The Size of Central Banks' Balance Sheets and Financial Stability

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Based on

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

(with Rahul Singh Chauhan, Raghuram Rajan and Sascha Steffen)

- Earlier version presented at Jackson Hole Economic Symposium 2022

Conundrum: Where did all the liquidity go?

- Unprecedented expansion of central bank balance sheets since the GFC

- Surprisingly fragile financial conditions
  - Repo rate spike in Sept 2019; "Dash for cash" in March 2020; Silicon Valley, Signature and First Republic Bank failures in March 2023

- Are central bank b/s expansion, contraction, financial fragility related? How?

My comments

Focus on QE/QT working through commercial bank balance sheets

- Focus on bank balance-sheet vulnerabilities (future stresses) and their dispersion

- Focus on medium-term mismatches rather than intra-day

QE: Purchase from non-banks– Bank BS expansion

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

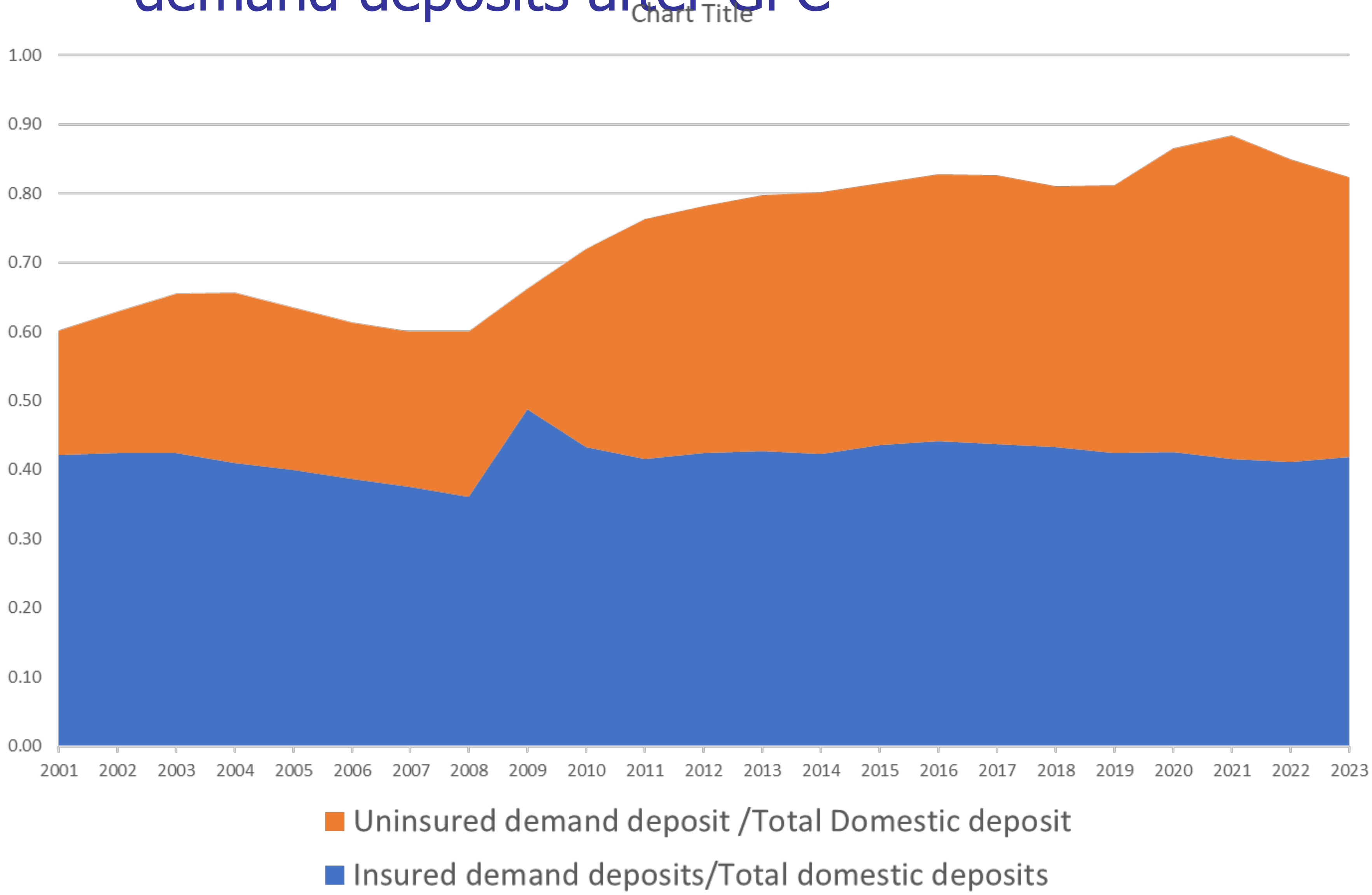
Source: "How the Fed Changes the Size of its Balance Sheet" (Leonard, Martin and Potter, *Liberty Street Economics,* 2017)

Commercial bank BS expansion not only possibility…

- Can be asset swap with commercial banks – securities for reserves
- No effect on bank balance sheet size or liabilities

In practice, QE => expansion in commercial bank balance sheets => increase in their exposure to liquidity claims.

More domestic demand deposits <u>and</u> uninsured demand deposits after GFC



From Acharya, Chauhan, Rajan and Steffens (2023)

Key insight

- Reserves financed with demand deposits

  - QE is not just an expansion of central bank balance sheet

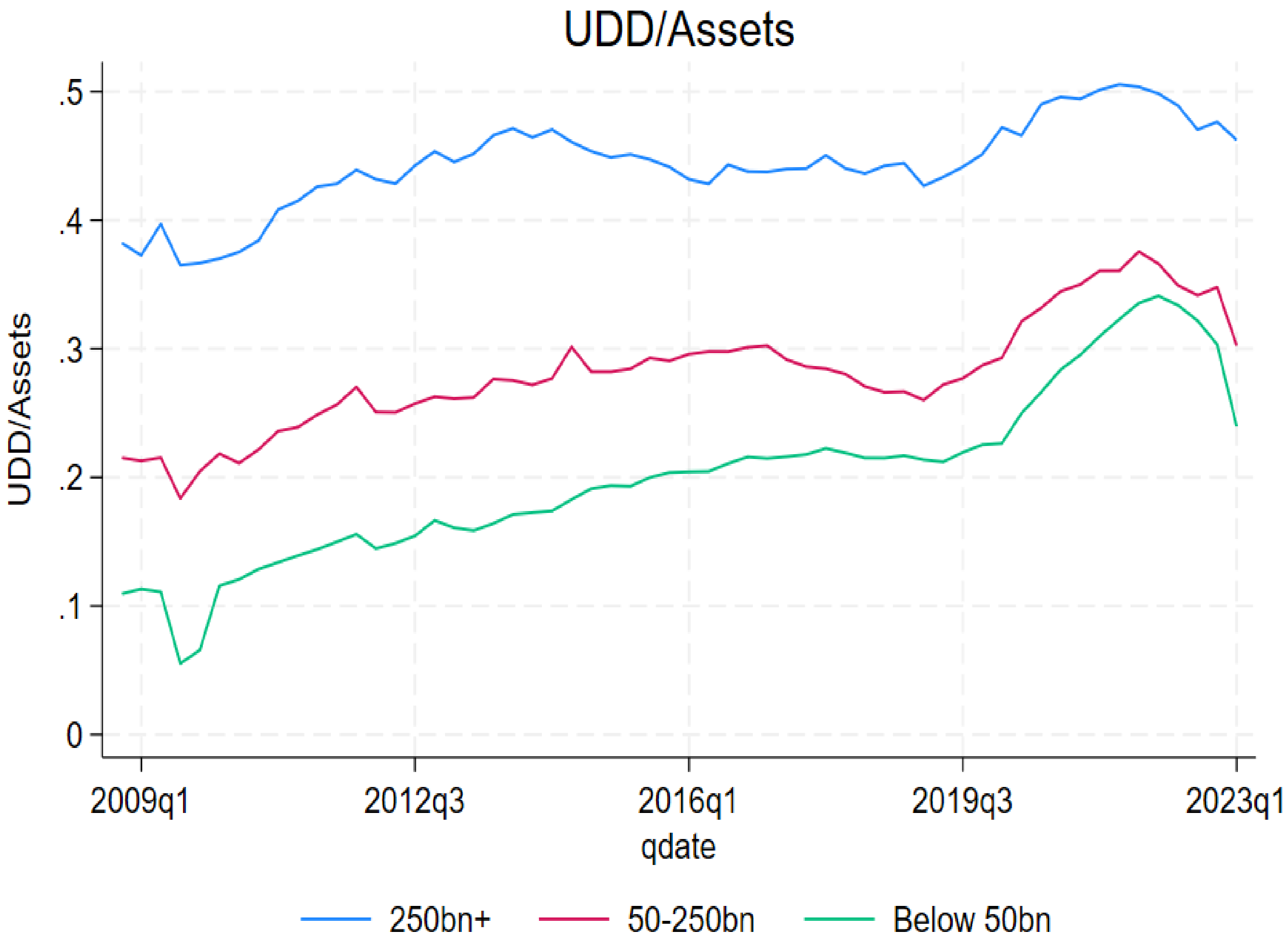
  … also an expansion of commercial bank balance sheets, with more uninsured deposits (and credit lines) and fewer time deposits

- Post-QE, reserves do not necessarily stay where demandable deposits are

  - Liquidity risk, search for yield, …

Ratcheting-up of Uninsured Demand Deposits

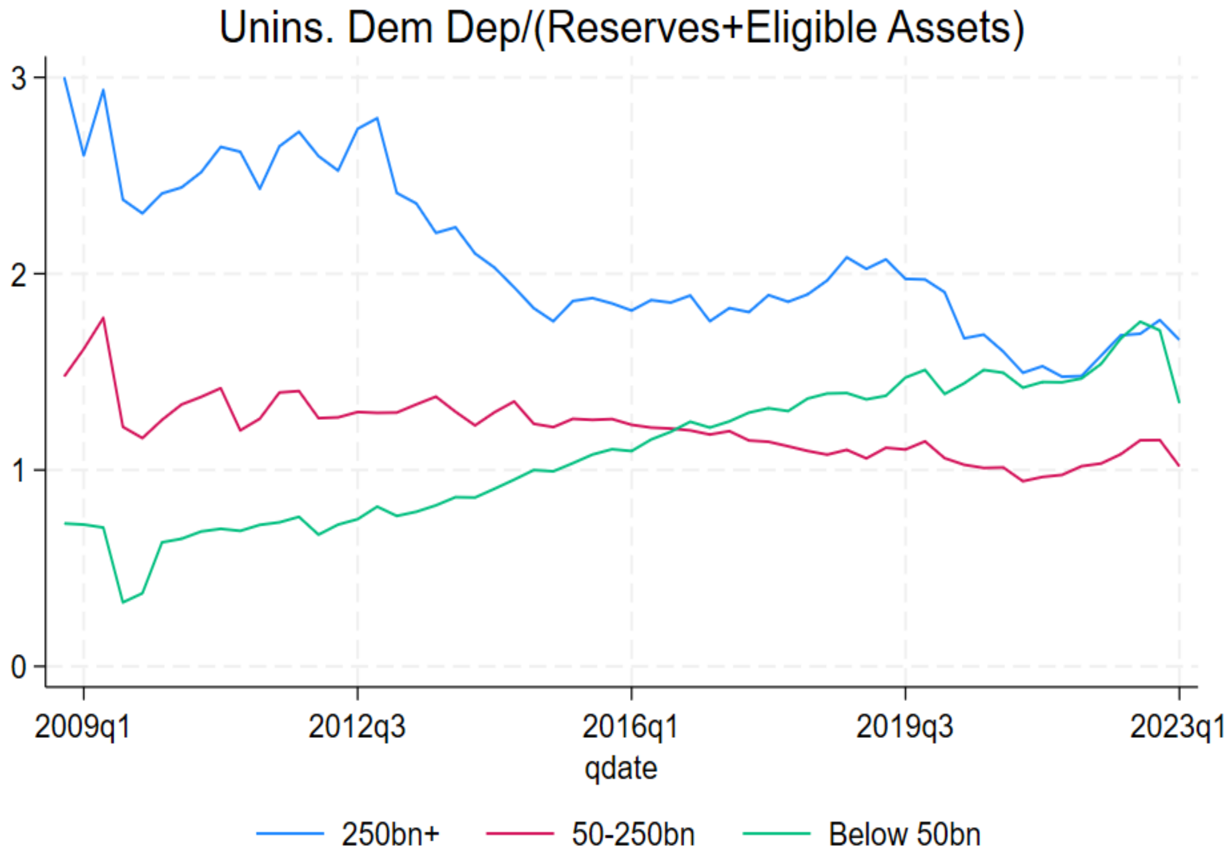
Date	>$250 billion	$50-250 billion	< $50 billion
2008Q3	35.8	20.9	10.4
2014Q3	46.1	30.1	18.3
2019Q3	**44.1**	**27.7**	**21.9**
2019Q4	**45.1**	**28.7**	**22.5**
2021Q4	50.4	37.6	33.5
2022Q4	**49.8**	**34.8**	**30.3**
2023Q1	**46.2**	**30.2**	**23.9**



Bank Size and Ratcheting-up of Liquidity Risk

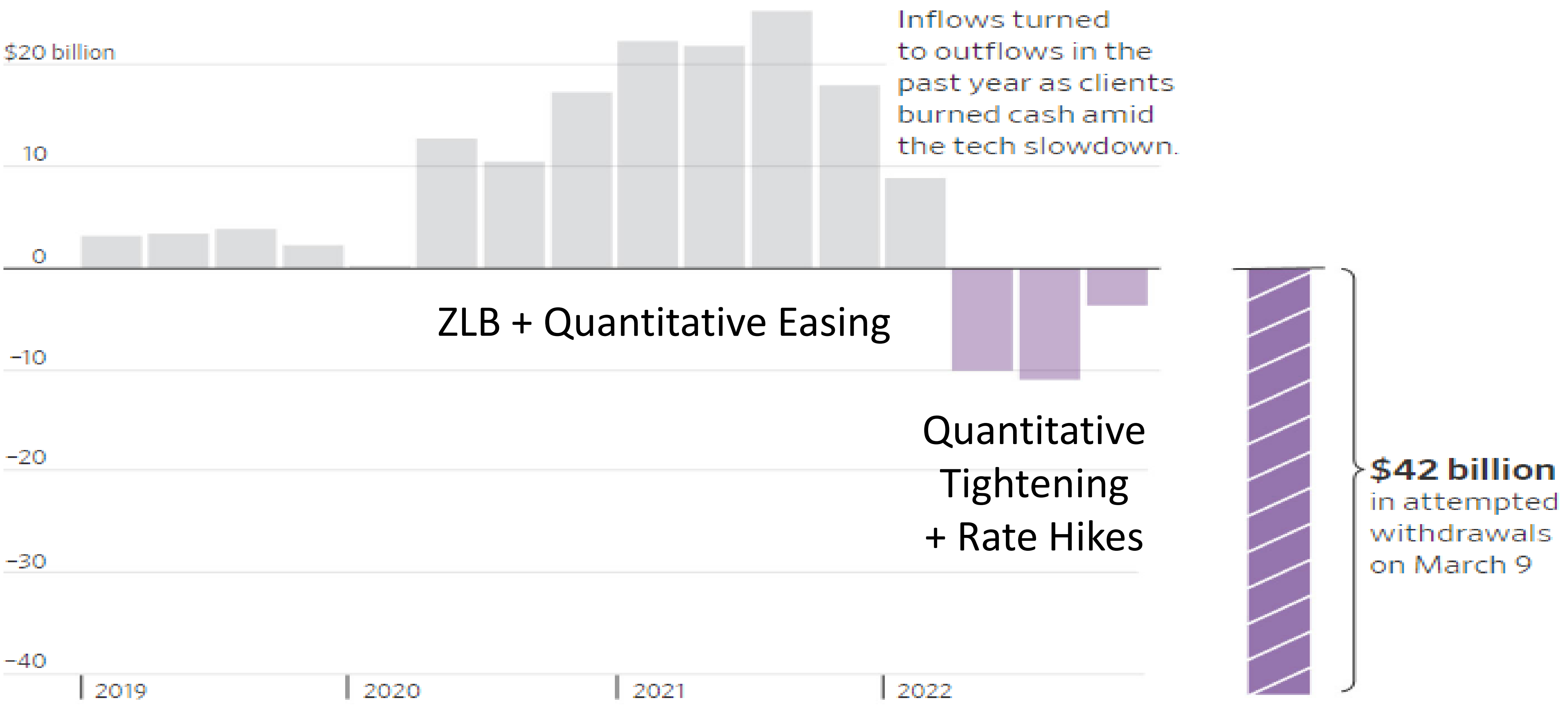
Claims to Liquidity:
(Uninsured Demandable Deposits) /(Reserves + Eligible Assets)

Date	>$250 billion	$50-250 billion	< $50 billion
2008Q3	3.77	2.5	0.76
2014Q3	1.93	1.35	0.95
2019Q3	**1.97**	**1.11**	**1.47**
2019Q4	**1.97**	**1.15**	**1.51**
2021Q4	1.48	1.02	1.47
2022Q4	**1.76**	**1.15**	**1.71**
2023Q1	**1.66**	**1.02**	**1.34**



Largest banks becoming safer, smallest banks increasingly at risk of illiquidity

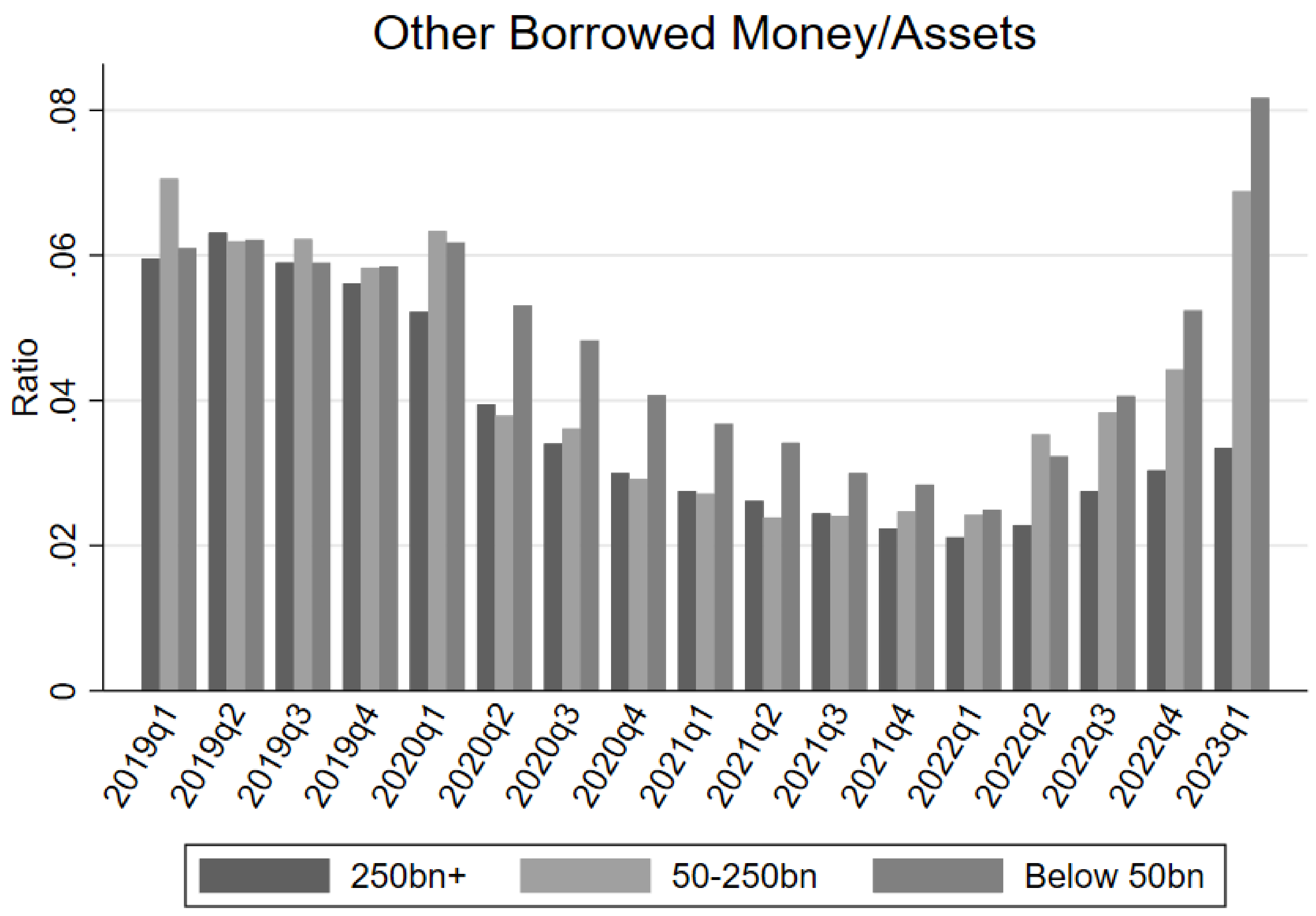
SIVB deposits, quarterly net change



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

Why has QT not been more disruptive in the US?

- It was: March 2023 – largest aggregate bank failures by assets
  - 22 banks experienced runs (Cipriani, Eisenbach, Kovner (2024))
- Systemic exemption invoked
- Fed made reserves freely available while FHLBs made credit available
  - Large banks not helpful in reallocating liquidity
- QT has eaten into reverse repos (MM funds) rather than bank reserves
- Fed has correctly slowed pace of QT to “cross the river by feeling the stones”.

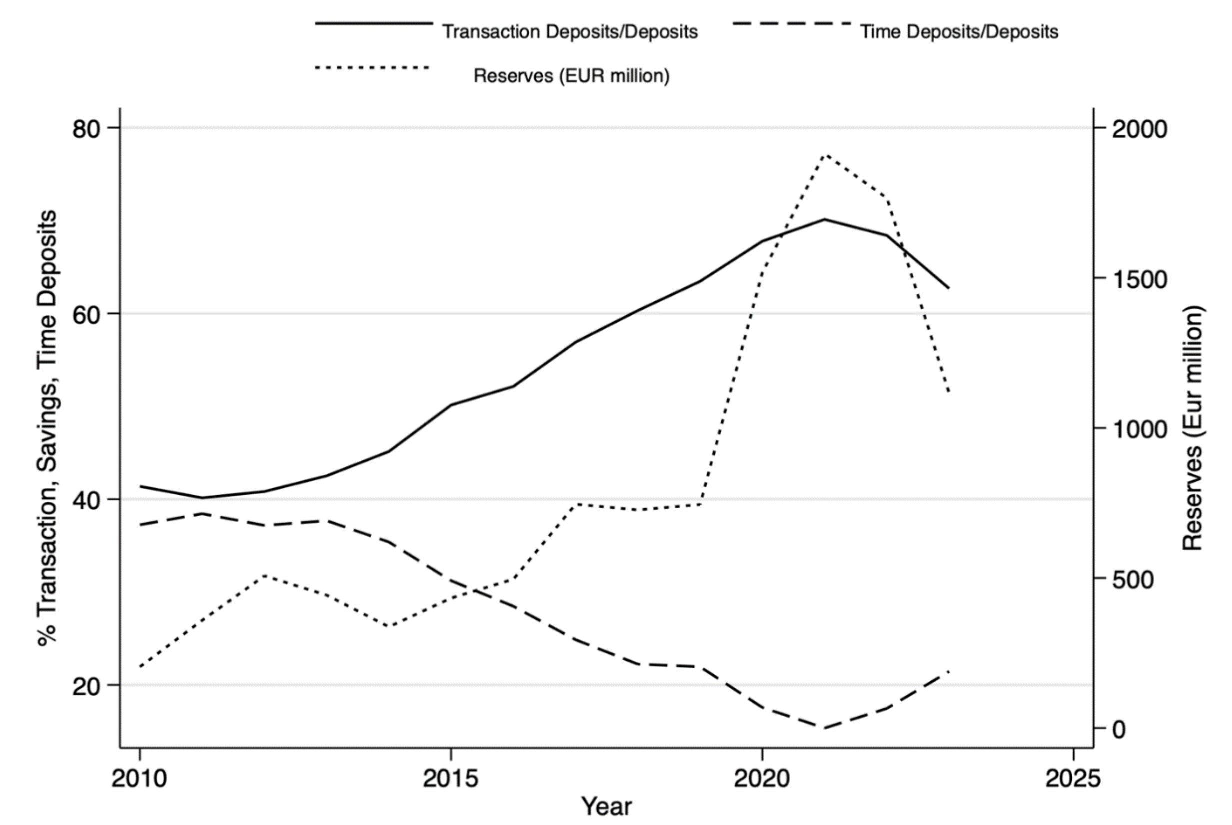


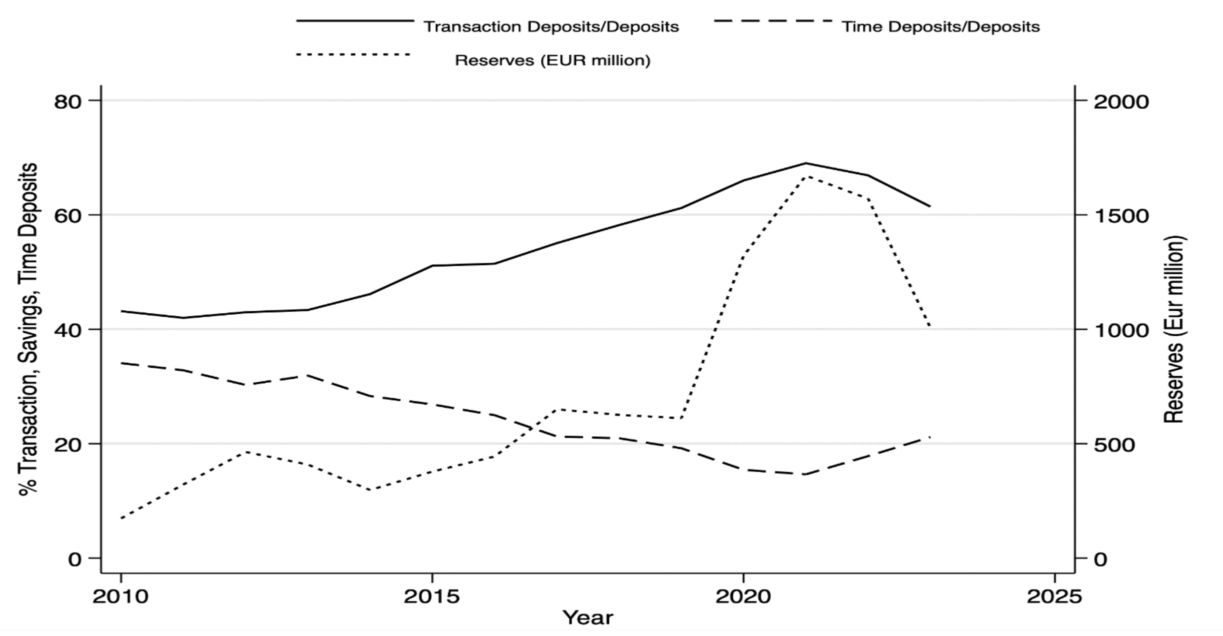
Liquidity Dependence on Official Backstops:

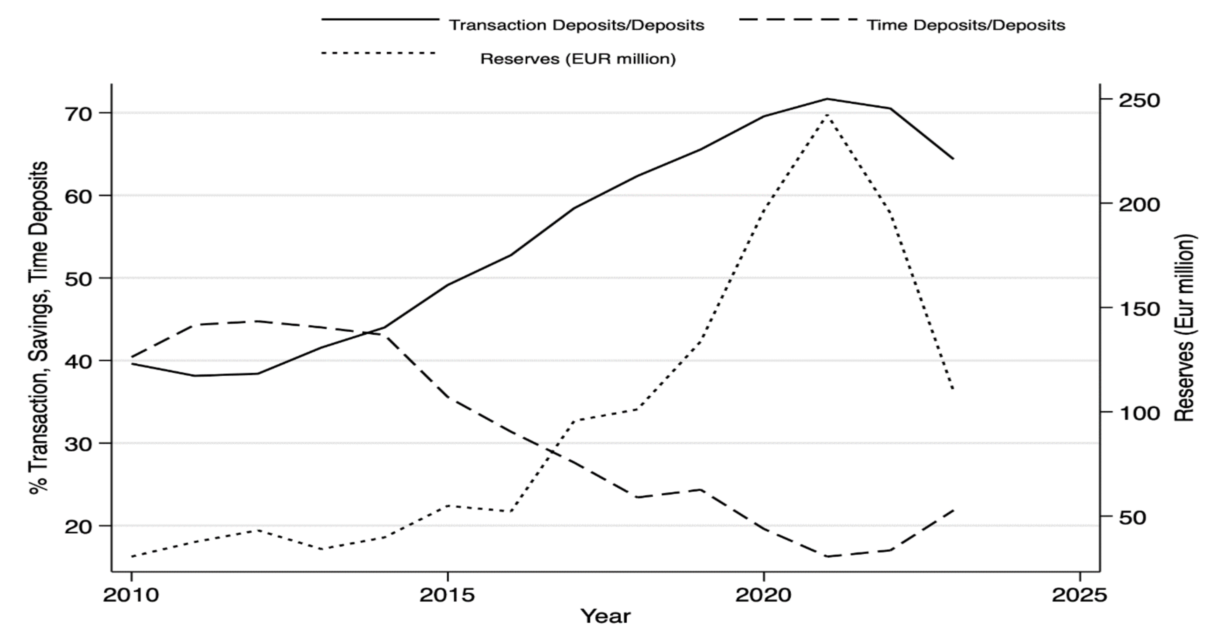
Small and Mid-sized banks, that ratcheted up b/s liquidity risk, became increasingly dependent on FHLB and Discount Window borrowings in 2023…

Large banks were able to retain access to private repo markets

Overall picture holds for Europe also (Overall: bottom left Large banks: top right Small banks: bottom right)







The sample consists all 75 European Banking Authority (EBA) 2023 stress test banks and adding the remaining 5 non-EU globally systemic institutions (G-SIBs), the latter being 3 from United Kingdom and 2 from Switzerland. US subsidiaries included in the stress tests are dropped due to a lack of balance sheet data. The data is sourced from S&P Capital IQ. Source: Steffen (2024)

Cost of repeated liquidity provision? Large CB b/s size…

- Tightening post QE associated with financial fragility.

- Market underprices liquidity mismatches, enhancing need to intervene.
  - BS mismatches => Needs durable rather than temporary supply

- Ratcheting: Liquidity dependence? Can liquidity support be pursued indefinitely?

- Large Fed balance sheet: Permanent fiscal financing / interferes with monetary function