Liquidity Dependence and the Waxing and Waning of Central Bank Balance Sheets

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(Earlier version "Liquidity Dependence: Why Shrinking Central Bank Balance Sheets is an Uphill Task", presented at Jackson Hole Economic Symposium 2022)

Did pandemic-QE set up the stage for banking stress?

- Pandemic outbreak in March 2020:
  - “Dash for Cash”, Credit line drawdowns, weak bank stock performance
  - Bank solvency, however, not an issue at the time of COVID outbreak

- Massive stimulus followed:
  - Quantitative Easing (QE) and low rates, fiscal stimulus
  - Unexpectedly sharp recovery, stubbornly high inflation

Did pandemic-QE set up the stage for banking stress?

- Quantitative Tightening (QT) after March 2022, with sharp rate increases
- Large mark-to-market losses on securities: Larger base, sharper rate hikes

(see next slide)

- Deposit outflows starting Q2 2022, eventually bank solvency concerns

→ Runs in Q1 2023 on SVB, Signature, First Republic Bank

- An important feature of failed banks:

  <u>Large share of uninsured deposits</u>

- <u>Why did uninsured deposits grow at an unprecedented pace until 2022?</u>

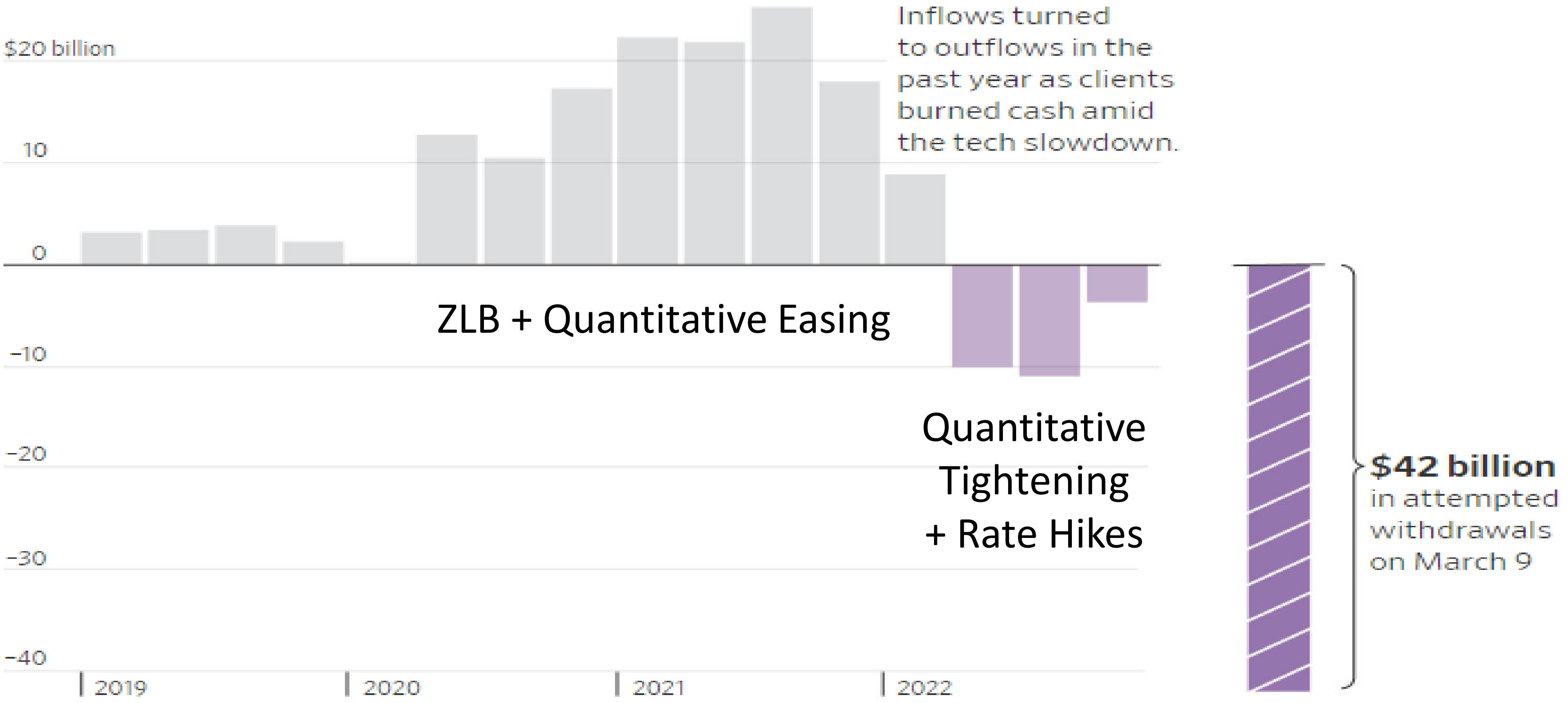
FDIC Q4 unrealized bank losses on investment securities

US$, billions

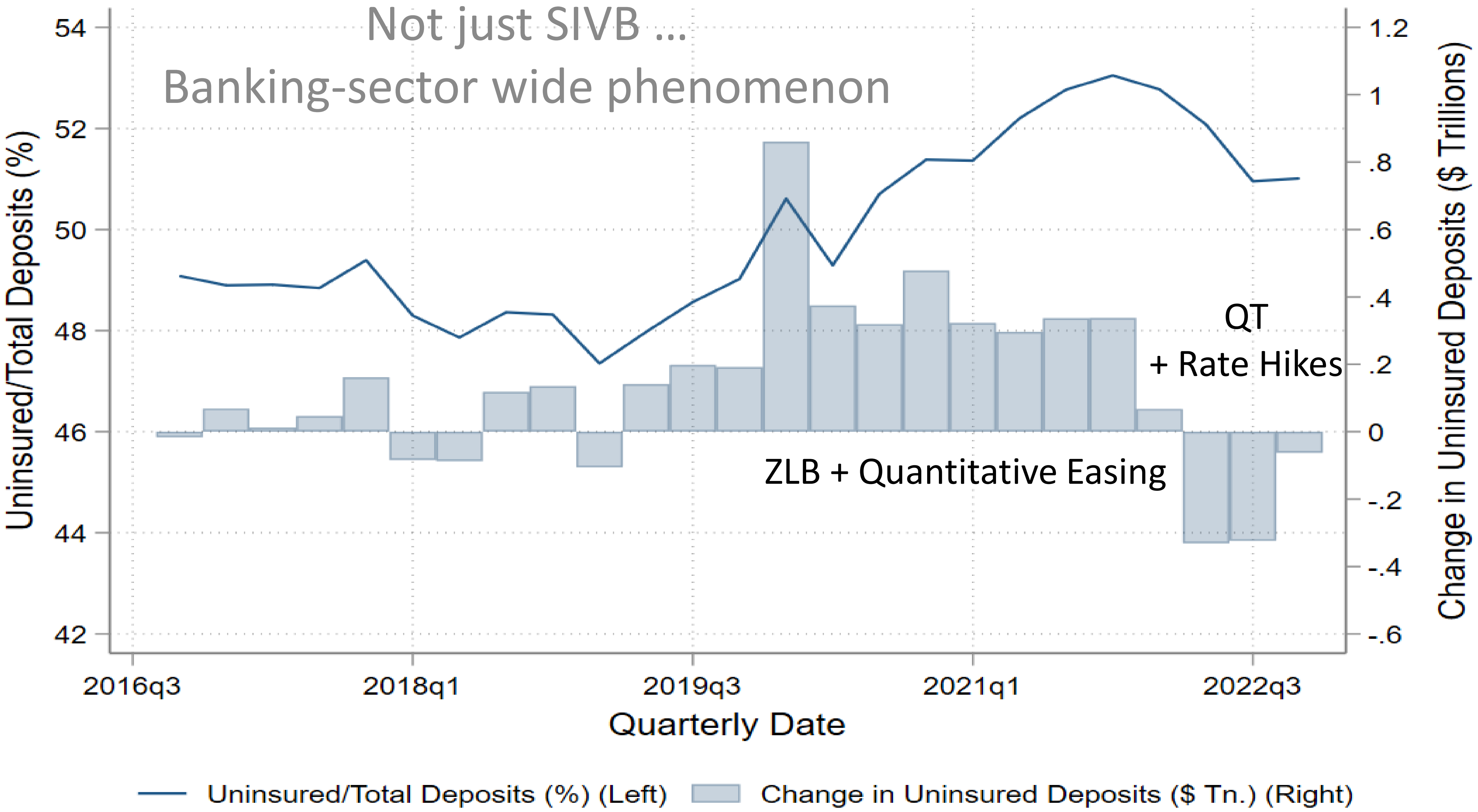
Source: FDIC. Q4 2022.

Relative unrealized losses in this rate-hike cycle highlight the sharp rate hikes and the growth of securities investments fueled by the growth of (uninsured) deposits

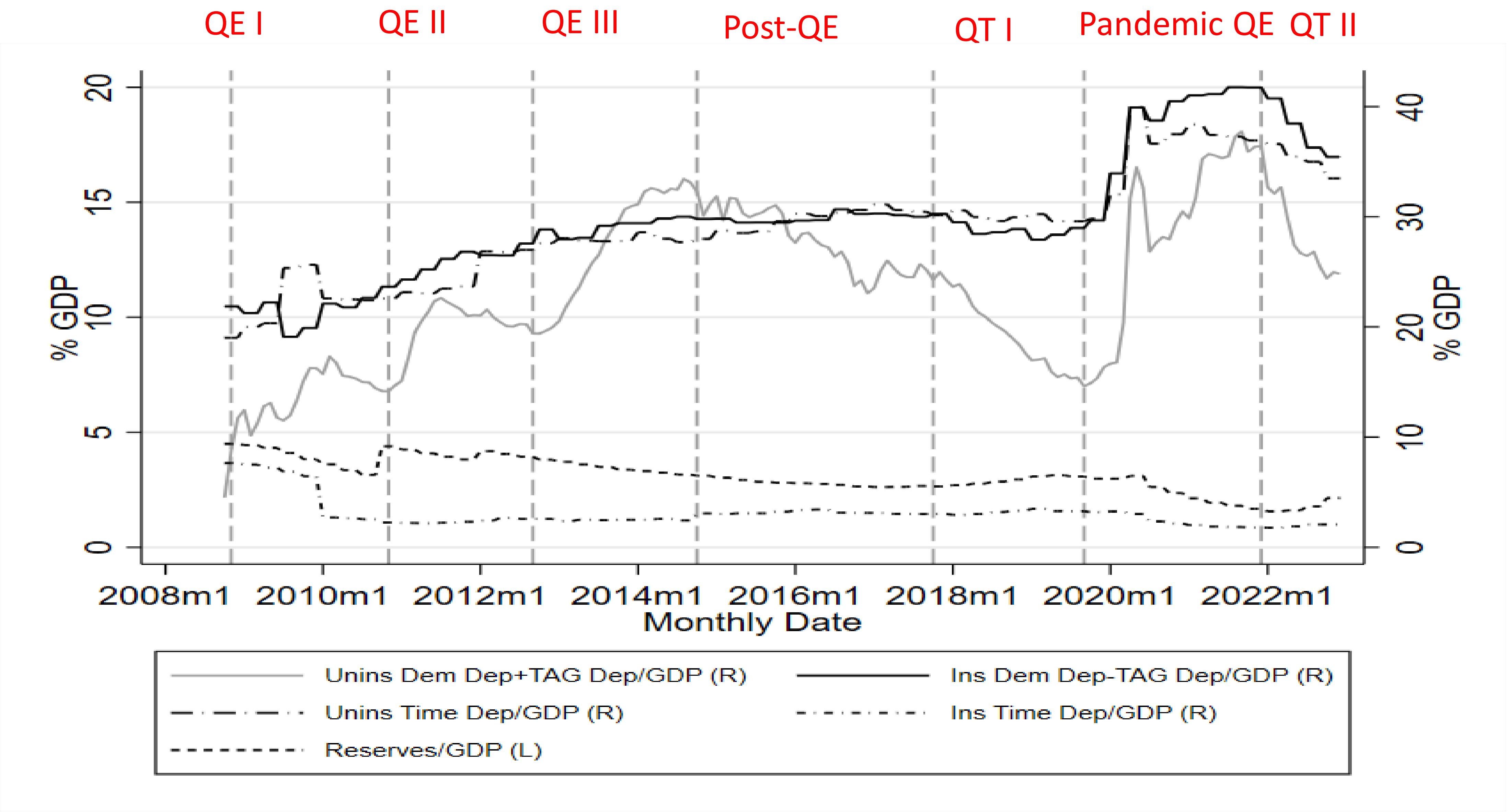
Leading example: SIVB deposits, quarterly net change



Sources: company filings (quarterly); California regulators (March 9)

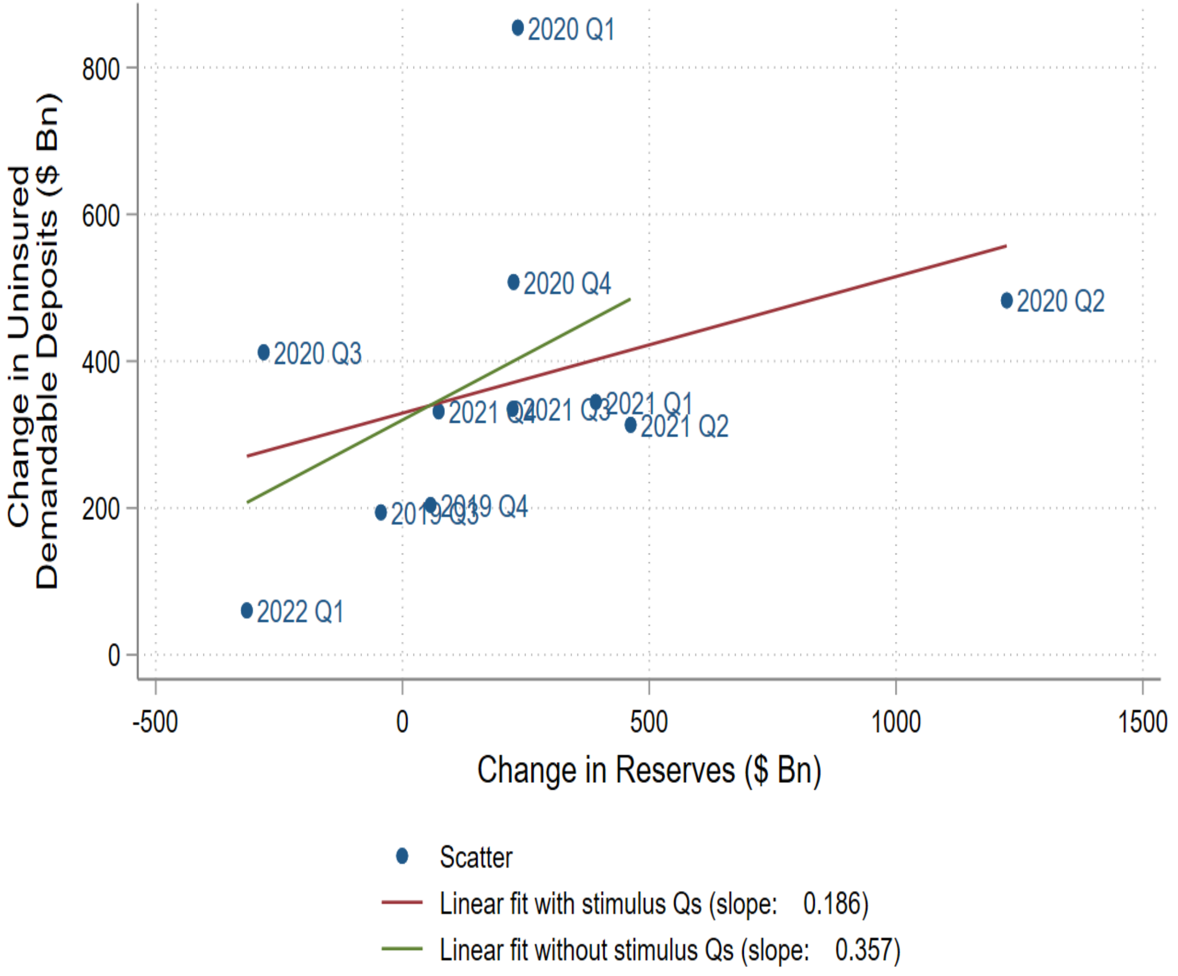

Not just SIVB …
Banking-sector wide phenomenon
QT
+ Rate Hikes
ZLB + Quantitative Easing
Uninsured/Total Deposits (%)
Change in Uninsured Deposits ($ Trillions)
Quarterly Date
2016q3
2018q1
2019q3
2021q1
2022q3
54
52
50
48
46
44
42
1.2
1
.8
.6
.4
.2
0
-.2
-.4
-.6
Uninsured/Total Deposits (%) (Left)
Change in Uninsured Deposits ($ Tn.) (Right)

QE associated with growth of Demandable Uninsured Bank Deposits

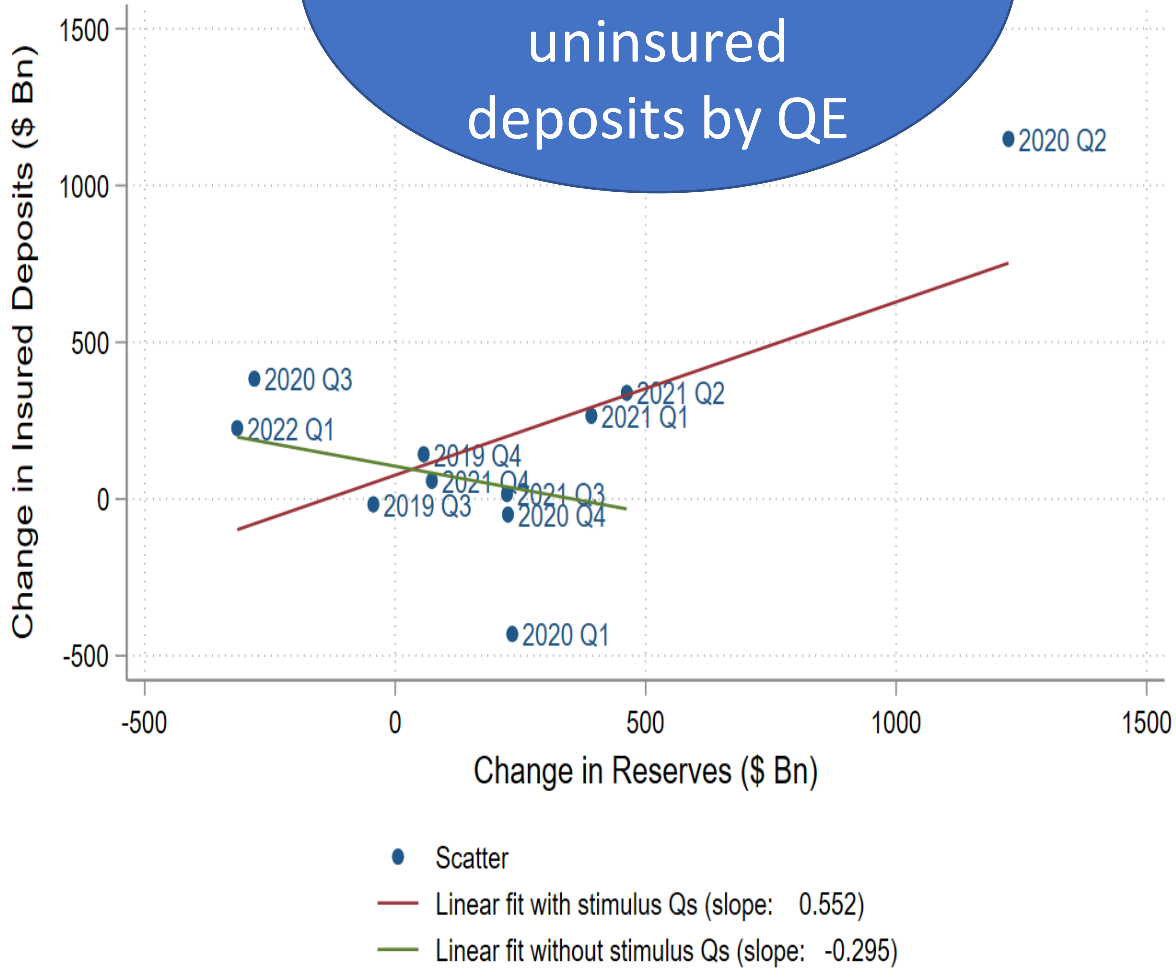


Uninsured vs Insured Deposits during Pandemic: QE or Fiscal stimulus?

Insured deposits driven by fiscal stimulus, uninsured deposits by QE



Stimulus Qs include 2020Q2, 2020Q4 and 2021Q1



Stimulus Qs include 2020Q2, 2020Q4 and 2021Q1

A Key Insight

- Unprecedented expansion of central bank balance sheets since the GFC

- Such QE is not just an expansion of central bank balance sheets

- QE is typically also an expansion of commercial bank balance sheets, on the liability side via the growth of uninsured deposits (see next slide)

- Financial stability requires that we focus on the effect of QE on banking sector liability-side, not just on the traditional focus on asset-side (prices)

  - See Acharya and Rajan (theory) piece: "Liquidity, Liquidity Everywhere, Not a Drop to Use: Why Flooding Banks with Central Bank Reserves May Not Expand Liquidity", 2021

Typical QE: Purchase from public/non-banks

Initial Balance Sheet Conditions

FEDERAL RESERVE	
Assets	**Liabilities**
Treasury securities	Reserves held by banks Cash held by the Treasury

BANKING SECTOR	
Assets	**Liabilities**
Treasury securities Reserves at the Fed	Deposits Capital

PUBLIC	
Assets	**Liabilities**
Deposits Treasury securities	Net worth

The Fed Purchases Assets from the Public

Balance Sheet Effects

FEDERAL RESERVE	
Assets	**Liabilities**
Treasury securities +$1	Reserves held by banks +$1 Cash held by the Treasury

Bank balance sheets expand, financed with deposits (typically wholesale or uninsured)

BANKING SECTOR	
Assets	**Liabilities**
Treasury securities Reserves at the Fed +$1	Deposits +$1 Capital

PUBLIC	
Assets	**Liabilities**
Deposits +$1 Treasury securities -$1	Net worth

Source: “How the Fed Changes the Size of its Balance Sheet” (Leonard, Martin and Potter, *Liberty Street Economics*, 2017)

Conundrum: Where does all this liquidity go?

- Post-QE Hysteresis and Liquidity Risk:
  I. Other claims such as bank credit lines also expand in QE and remain outstanding
  II. When QE ends, banking sector's uninsured deposits do not (immediately) reverse

- Surprisingly fragile financial conditions follow in response to small/large shocks:
  - Government tax outflows: Repo rate spike in September 2019
  - Pandemic and shadow-banking freeze: Dash for cash in March 2020
  - Fiscal shock: Turmoil in UK gilts in Sep-Oct 2022
  - High Inflation and rates: SVB, Signature and First Republic Bank failures in March 2023

- "Liquidity dependence" in the banking system:
  - Ratcheting up of central bank b/s size as it injects more reserves with each stress
  - QT can be an uphill task and QE may be less effective than envisaged

Financial stability at conflict with monetary policy?

- Fed in March 2020: Bank liquidity risk but no solvency concerns
- Fed in March 2023: Liquidity + Solvency risk due to losses on securities

(see next slide)

The scale of pandemic-QE and fiscal stimulus → Bank fragility in March '23

- Costs of repeated interventions? Interference with monetary function:
  - QT on monetary policy front, but QE via lender of last resort (also BOE, Oct 2022)
- Engage in QT while "feeling the stones" for financial fragility?
- Revisit desirable scale, scope, duration of QE: "pushing on a string"?
- Explicit role for financial stability in Federal Reserve's objective function?

Bank assets	Bank liabilities
Securities (9 trillion)	Uninsured deposits (7 trillion)
Reserves (5 trillion)	Insured deposits (7 trillion)

Bank assets	Bank liabilities
Securities (9 trillion)	Uninsured deposits (7 trillion)
Reserves (3 trillion) Reserves (5 trillion)	Uninsured deposits (3 trillion) Insured deposits (7 trillion)

Bank assets	Bank liabilities
Securities (9 trillion) Securities (3 trillion)	Uninsured deposits (7 trillion) Uninsured deposits (2 trillion) Insured deposits (1 trillion)
Reserves (8 trillion)	Uninsured deposits (3 trillion) Insured deposits (7 trillion)

Bank assets	Bank liabilities
Securities (9 trillion)	Uninsured deposits (7 trillion)
Reserves (5 trillion)	Insured deposits (7 trillion)

Bank assets	Bank liabilities
Securities (12 trillion)	Uninsured deposits (12 trillion)
Reserves (8 trillion)	Insured deposits (8 trillion)

For a broader treatment…

What failed in bank supervision?

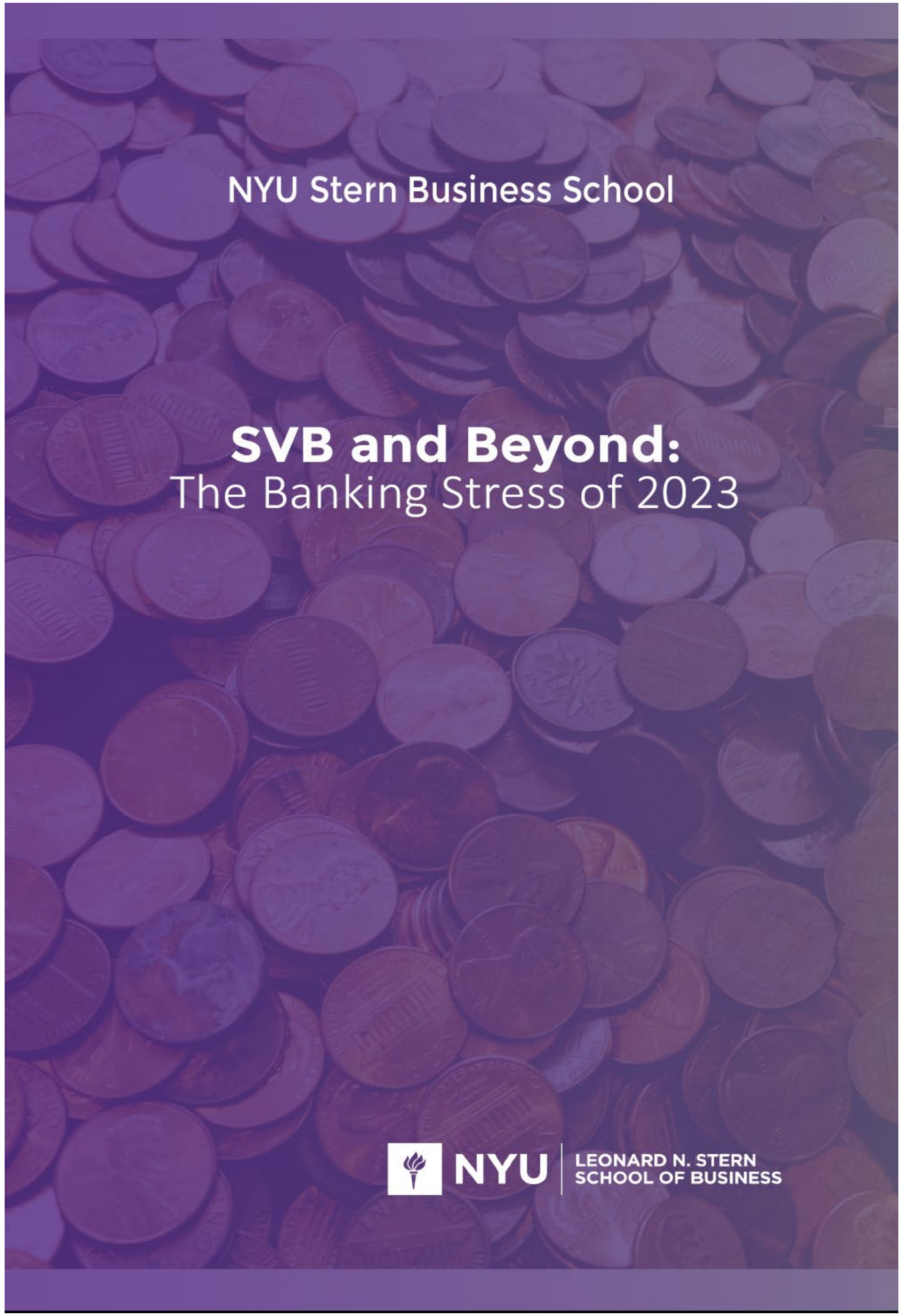
Do banks use HTM accounting to hedge or to gamble on carry?

Do Federal Home Loan Banks delay bank runs and insolvency news?

(How) Should Deposit Insurance be extended?

The Case for a Stagflation Stress Test

… Released here



Appendix

QE : Purchase from banks, no bank b/s expansion

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The Fed Purchases Assets from Banks

Balance Sheet Effects

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BANKING SECTOR	
Assets	**Liabilities**
Treasury securities -$1 Reserves at the Fed +$1	Deposits Capital

Asset swap with banks

Source: "How the Fed Changes the Size of its Balance Sheet" (Leonard, Martin and Potter, *Liberty Street Economics*, 2017)