## Silicon Valley Bank failure

Silicon Valley Bank (SIVB) has been shut down by regulators who cited both inadequate liquidity and insolvency. According to the FDIC, insured SIVB depositors will have access to their funds no later than Monday morning. SIVB's $209 bn in assets are roughly 2/3 of Washington Mutual (not adjusted for inflation), which failed in 2008. The mid-day closure of the bank was unusual, and is something we are still evaluating.

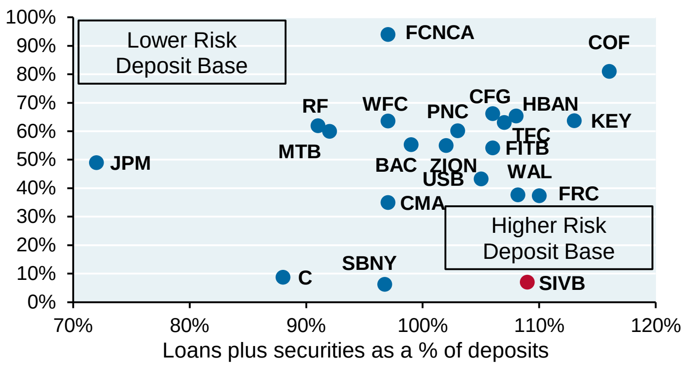
### The liability issue: extreme reliance on institutional/VC funding rather than traditional retail deposits

While capital, wholesale funding and loan to deposit ratios improved for many US banks since 2008, there are exceptions. **As shown in the first chart, SIVB was in a league of its own**: a high level of loans plus securities as a percentage of deposits, **and** very low reliance on stickier retail deposits as a share of total deposits. Bottom line: SIVB carved out a distinct and riskier niche than other banks, setting itself up for large potential capital shortfalls in case of rising interest rates, deposit outflows and forced asset sales. [Note: This chart appeared in our 2023 Outlook in a discussion on risks related to deposits, rising rates and quantitative tightening].

A further look at SIVB funding (pie charts) shows unusually high reliance on corporate/VC funding; only the small red private bank slice looks like traditional retail deposits to us. Out of SIVB's $173 billion of customer deposits at the end of 2022, $152 billion were reportedly uninsured (i.e., over the $250,000 FDIC insurance threshold) and only $4.8 billion were fully insured. It's fair to ask about the underwriting discipline of VC firms that put most of their liquidity in a single bank with this kind of risk profile[1]. At the end of 2022, SIVB only offered 0.60% more on deposits than its peers as compensation for the risks illustrated below; in 2021 this premium was 0.04%.

**US bank loan-to-deposit ratios**

Estimated retail deposit share of total deposits




Source: Autonomous Research, JPMAM. Securities include Hold to Maturity and Available for Sale categories. Q3 2022.

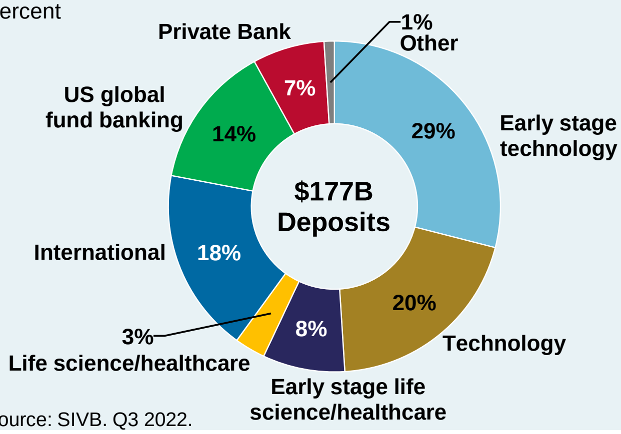
**Some history on losses imposed on uninsured depositors when banks fail**:

- 1980-1987: losses imposed at 24% of resolutions
- 1988-1991: losses imposed at 14% of resolutions
- 1992-2007: losses imposed at 65% of resolutions
- 2008: despite deposit insurance limit increase from $100,000 to $250,000 and a temporary guarantee program for uninsured noninterest-bearing transaction accounts, losses still imposed at 28% of resolutions
- 2009-2013: losses imposed at 6% of resolutions

Source: FDIC Resolution Tasks and Approaches: Comparison of the 1980 to 1994 and 2008 to 2013 Crises

**Silicon Valley Bank deposit funding**

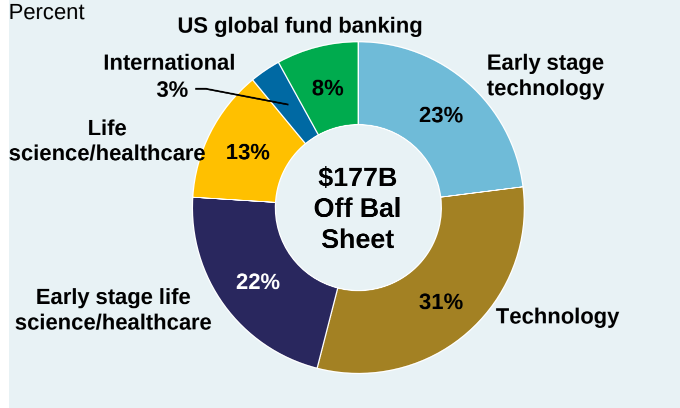
Percent




Source: SIVB. Q3 2022.

**Silicon Valley Bank Off Balance Sheet funding**

Percent




Source SIVB. Q3 2022.

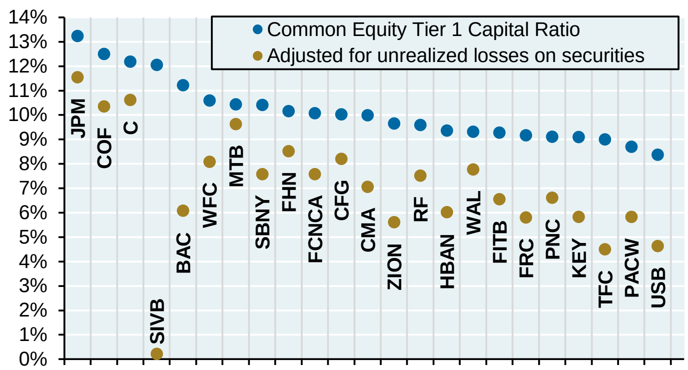
[1] In an article on TechCrunch this week, Mark Suster from LA-based Upfront Ventures referred to the existence of **deposit exclusivity arrangements** required by SIVB for some of its customers that borrowed from it

**The asset issue: buying bonds at generational lows in yields, forced asset sales and securities losses**

Between Q4 2019 and Q1 2022, deposits at US banks rose by $5.4 trillion and due to weak loan demand, only ~15% was lent out; the rest was invested in securities or kept as cash[2]. Banks designate these securities as being "available-for-sale" (AFS) or in "hold-to-maturity" (HTM) portfolios instead. SIVB relied extensively on HTM treatment for its growing securities portfolio: since 2019, its AFS book grew from $14 to $27 bn while its HTM book grew from $14 to $99 bn. Selling HTM securities is complicated, since it results in larger parts of the portfolio being suddenly marked to market, which can in turn then result in the need for a capital raise.

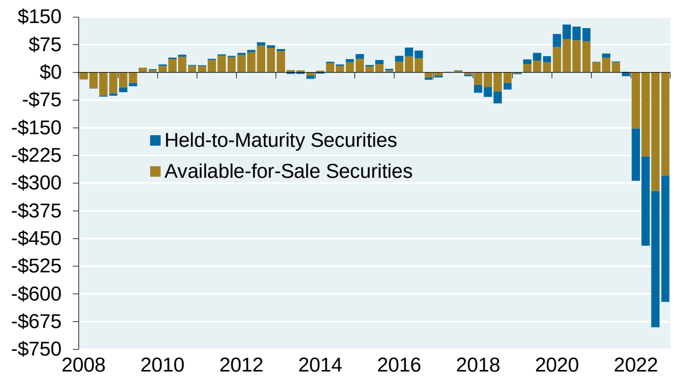
The question for investors/depositors: **how much duration risk did each bank take in its investment portfolio during the deposit surge, and how much was invested at the lows in yields?** As a proxy for these questions now that rates have risen, we can examine the impact on capital ratios from an assumed immediate realization of unrealized securities losses (see next page for an explanation of our methodology). That's what is shown in the first chart: again, **SIVB was in investment duration world of its own at the end of 2022**, which is remarkable given its funding profile shown earlier, and its elevated share of uninsured depositors shown on the next page.

**Impact of unrealized securities losses on capital ratios**
Percent




Source: JPMAM, Q4 2022. See page 3 for methodology

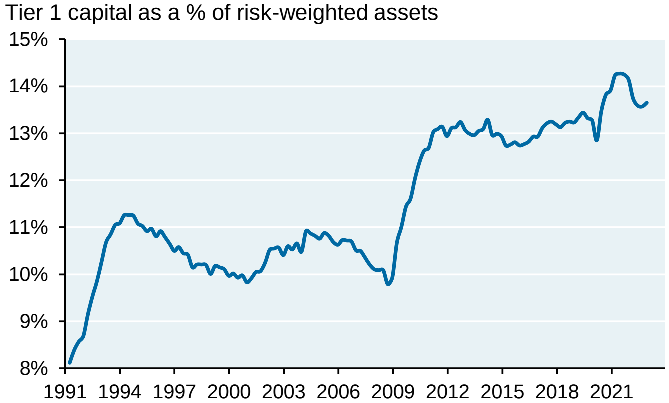
**FDIC Q4 unrealized bank losses on investment securities**
US$, billions




Source: FDIC. Q4 2022.

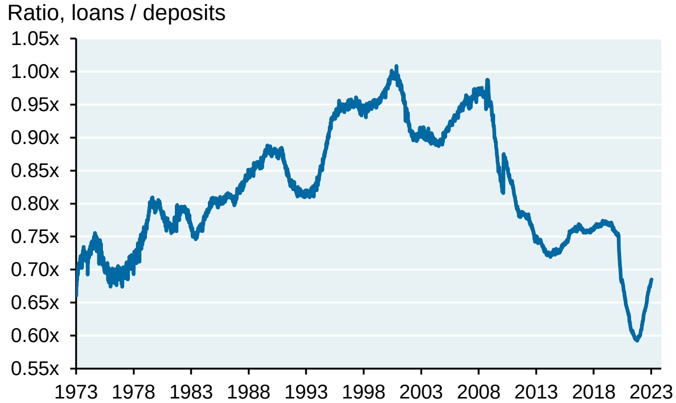
Here's a look at aggregate Tier 1 capital ratios and loan to deposit ratios for US banks. To reiterate what we wrote in the Eye on the Market Outlook this year, Tier 1 capital ratios are exaggerated on the high side due to the high level of unrealized losses in hold-to-maturity portfolios. As a reminder however, our adjusted Tier 1 capital methodology is also exaggerated by assuming the entire liquidation of HTM and AFS portfolios.

**US bank tier 1 capital ratios**
Tier 1 capital as a % of risk-weighted assets




Source: FDIC, Bloomberg, JPMAM. Q4 2022.

**US loan-to-deposit ratio, all commercial banks**
Ratio, loans / deposits



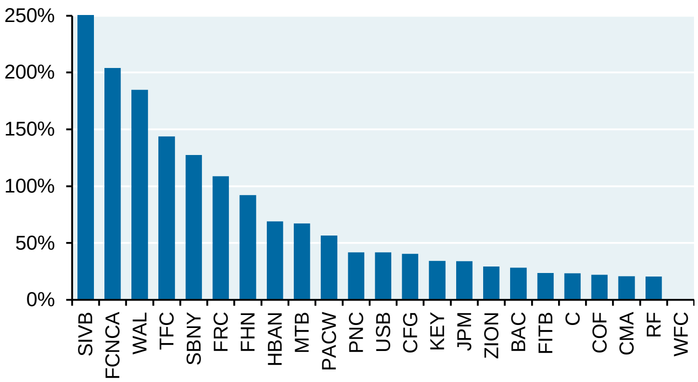

Source: St. Louis Fed, Bloomberg, JPMAM. February 22, 2023.

[2] Marc Rubinstein, "*The Demise of Silicon Valley Bank*", March 10, 2023

Other comments:

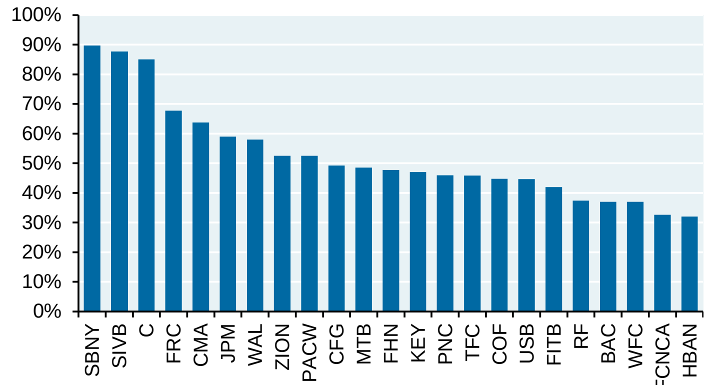
- The irony of SIVB is that most banks have historically failed due to credit risk issues. This is the first major one I recall where the primary issue was a duration mismatch between high quality assets and deposit liabilities. As shown below, being flooded with deposits from fast-money VC firms and other corporate accounts at a time of historically low interest rates might have been more of a curse than a blessing
- I wonder whether Fed models on systemic risk incorporate the possibility that some banks would be duped into thinking that QE-induced rates prevailing in 2020 represented fair value, and would load up on them
- In the first chart on p.1, loans plus securities are more than 100% of deposits for SVB. After adding cash and subtracting assets pledged to the Fed or FHLB, it seems like the risk of loss for unsecured deposits will depend heavily on the value of the loan book, which is composed primarily of VC/PE capital call lines of credit, private mortgages and C&I loans to tech companies
- According to *Fortune*, SIVB's Chief Risk Officer left in April 2022 and was not replaced for 8 months
- Circle stablecoin reportedly has $3.3 billion of its $40 billion in reserves tied up in SIVB deposits. This is part of a broader issue we've written on before: lack of fully audited disclosures on stablecoin reserves

**Balance sheet growth, Q1 2019 to Q4 2022**
Percent




Source: JPMAM. Q4 2022.

**Uninsured share of customer deposits**
Percent above FDIC guarantee threshold




Source: JP Morgan Securities Research, JPMAM. Q4 2022.

Michael Cembalest, JP Morgan Asset Management

**Methodology for capital adjustment chart**

The goal of the chart is to illustrate the theoretical capital impact of an immediate liquidation of a bank's entire investment securities portfolio, both HTM and AFS.

For systemically important banks, no adjustment for AFS is needed since AFS unrealized gains and losses are already reflected in reported capital ratios. As a result, only gains and losses in HTM portfolios are included in our adjustment. For these four banks, we tax-adjust the difference between amortized cost and fair value of the HTM securities assuming a tax rate of 24%, and subtract this amount from Common Equity Tier 1 Capital.

Regional banks shown elected to add back AFS losses to regulatory capital (an option not available to larger banks). For purposes of this analysis, to make regional bank ratios comparable to larger banks, we reversed add-backs associated with unrealized AFS losses since the four larger banks have already reflected them.

Direct hedging of interest rate risk in HTM portfolios is generally prohibited by rule ASC 320 since HTM treatment implies that a bank will not ever sell the bonds, in which case there is no reason to hedge variations in price as a function of changing rates. Direct hedging of interest rate risk is allowed in AFS portfolios. However, accounting treatment of these hedges requires quarterly recognition of gains and losses in the income statement and capital accounts. Therefore, under our working assumption in the chart that banks had to liquidate AFS portfolios, there would be no offsetting hedge gain to recognize at that time.

BAC Bank of America; C Citi; CFG Citizens Bank; CMA Comerica; COF Capital One; FHN First Horizon; FCNCA First Citizens; FITB Fifth Third; FRC First Republic; HBAN Huntington; JPM JP Morgan; KEY Keycorp; MTB M&T; PACW PacWest; PNC PNC Bank; RF Regions; SBNY Signature; SIVB Silicon Valley Bank; TFC Truist; USB US Bancorp; WAL Western Alliance; WFC Wells Fargo; ZION Zions

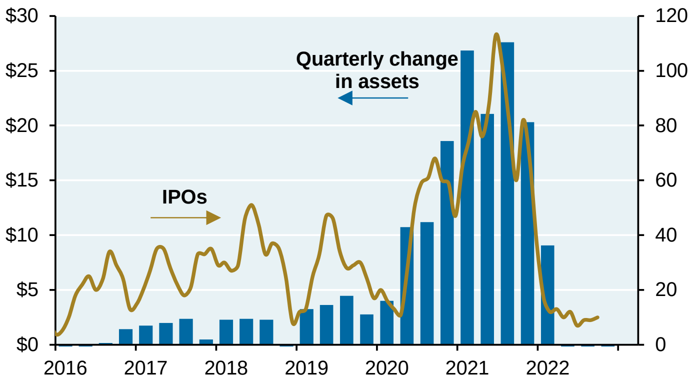
## Some comments on Schwab

Schwab is not comparable to the regional banks shown. As has been widely reported, Schwab has a large portfolio of underwater AFS and HTM securities which if marked to market (or sold), would render its Common Tier 1 equity ratio negative. However, Schwab's loan to deposit ratio is a minimal 10%; Schwab's uninsured deposits are only 20% which would be the lowest ratio of uninsured deposits on the chart on the prior page; and Schwab has $7.5 trillion in client assets that generate substantial profits for the firm. Of the 21 US banks and 11 European banks that we monitor, Schwab's 1.39% ROA as of December 2022 would be the third highest.

## Appendix charts

**SIVB asset growth tracks the IPO cycle**

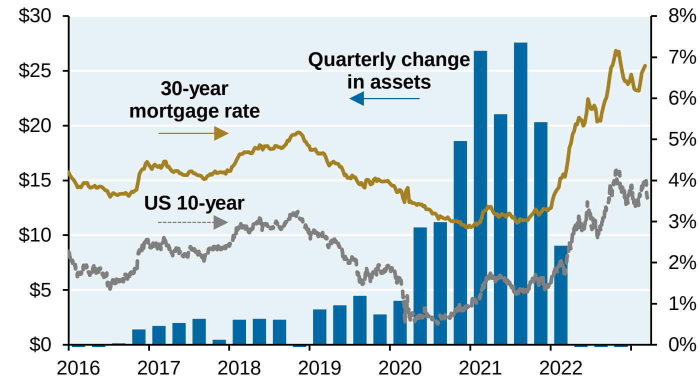
US$, billions




Source: Bloomberg, JPMAM. December 2022.

**SIVB asset growth coincided with low yields**

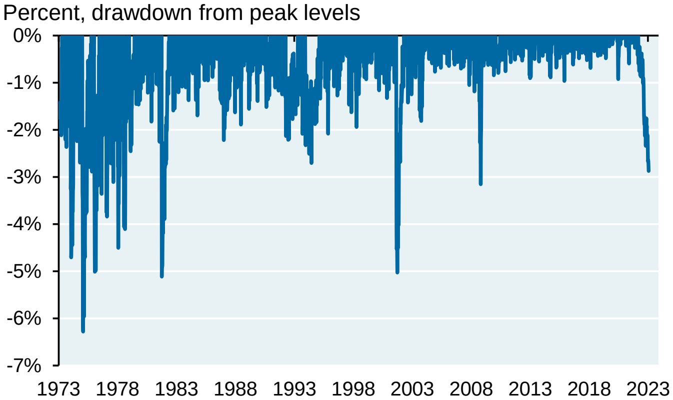
US$, billions




Source: Bloomberg, JPMAM. March 14, 2023.

**Drawdown of US commercial bank deposits**

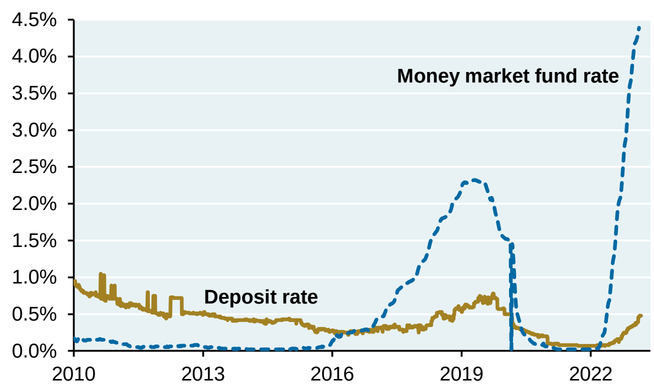
Percent, drawdown from peak levels




Source: Bloomberg, JPMAM. March 1, 2023.

**Money market net yield vs bank deposit rates**

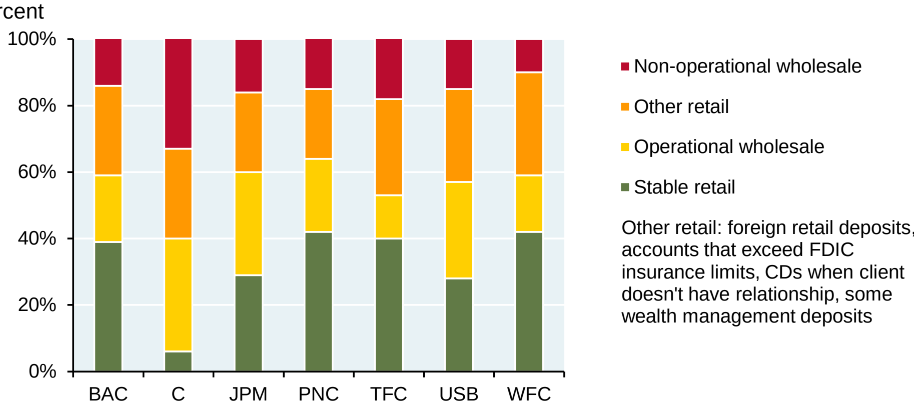
Percent




Source: Bloomberg, JPMAM. March 13, 2023.

**Deposits by type for large select banks**

Percent




Source: JP Morgan Securities Research, Vivek Juneja. 2023.

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