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 does 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; Turmoil in UK gilts in Sep-Oct 2022; Silicon Valley, Signature and First Republic Bank failures in March 2023
- Are central bank b/s expansion, contraction, financial fragility related? How?

This talk's implications are that thinking about QE-QT should

- Focus on monitoring banking sector liability-side (Acharya-Rajan 2021), i.e., …
- Focus on bank balance-sheet vulnerabilities (future stresses) and their dispersion, rather than (only) on current market liquidity metrics
- 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	Deposits
Reserves at the Fed	Capital

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

The Fed Purchases Assets from the Public

Balance Sheet Effects

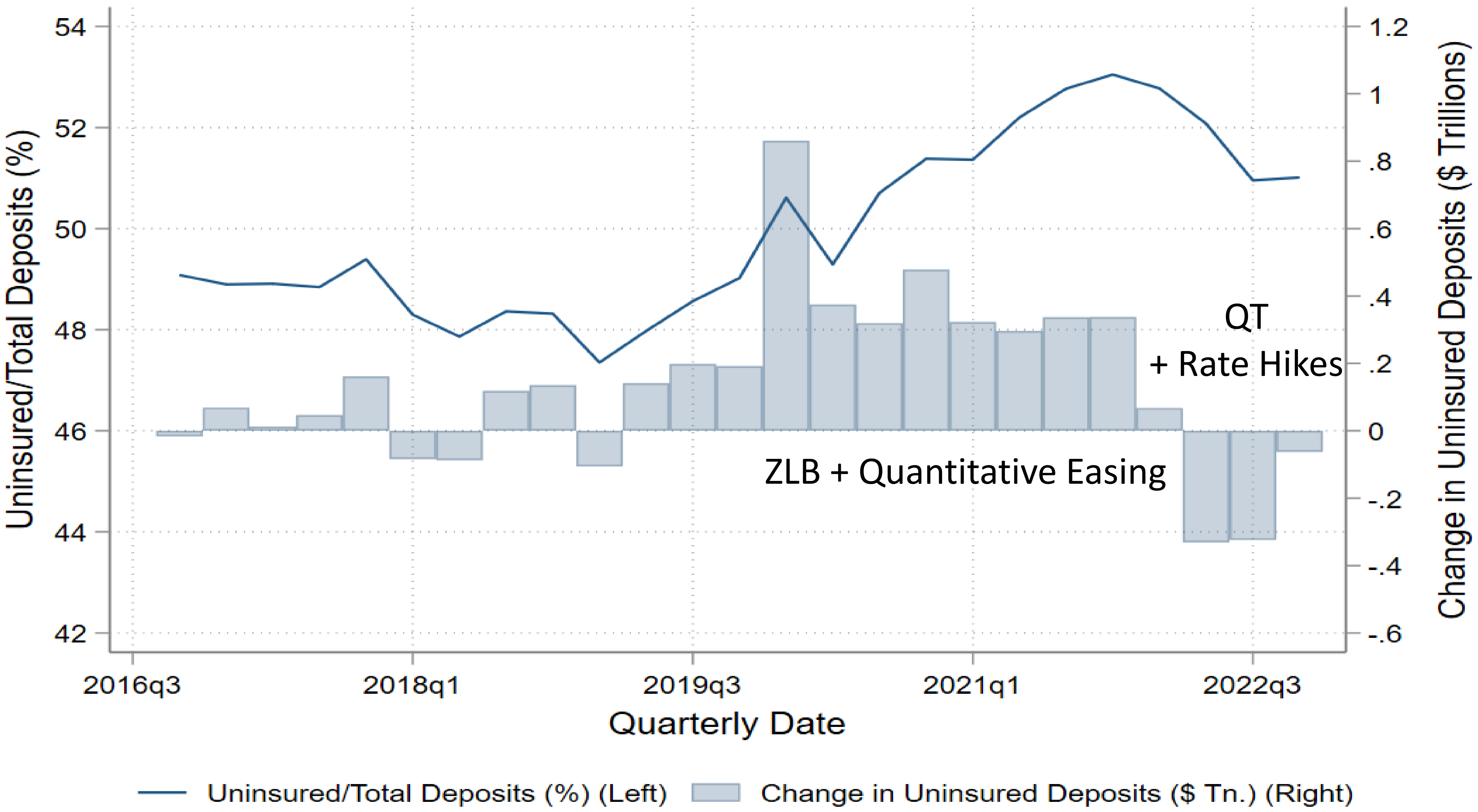
FEDERAL RESERVE	
Assets	**Liabilities**
Treasury securities +$1	Reserves held by banks +$1 Cash held by the Treasury

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

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



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
QT
+ Rate Hikes
ZLB + Quantitative Easing
Uninsured/Total Deposits (%) (Left)
Change in Uninsured Deposits ($ Tn.) (Right)

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 uninsured deposits (and credit lines)

  - QE works like mechanism (ii), an asset-swap between the Fed and the non-banks

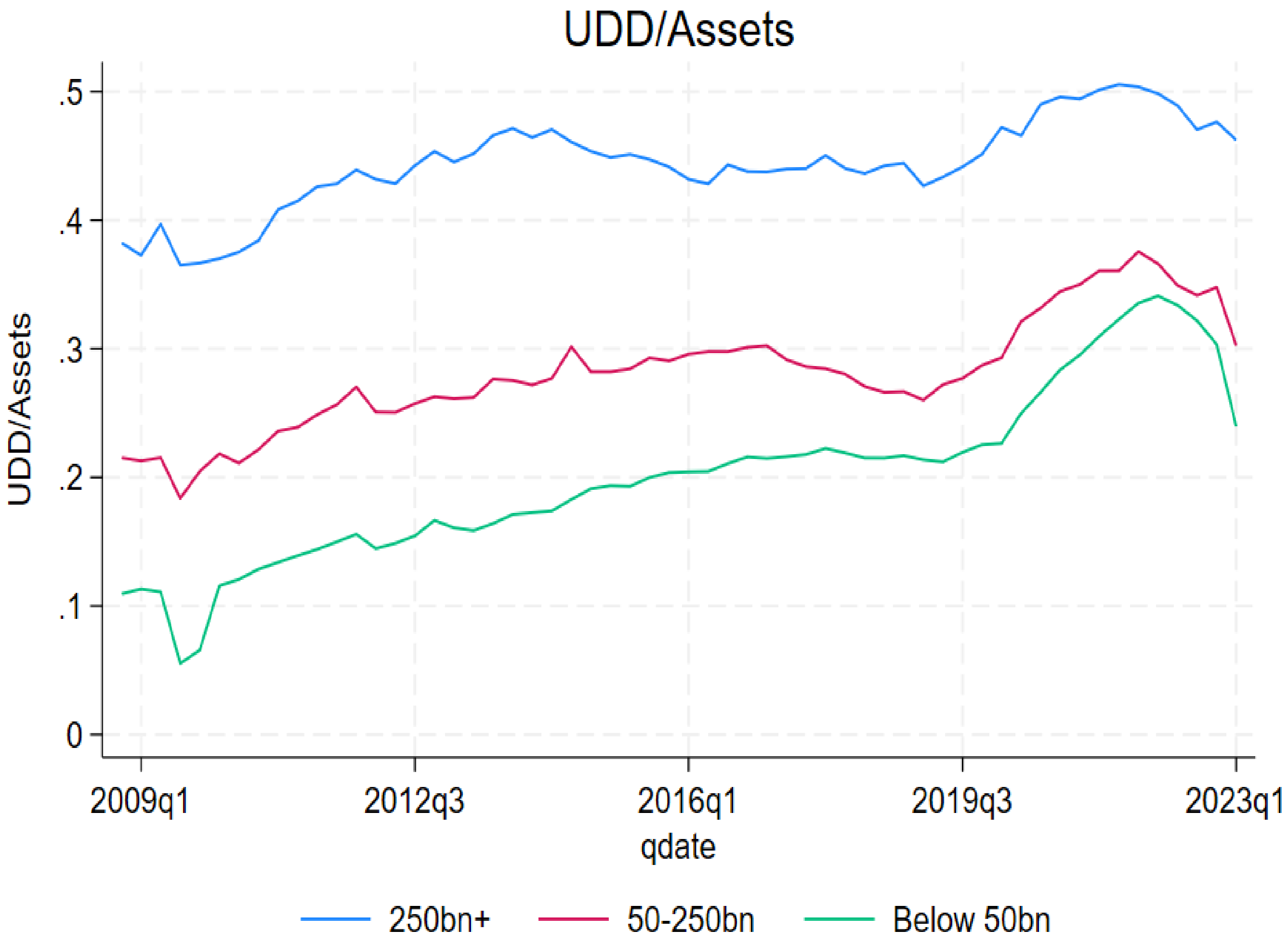
- Post-QE, Reserves do not necessarily stay where Demandable Deposits are

  - Liquidity risk, search for yield, …

- **Hence, at time of QT, monitor time-series and cross-section of bank balance-sheet expansion and demandable liabilities**

Ratcheting-up of Uninsured Demand Deposits

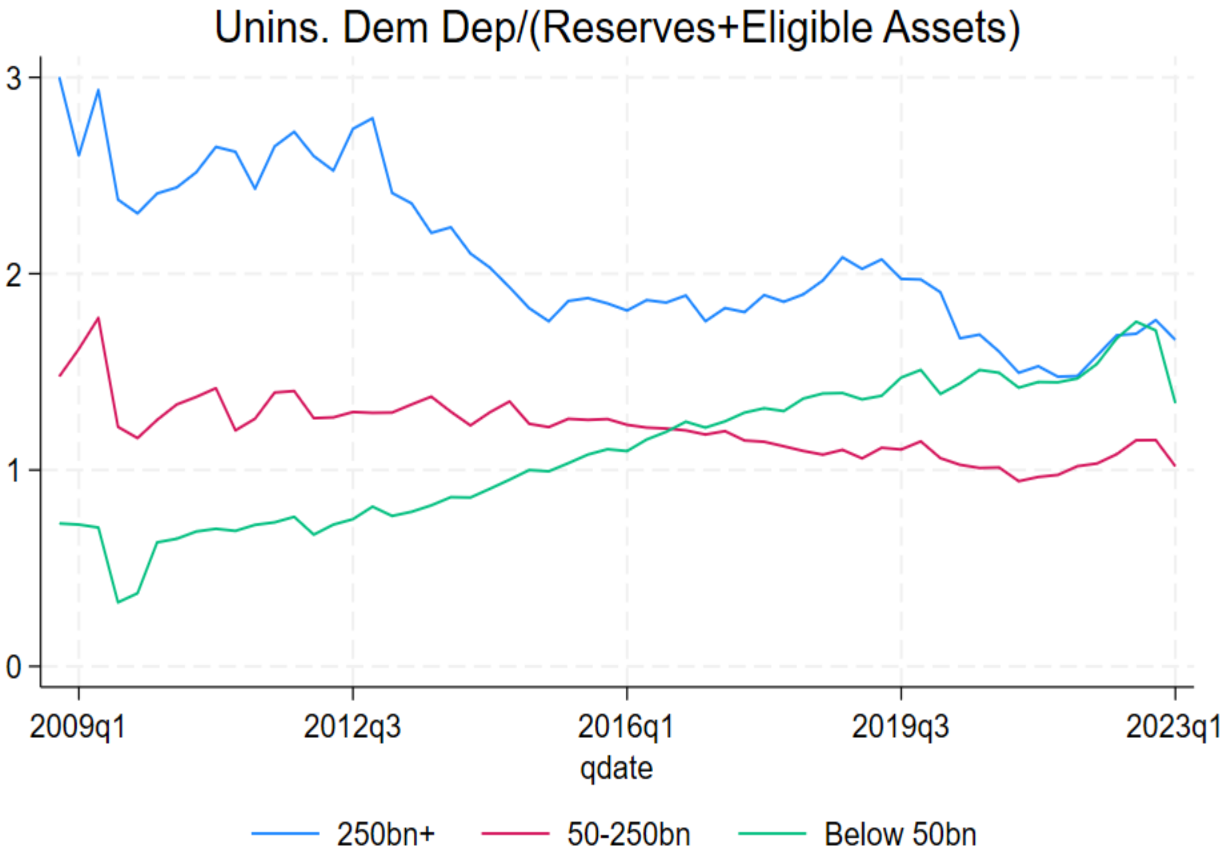
Date	>$250 billion	$50-250 billion	< $50 billion
2008Q3	35.8	20.9	10.4
2014Q3	46.1	30.1	18.3
2019Q3	**44.1**	**27.7**	**21.9**
2019Q4	**45.1**	**28.7**	**22.5**
2021Q4	50.4	37.6	33.5
2022Q4	**49.8**	**34.8**	**30.3**
2023Q1	**46.2**	**30.2**	**23.9**



Bank Size and Ratcheting-up of Liquidity Risk

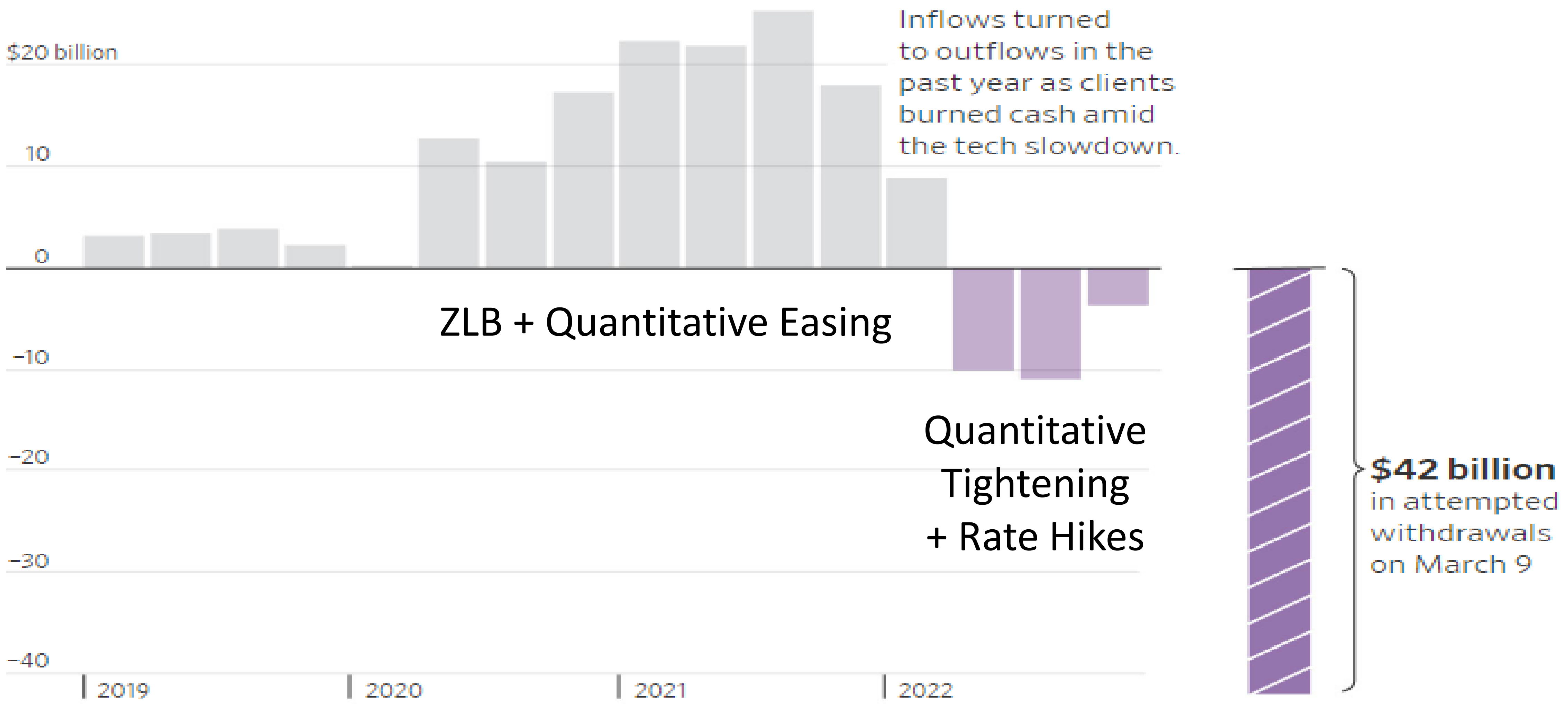
Claims to Liquidity:
(Uninsured Demandable Deposits) /(Reserves + Eligible Assets)

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**

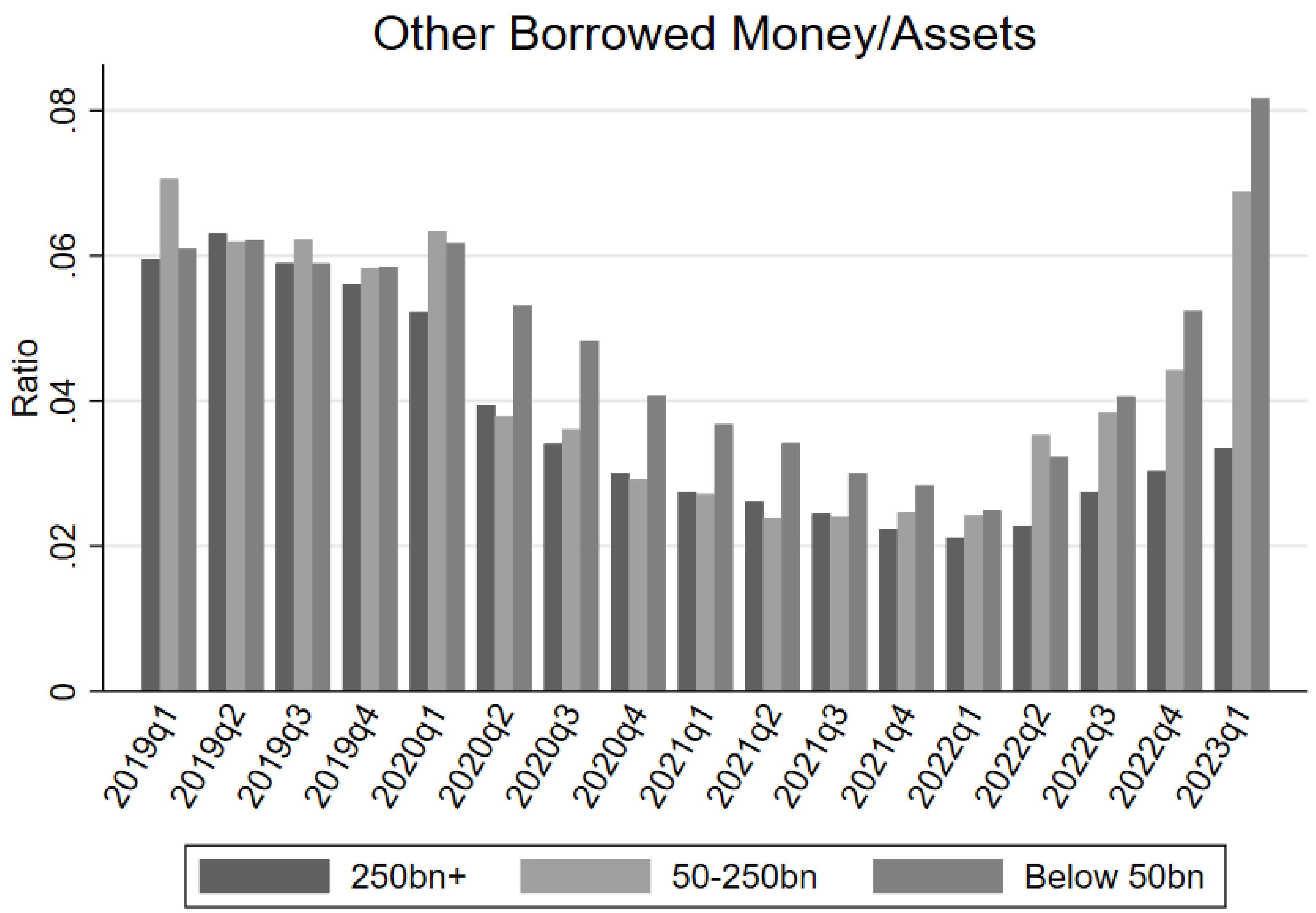


Largest banks becoming safer, smallest banks increasingly at risk of illiquidity

SIVB deposits, quarterly net change



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

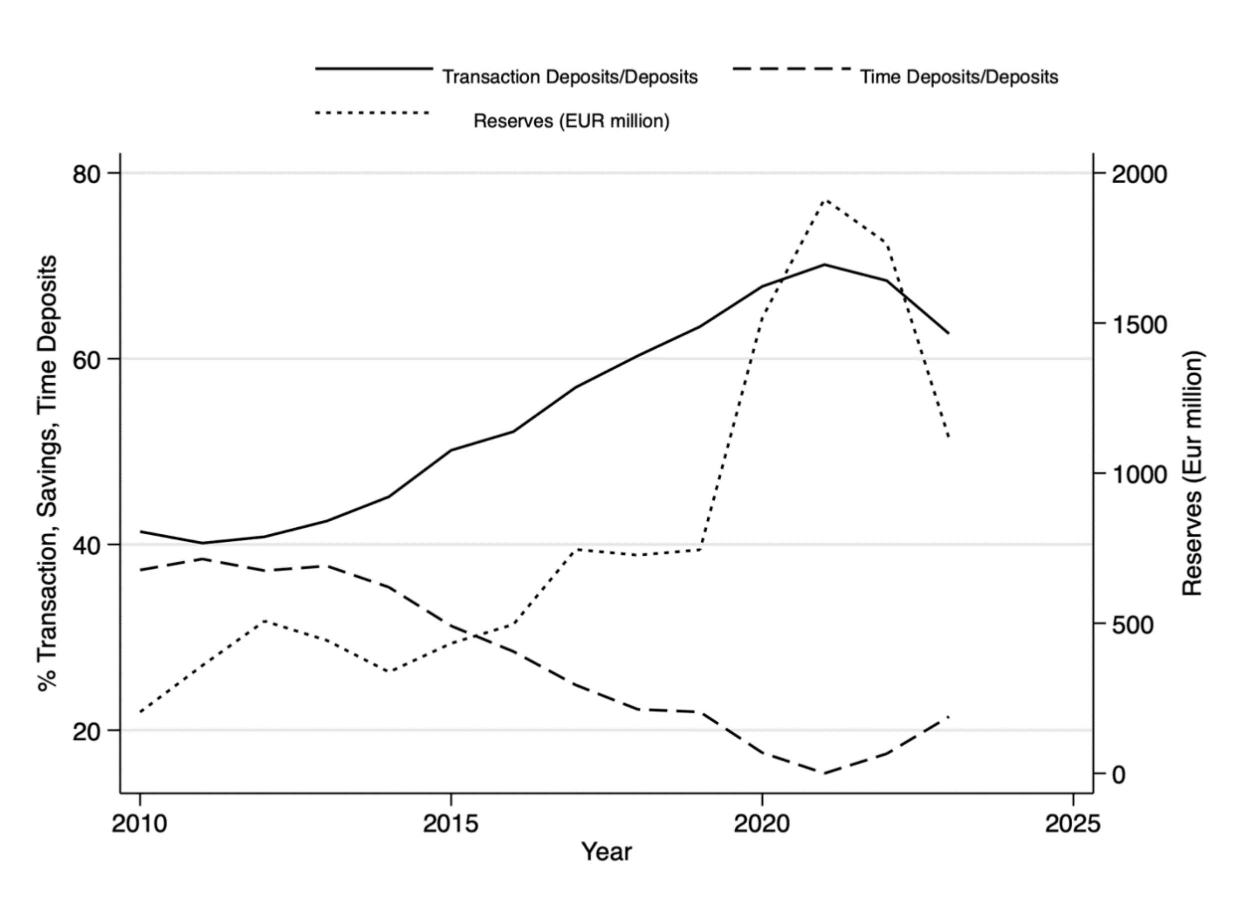


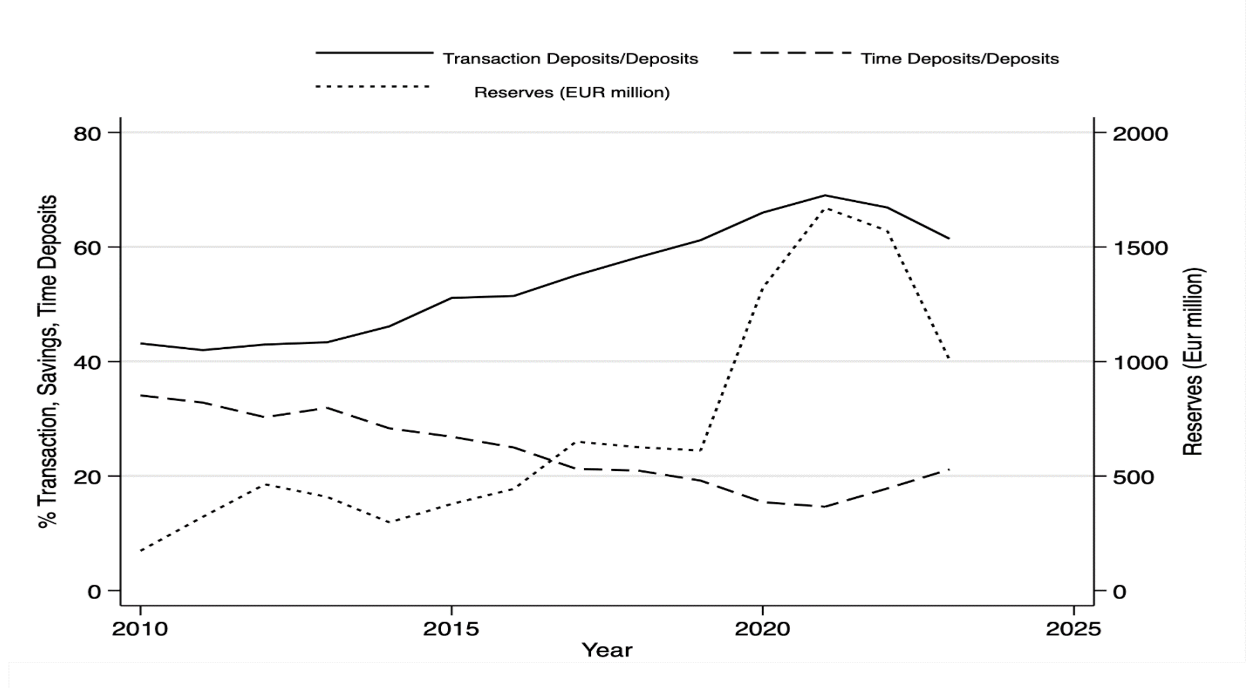
<u>Liquidity Dependence on Official Backstops:</u>

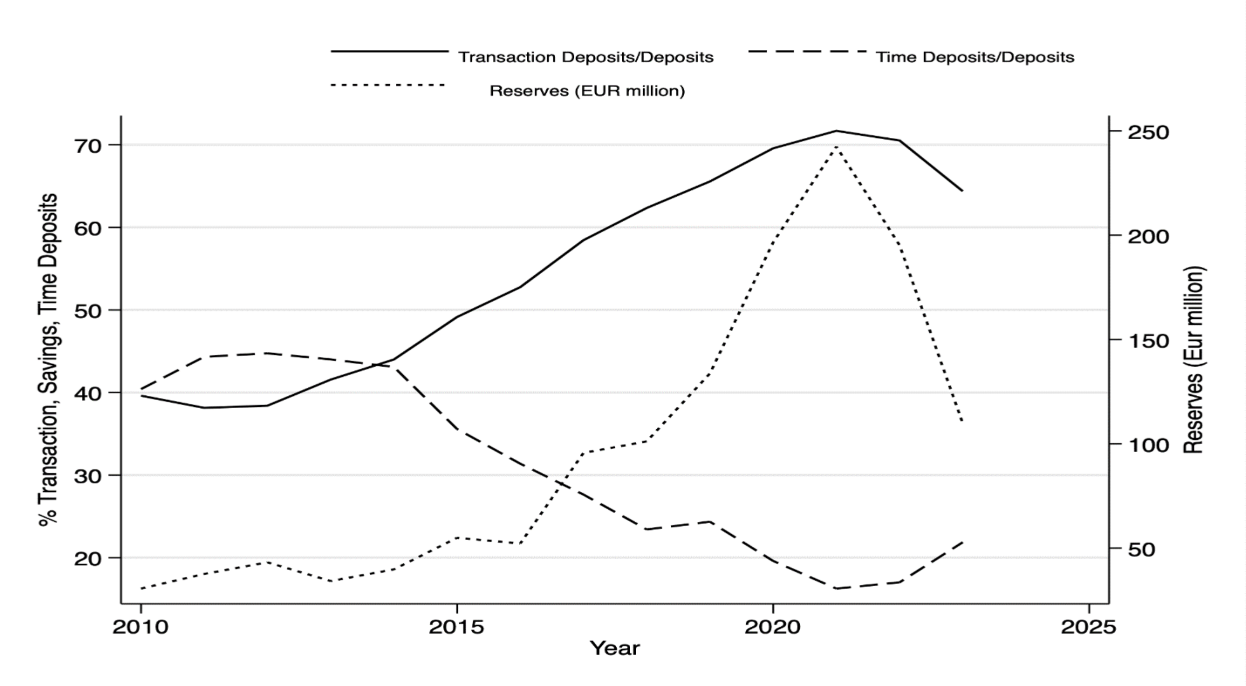
Small and Mid-sized banks, that ratcheted up b/s liquidity risk, became increasingly dependent on FHLB and Discount Window borrowings in 2023…

Large banks were able to retain access to private repo markets

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 despite excess reserves (reverse repo) and presence of Federal Home Loan Banks.
- Liquidity dependence? Can liquidity support be pursued indefinitely?
- Zombie lending to CRE borrowers by Fed-dependent banks?
- Market underprices liquidity mismatches, enhancing need to intervene.
- Permanent fiscal financing / interferes with monetary function

Financial Stability and Monetary Policy Tradeoff

- When central bank balance-sheets are durably maintained to be “large”…

  - Accidents waiting to happen? Not just banks, also shadow banks? E.g., BOE in 2022

  - Agency problems in banks and bailouts? E.g., Fed and Treasury in March 2023

- Engage in QT while “feeling the stones” for financial fragility

- Revisit desirable scale, scope, duration of QE: “pushing on a string”?

- Are we in a policy trap? Inflation, financial fragility higher for longer? ☹