smaller effect in 2023?
  - Better substitutes for bank credit in 2023

MM idea: structure of liabilities doesn't impact whether a project is positive NPV



Robustness

- Credit lines: Undrawn credit lines not measured in FoF
  - Using data from 1990 and assuming max historical drawdown (e.g., in crises) increases 2023 bank balance sheet lending share from 33% to 37%

- Private debt: (Analogous to private equity)
  - Big growth in recent decade (~$1.5)
  - Likely not well measured in FoF
  - Relatively small in context of total private credit

- Estimation
  - Alternate base years (insignificant impact)
  - Sensitivity around bank support of OTD origination (insignificant impact)

Conclusion

- Declining importance of bank balance sheet lending (55% → 35%)
  - Substantial transformation in the intermediation sector
  - Implications for macroprudential policy and financial regulation

- Increasing bank capital requirements → modest effects on aggregate lending
  - Mainly just reallocation of credit…
    ...from bank balance sheets towards debt securities
  - Bank substitution effect dominates bank complementarity effect

- Regulatory policy analysis focus…
  - …away from banks and on debt securities markets and non-bank lending to understand total lending…(”retention margin” and “migration margin”)
  - …on collecting data beyond balance sheet lending (beyond call reports)
  - …on understanding IO of modern financial intermediation