Lecture 22: Silicon Valley Bank Failure

ECON 43370: Financial Crises

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Silicon Valley Bank (SVB)

State-chartered bank founded in 1983 to focus on the needs of startup companies (primarily in tech)

Was a member of the Federal Reserve System

Had $209 billion in assets. Was the 16th largest commercial bank in the US at the time of its failure

Taken over by the FDIC on March 10, 2023. At the time, second-largest bank failure ever (Washington Mutual, September 25, 2008)

SVB's Business Model

SVB's business model was basically textbook:

- It funded itself mostly with deposits
- It made loans (mostly to tech startups)
- And it held securities (mostly Treasuries)

Net Interest Margin

"3-6-3 Rule": banks make money by earning more on their assets than their liabilities cost

Deposit spread: difference between short-term T-Bill rate and deposit rate

Term spread: difference between long-term Treasury yield and short-term T-Bill rate

Credit spread: difference between risky loan yields and long-term Treasury yields

If all assets are loans, net interest margin is the sum of these spreads

SVB before COVID-19

Silicon Valley Bank | December 31, 2019 | Billions of U.S. dollars

$70B

REPORTED TOTAL ASSETS

ASSETS	
Cash	6
Securities	28
Loans	33
Other assets	3
Total assets	**70**

LIABILITIES + EQUITY	
Deposits	63
Other debt	2
Total liabilities	65
Equity	**5**
Total liabilities + equity	**70**

Deposits provided 90% of funding; securities represented 40% of assets.

Source: Andrew Metrick (2024), Journal of Economic Perspectives 38(1), Figure 1, p. 136; SVB Call Reports.

Values are rounded as in the source. Shares in the callout are calculated from the displayed balance sheet.

SVB Particulars

Most of its loans were credit lines to businesses, not mortgage or standard business loans

About 40 percent of its assets were securities, almost exclusively Treasuries and agency-backed bonds

94 percent of its deposits were uninsured

- There are actually lots of uninsured deposits in the US
- But SVB was an outlier here
- Was not well diversified, either in assets or liabilities (basically all tech industry)

Uninsured Deposits

The current FDIC insurance limit is \$250,000 per account, per bank

The vast majority of accounts in the US are insured (99 percent)

But, on a dollar basis, something like 45 percent of dollars in accounts are uninsured ($\approx$ \$9 trillion)

Why?

- Convenience
- Large payments and cushions for upcoming expenses
- Historically, uninsured depositors are almost always made whole
    - Total losses to uninsured depositors in last three decades $\approx$ \$300 million

COVID-Era Issues

The COVID (and post-COVID) environment created issues for Silicon Valley Bank

First, the Fed lowered short-term rates. This eliminated the deposit spread

Second, the Fed aggressively raised short-term rates starting in 2022

This led to dramatic change in the yield curve: it went from upward-sloping to flat/inverted

This inversion eliminated the term spread

The massive stimulus meant business were awash with cash. This wound up in deposits. Where did these go? Largely into securities

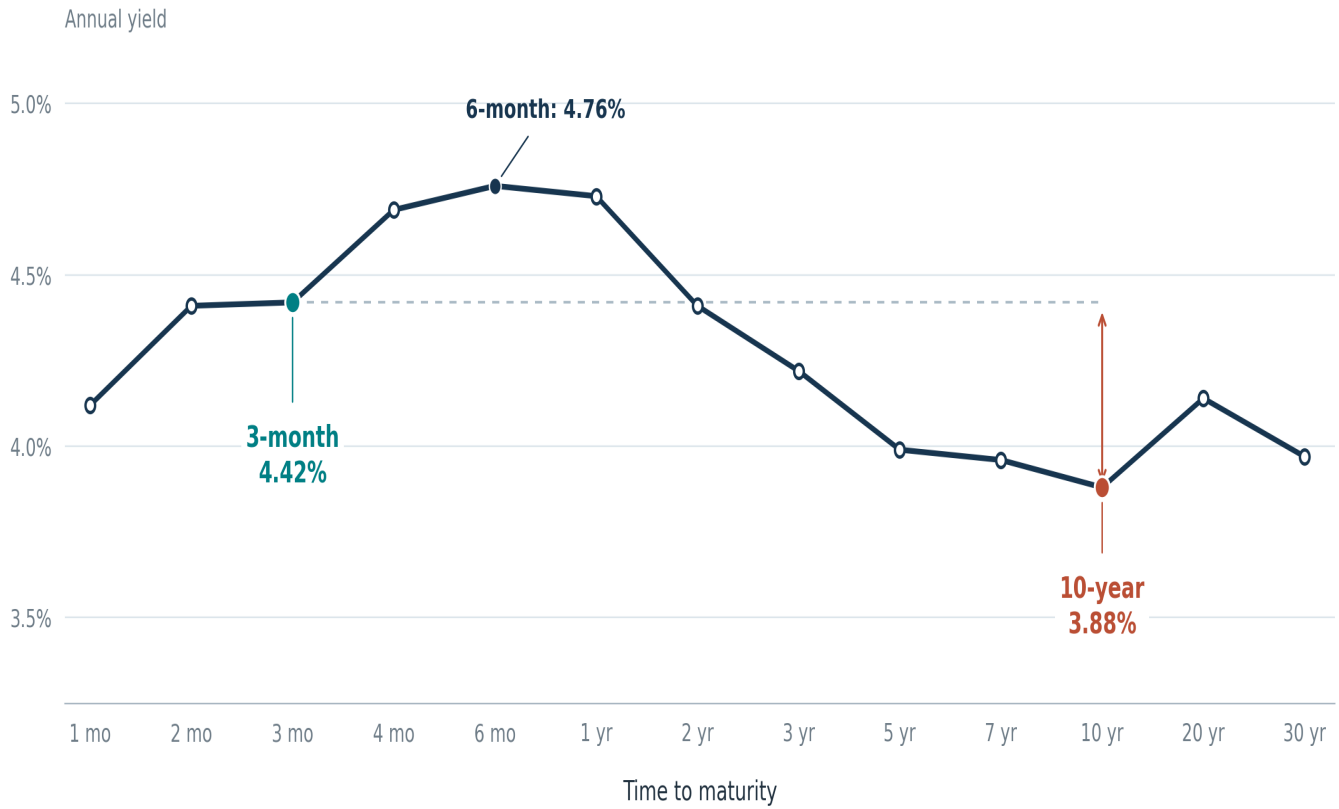
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An inverted Treasury yield curve

-54 bp

10-YEAR MINUS 3-MONTH

December 30, 2022 | U.S. Treasury par yields



Source: U.S. Department of the Treasury, Daily Treasury Par Yield Curve Rates.

Maturity categories are evenly spaced. One basis point = 0.01 percentage point. Treasury yields are not bank funding or lending rates.

Interest Rate Risk

Changes in the yield curve eliminated the term spread

But also impacted the value of long-term assets

- Higher short-term rates, long-term assets lose value
- The more the longer the time to maturity

If held to maturity (HTM), there is no loss on these securities. But if they have to be sold, they must be marked to market and can incur losses

SVB ended up with a lot of deposits and bought a lot of securities in 2020-21. When interest rates rose in 2022, it had a problem

SVB at the end of 2022

Silicon Valley Bank | December 31, 2022 | Billions of U.S. dollars

$209B
REPORTED TOTAL ASSETS

ASSETS		LIABILITIES + EQUITY	
Cash	13	Deposits	175
Securities	117	Other debt	19
Mark-to-market	99		
Loans	74	Total liabilities	194
Other assets	5	**Equity**	15
		Mark-to-market	-3
Total assets	209	**Total liabilities + equity**	209
Mark-to-market total	191	Mark-to-market total	191

An $18B securities adjustment turns $15B of reported equity into -$3B.

Source: Andrew Metrick (2024), Journal of Economic Perspectives 38(1), Figure 1, p. 136; SVB Call Reports.

Mark-to-market figures follow Metrick's securities adjustment; other assets and book liabilities are unchanged.

Solvent or Not?

Relative to 2019, SVB's balance sheet had nearly tripled by the end of 2022

Was it solvent?

- According to book value, yes
- Accord to market value, no

For regulatory purposes, most of its government securities were marked as "HTM" (hold to maturity)

Deposit Franchise

A financial institution with mark-to-market insolvency can continue operating (assuming book value solvency) so long as deposits are "sticky"

Empirical, deposits do seem to be sticky. Cost of switching banks is high

Net present value of the "deposit" franchise is an unaccounted for asset for a bank

But deposits can be sticky until they're not (i.e., "no questions asked" can become "questions")

SVB Run

March 8, 2023: SVB sold securities for a substantial loss and announced plans to sell new equity

This caused SVB deposits to lose their "no questions asked" property (i.e., information insensitive to information sensitive)

The run was on

$42 billion withdrawn on March 9

FDIC took it into receivership on March 10

SVB after a $100B withdrawal

Hypothetical | Starting from year-end 2022 | Billions of U.S. dollars

-$0.82B

REMAINING BOOK EQUITY

ASSETS	
Cash	0
Securities	14.18
Mark-to-market	12
Loans	74
Other assets	5
Total assets	**93.18**
Mark-to-market total	91

LIABILITIES + EQUITY	
Deposits	75
Other debt	19
Total liabilities	94
Equity	**-0.82**
Mark-to-market	-3
Total liabilities + equity	**93.18**
Mark-to-market total	91

Securities sale: $102.82B book value, $87B proceeds, $15.82B realized loss.

First use $13B cash, then raise $87B from securities. Sale prices equal 99/117 of book value; loans and other assets stay unchanged.

Starting balances: Metrick (2024), Figure 1, p. 136. Hypothetical calculation; no new funding, taxes, costs, or further price declines.

Contagion

The run did not stop with SVB

The macro issues that got SVB into trouble were not unique

- Higher short-term interest rates
- Lots of recent deposits and holdings of long-term government securities

Signature Bank and First Republic faced runs

Signature was shuttered on March 12 and First Republic limped along until May

FDIA and Dodd-Frank

The Federal Deposit Insurance Act (FDIA) requires bank resolutions in a "least-cost" manner for its insurance fund

- Cannot pay out claims in excess of the FDIC insurance limit ($250,000)
- But the "least-cost" resolution requirement can be suspended if the "systemic risk exception" is invoked, which can overcome this

But Dodd-Frank (2010) imposed some restrictions:

- Cannot use systemic risk exception in a preemptive way
- Any change in insurance limit must be approved by Congress

Systemic Risk Exception

The FDIC invoked the "systemic risk exception" over that weekend

This allowed it to offer full protection to all depositors (insured or not)

The intent here was not so much to protect uninsured depositors at SVB

It was to convinced uninsured depositors at other banks with similar issues that they were safe

Bank Term Funding Program

Fed invoked Section 13(3)

- Used three times since 1935: Great Recession, COVID-19, and SVB

Ordinarily, Fed values collateral in loans at market value

This facility allowed the Fed to value collateral at book value for government securitie

This facility was announced March 12

Had it been in place the week before, SVB might have made it

Scott and Kortje Recommendations

- Value collateral (particularly government securities) at par value
- More publicly prioritize liquidity provision
- Make operational improvements to the discount window to account for increased speed of withdrawals
- Rely on 10B instead of 13(3): freer from Treasury interference
- Lender of last resort responsibilities should lie solely with the Fed
- Raise insurance limits
- Reevaluate liquidity regulations
- 13(3) should be limited to financial institutions when there is no substantial credit risk