From the Saving Glut to Financial Instability: Evidence from the Silicon Valley Bank Failure

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Motivation

- **"Saving glut" hypothesis**: Global savings have been growing fast
  - ... perhaps faster than (safe) stores of value
- **Root causes**
  - Savings in emerging economies w/ low domestic investment
  - Booming corporate savings, in part due to rising intangibles
  - Growing wealth inequality ("saving glut of the rich")
- **This hypothesis can jointly explain many facts/puzzles**
  - Low interest rates / High public debt levels
  - Global imbalances
  - Private safe asset issuance / Securitization
- Recurring hypothesis: **Saving glut causes financial instability**
  - ... but hard to link instability to root causes of the saving glut

This paper

- Setup linking **causes of the glut** to **financial sector structure**
  - Measure banks' local exposure to root causes of saving glut
  - Helps address identification in novel way
- Document and explain new stylized fact: **The US "deposit glut"**
  - Deposits/GDP reached an unprecedented level ($\approx 75\%$)
  - Uninsured deposits boomed since 2002 (from $< 20\%$ to $> 35\%$)
  - Deposit growth *across*/*within* banks explained by exposure to glut
  - ... either corporate intangibles or wealth inequality
- Show link to financial instability: **The SVB experiment**
  - Exposure to saving glut causes financial fragility
  - Upon SVB failure, other banks lose more market value
  - ... if higher exposure to wealth inequality or corporate intangibles

Related literature

- **Saving glut / Demand for safe assets**
  - Surveys: Caballero, Farhi and Gourinchas (2017), Gorton (2017)
  - Role of emerging economies: Bernanke (2005), Caballero (2006), Caballero, Farhi and Gourinchas (2008)
  - Role of domestic factors: Chen, Karabarbounis and Neiman (2017), Mian, Straub and Sufi (2021).

  $\rightarrow$ Root causes of the glut also explain booming deposits

- **Financial intermediaries as providers of stores of value**
  - Theory: Gorton and Pennacchi (1990), Dang, Gorton, Holmstrom and Ordonez (2017), Diamond (2020)
  - Private safe assets beyond deposits: Sunderam (2015), Kacperczyk, Pérignon and Vuillemey (2021)
  - Instability of private safe assets: Stein (2012), Li (2022)

  $\rightarrow$ Causally relate banks' fragility to saving glut

Theoretical background

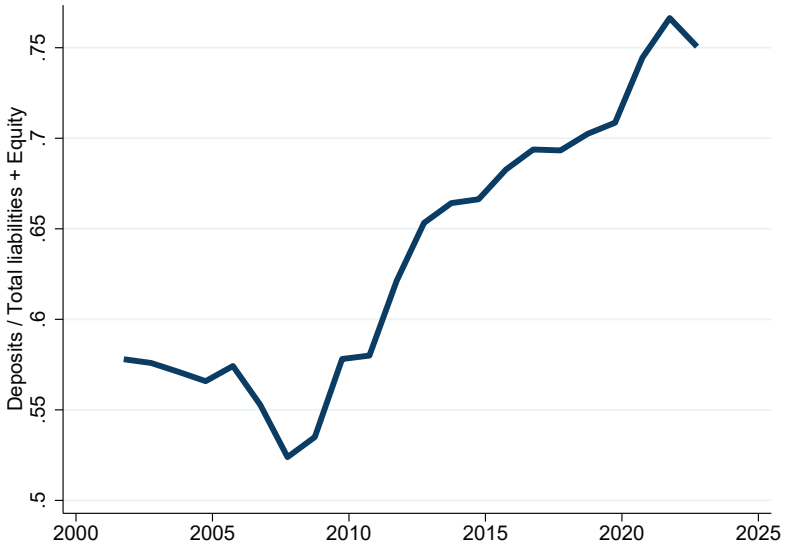
- Shortage of safe assets: **More demand → Rising safety premium**
  - Leverage becomes cheaper for issuers → Lever up (Li, 2022)
  - Which agents lever up depends on identity of demanding agents
  - If these agents save via bank deposits, they should increase

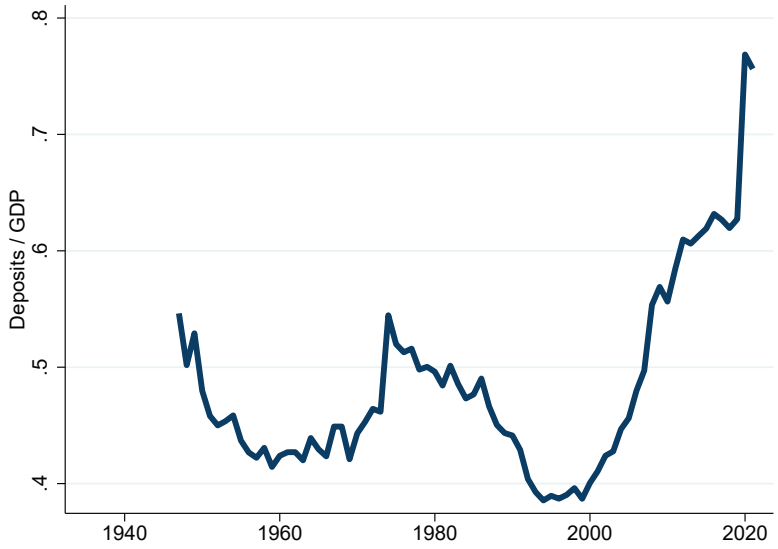
  H1: Banks locally more exposed to the root causes of the saving glut accumulate relatively more deposits

- **Higher leverage → More instability?**
  - Not necessarily, if extra risk (borne by shareholders) is fairly priced
  - Risk unlikely to be fairly priced with guarantees + deposit insurance

  H2: Deposits in banks locally more exposed to the root causes of the saving glut are relatively more fragile

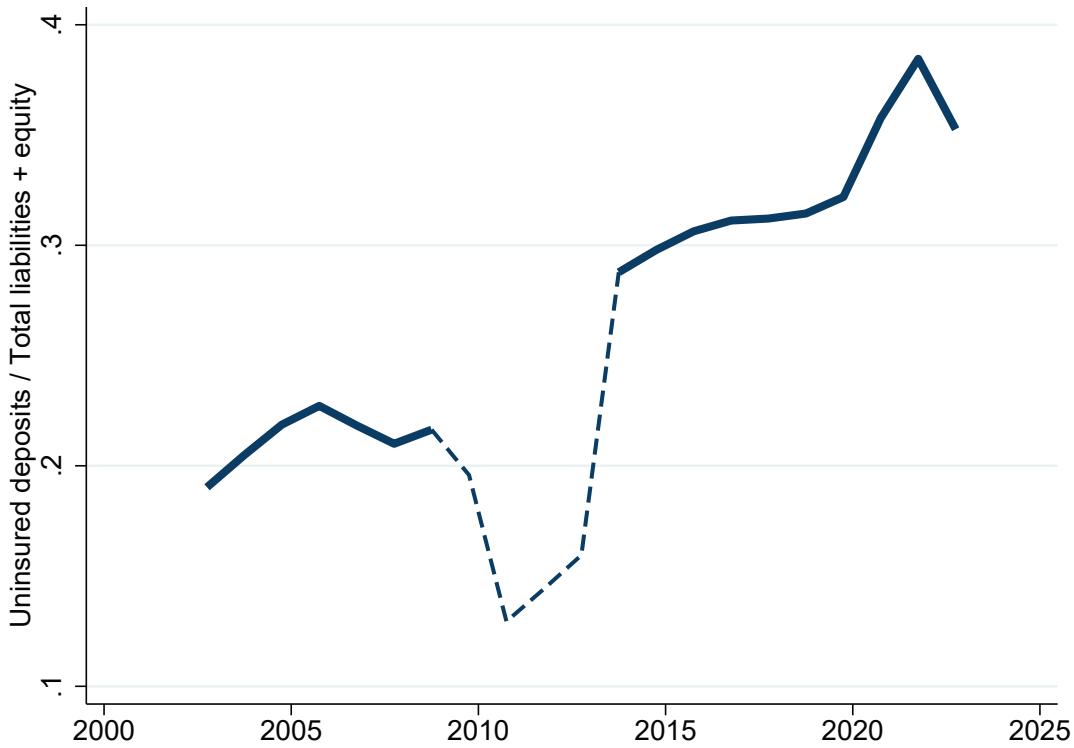
Stylized fact: The deposit glut





- In 20 years, deposits **increased by 20 pp** in banks' liabilities
  - ... at times banking assets grew faster than GDP ($\approx$ 6% per year)
- $\rightarrow$ **Unprecedented level of deposits/GDP**

Stylized fact: The (uninsured) deposit glut



- Simultaneous **growth of uninsured deposits**
  - ... which almost doubled as share of liabilities in 20 years
  - ... despite higher insurance coverage since 2008 (from 100k to 250k)
  - Fact prevails across the distribution, not just driven by few banks

- **Are these facts related to the root causes of the saving glut?**

Measuring exposures to the saving glut

- **Identification**: Early on, glut mostly associated with Asian savings
  - Invested in asset markets, affect prices ("safety premiums")
  - ... but hard to relate to capital structure of specific intermediaries
  - But: Recent literature highlights new and large drivers of saving glut
- **Idea**: Measure wealth ineq. or corp. intangibles by county/state
  - ... merge with data on bank deposits at that level (from SoD)
  - ... and compute deposit-weighted exposure variables
  - $\rightarrow$ Can measure exposures across, but also *within*, banks

Measuring exposures to the saving glut

- **Exposure to wealth inequality**

$$ExpIneq_{b,t} = \sum_{s} \frac{Deposits_{b,s,t}}{Deposits_{b,t}} \cdot Ineq_{s,t}$$

  - $Ineq_{s,t}$: Top-10% wealth share from Mian et al. (2021)

- **Exposure to corporate intangibles**

$$ExpInt_{b,t} = \sum_{c} \frac{Deposits_{b,c,t}}{Deposits_{b,t}} \cdot Int_{c,t}$$

  - Intangibles by 3-digit NAICS measured as Dell'Ariccia et al. (2021)
  - Industry shares by county measured using County Business Patterns

- **Sizable cross-sectional variation** across both variables
  - p10/p90: top wealth from 41.6 to 63%, intang. from 11.8 to 22.6%

Explaining deposits with the saving glut

- **Baseline**: Regress deposit growth on $ExpIneq$ or $ExpInt$
- **Identification concerns**: Banks' exposures may be endogenous
  - Banks decide whether to open/close branches in certain areas
  - $\rightarrow$ Two strategies to mitigate this concern
- Regress deposit growth over 2002-2022 on **lagged exposures**
  - ... back in 2002
  - Idea: banks had historical presence in some states/counties
  - ... before wealth inequality or corp. intangibles became major issues
- Use **bank fixed effects**
  - Within a bank, branches that were more exposed in 2002
  - ... got treated relatively more

Explaining deposits with the saving glut

	Δ Dep.	Δ Dep.	Δ Dep.	Δ Dep.	Δ Dep.	Δ Dep.
Top-10 wealth in 2002 (by state)	3.009***	5.575***				
	(0.520)	(2.119)				
Intangibles share in 2002 (by county)			5.504***	4.895***	6.076***	5.831***
			(0.338)	(0.368)	(0.542)	(0.538)
Bank FE	No	Yes	No	No	Yes	Yes
State FE	No	No	No	Yes	No	Yes
Robust st. err.	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.007	0.255	0.042	0.076	0.213	0.229
Obs.	4643	431	10457	10457	7814	7814

- **Positive and significant effects across regressions**
  - Even within banks
  - And, for intangibles, across counties within states

Explaining uninsured deposits with the saving glut

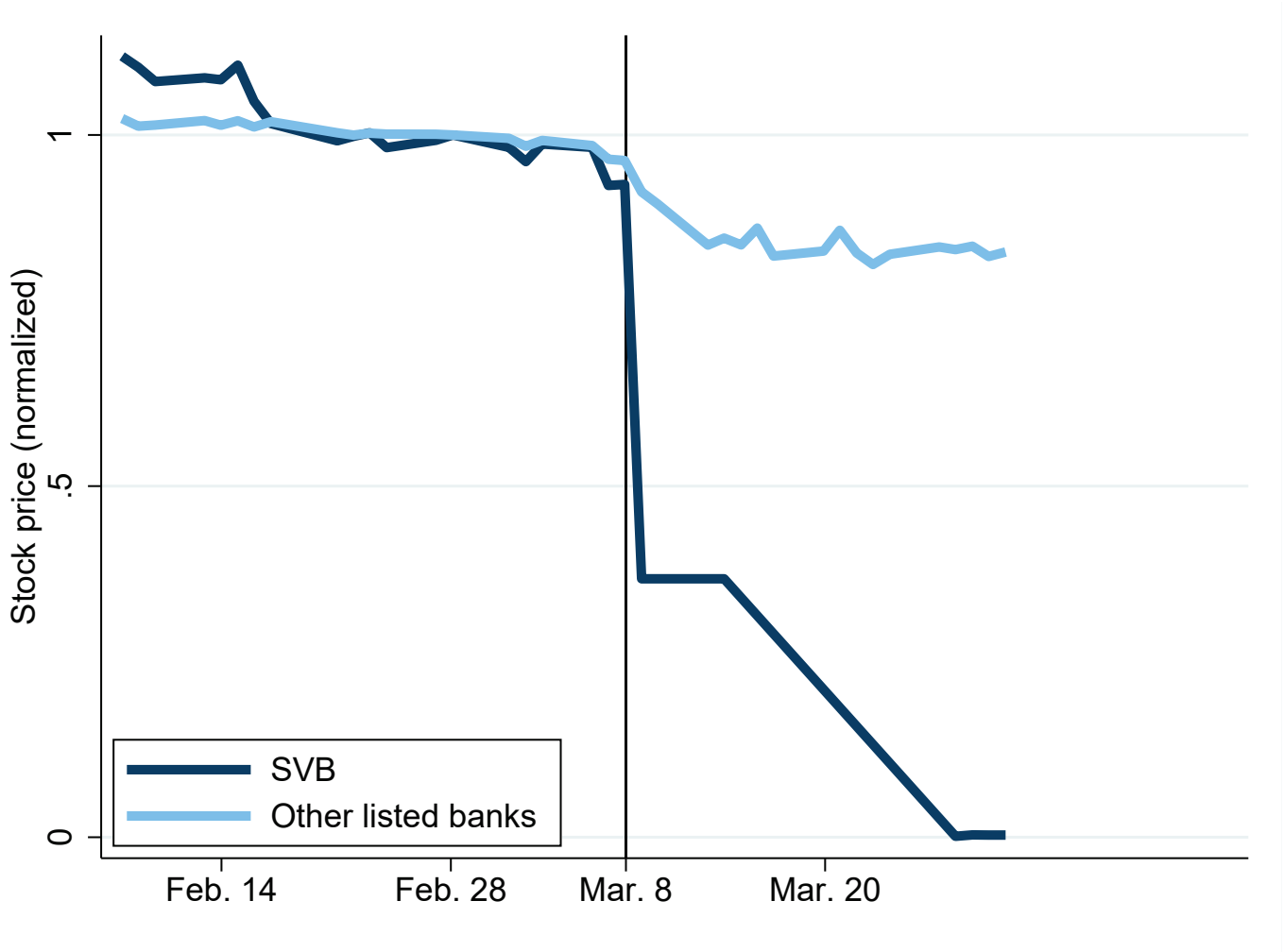
	Uninsured	Uninsured	Corp. dep.
Top-10 wealth in 2002 (bank-level)	0.283***		
	(0.090)		
Intangibles share in 2002 (bank-level)		0.591***	0.259***
		(0.092)	(0.073)
Robust st. err.	Yes	Yes	Yes
Adj. R2	0.019	0.068	0.022
Obs.	822	819	742

- **Also for uninsured and corporate deposits**
  - But these are measured only at the bank level
  - ... no bank fixed effect can be included
- $\rightarrow$ **Deposit glut is linked to root causes of the saving glut**
  - But does this spur financial instability?

The Silicon Valley Bank (SVB) experiment

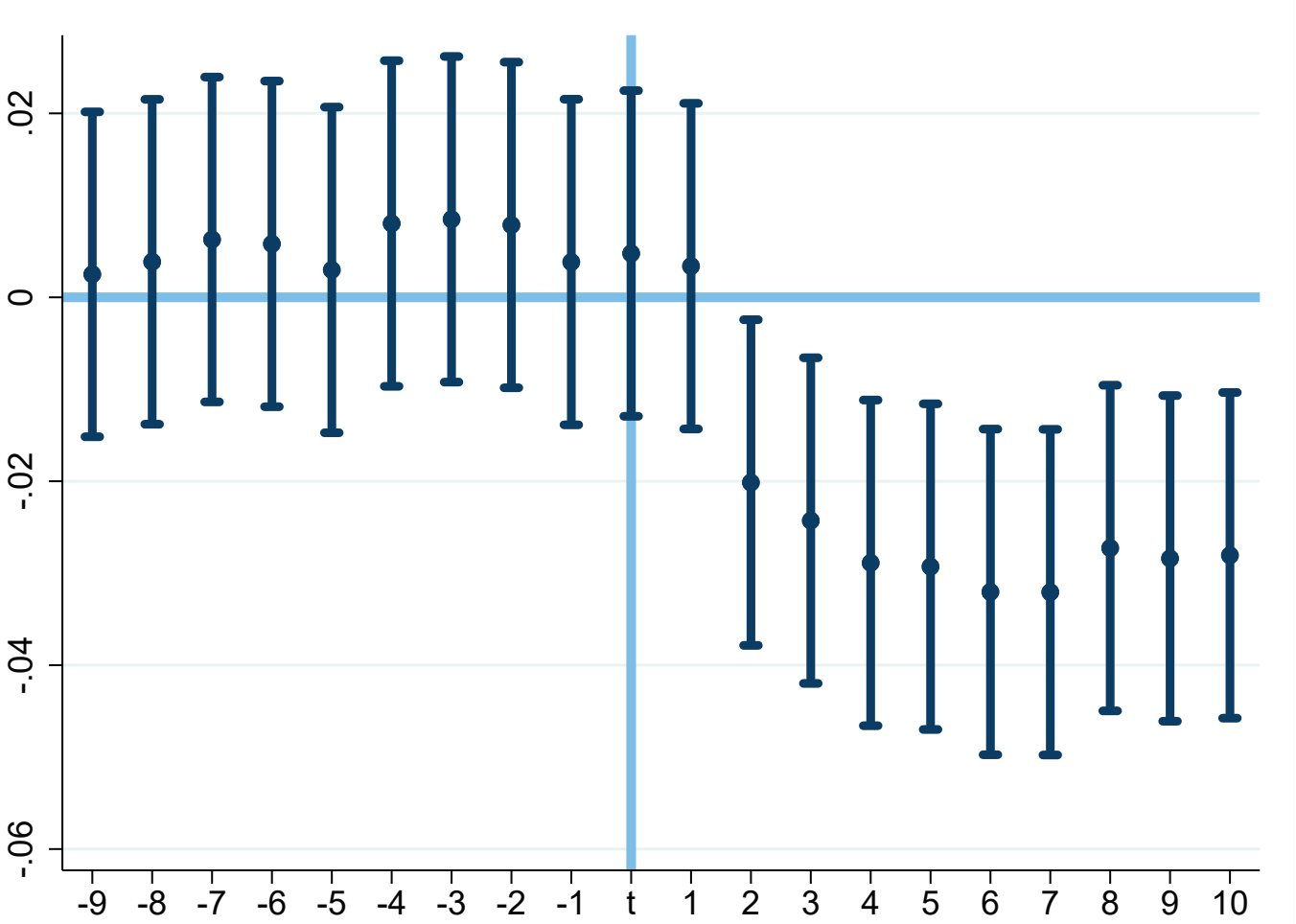
- **Quasi-natural experiment**: Failure on March 9th, 2023
  - Large scale: Second-largest bank failure by total assets
  - Unexpected: Stock prices no different from other banks before
- **Exemplifies forces at the heart of the paper**
  - Catering to intangible-intensive firms from Silicon Valley
  - Uninsured deposits / Total deposits of 93.9%
  - Corporate money market deposits / Total deposits of 90.6%
  - $\rightarrow$ Exposure to the saving glut created fragility
- Main test: Look at prices of **other US banks** around SVB collapse
  - ... and study cross-sectional heterogeneity

The Silicon Valley Bank (SVB) experiment



- Also consistent: **Downgraded only after the collapse**
  - ... and from an investment-grade rating

Cross-sectional heterogeneity around SVB collapse



- Banks **above the median** of uninsured deposits
  - ... lose $\approx$ 3 percentage points more in market capitalization
  - ... relative to a baseline loss of 11.7%

Difference-in-differences estimation

- **Difference-in-differences estimation**

$$Y_{b,t} = \beta \cdot Post_t \cdot Treated_b + \phi_b + \nu_t + \epsilon_{b,t},$$

  - $Treated_b$: Equals 1 if above-median exposure to saving glut
  - ϕ_b: Bank fixed effect
  - ν_t: Day fixed effect

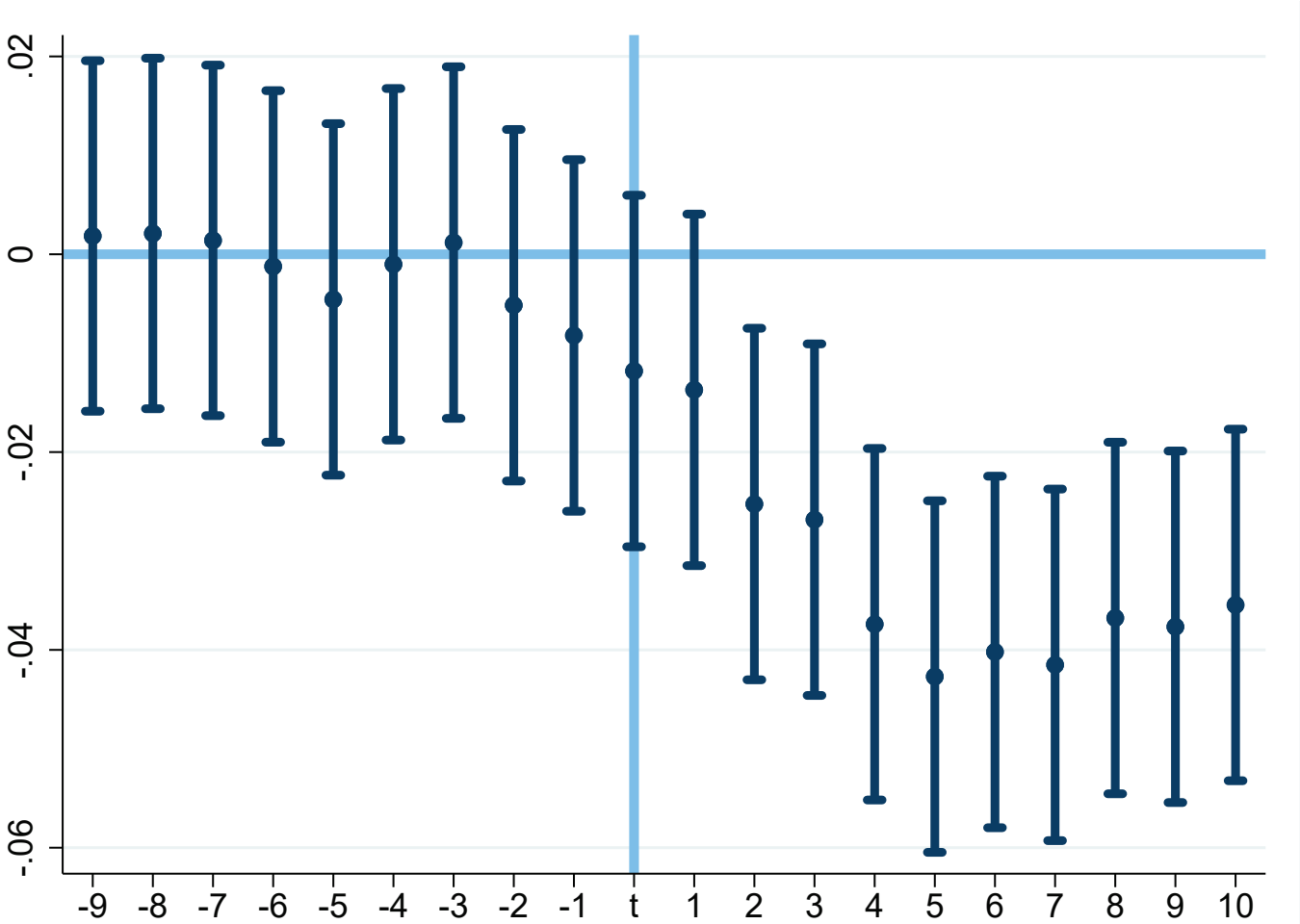
- **Estimation**
  - 10-day window around March 9th, 2023
  - Clustering at the bank level

Treatment based on corporate intangibles

	Stock price	Stock price	Stock price
Post * Treated	-0.032**	-0.031**	-0.031**
	(0.012)	(0.012)	(0.012)
Post	-0.118***	-0.118***	
	(0.008)	(0.008)	
Treated	-0.004		
	(0.002)		
Bank FE	No	Yes	Yes
Day FE	No	No	Yes
Adj. R2	0.569	0.731	0.804
Obs.	2293	2293	2293

- **Highly exposed banks face a larger drop in value**
  - ... whose magnitude is similar to the effect of uninsured deposits

Treatment based on corporate intangibles



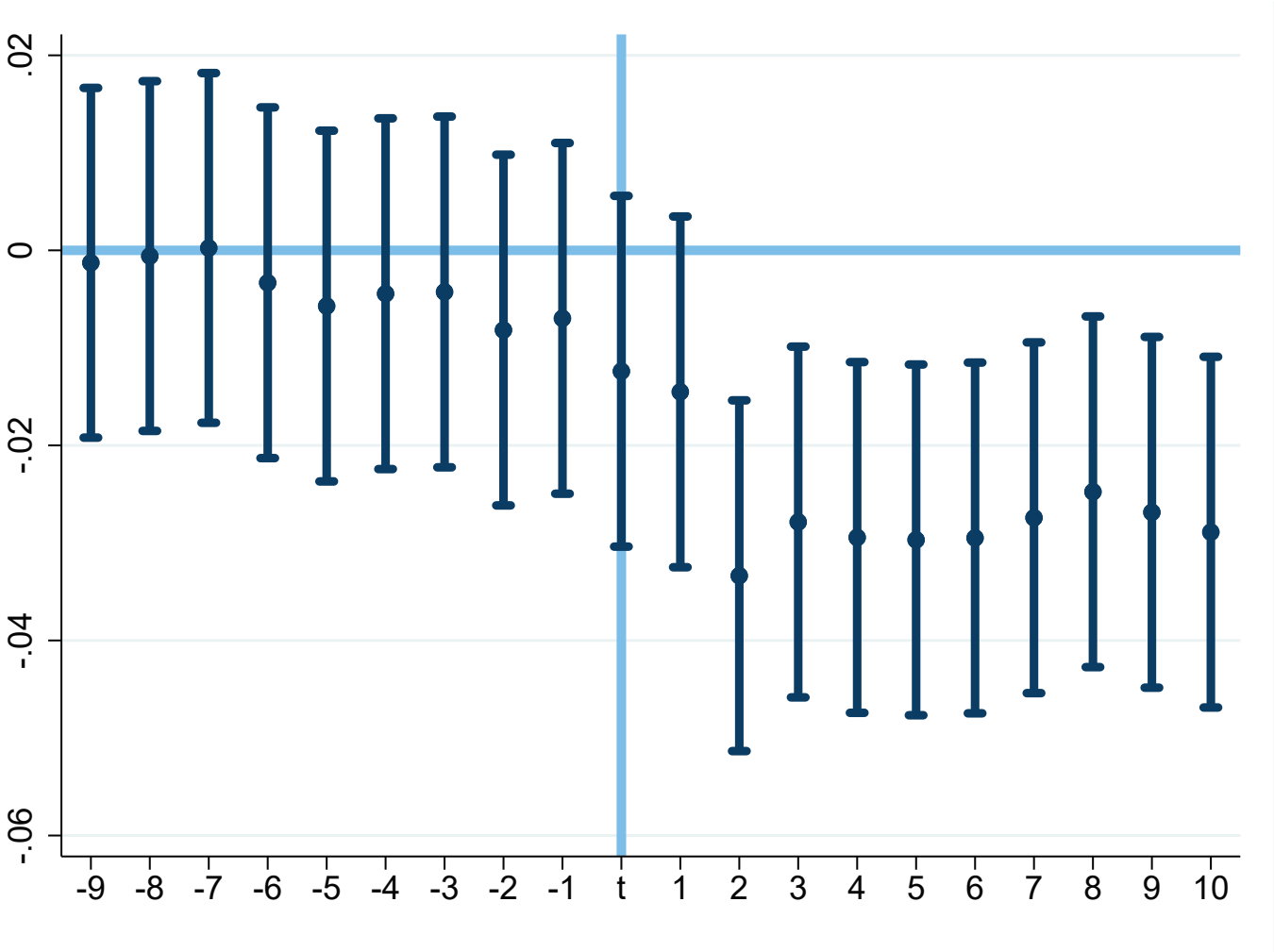
- **Parallel trends before SVB's collapse**

Treatment based on wealth inequality

	Stock price	Stock price	Stock price
Post * Treated	-0.023*	-0.023*	-0.023*
	(0.012)	(0.012)	(0.012)
Post	-0.122***	-0.122***	
	(0.009)	(0.009)	
Treated	-0.004*		
	(0.002)		
Bank FE	No	Yes	Yes
Day FE	No	No	Yes
Adj. R2	0.561	0.727	0.800
Obs.	2293	2293	2293

- **Effect is also significant, but at 10% level**
  - Spans about 2/3 of the variation created by uninsured deposits

Treatment based on wealth inequality



- **Parallel trends before SVB's collapse**

Conclusion

- **Banks exposed to the saving glut have become more fragile**
  - Deposit glut as a structural change in US banking
  - Deposits may not be as stable as we often think
- **Policy implications**
  - Increasing deposit insurance limits?
  - ... but should we subsidize very wealthy depositors even further?
  - Other saving vehicles, outside banks, for large-scale deposits?