Points on the Collapse of SVB for Bank Board Members

PERSPECTIVES FROM A FORMER SENIOR BANK REGULATOR, CHIEF RISK OFFICER, AND INDUSTRY ADVISOR AND EXPERT

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SVB - What Went Wrong?

- SVB's own attempt to address a problem, a huge structural balance sheet mismatch and a potential rating agency downgrade, was late, not enough, and sparked a deposit run of historic proportion – ($42 Billion in less than 48 hours)
  - On March 8, 2023, SVB announced a $1.8 Billion (after tax) loss on sale of AFS portfolio which dis-robed a much larger balance sheet problem
  - A planned, "compensating", capital raise was also announced, but the capital was not yet raised, and capital alone cannot compensate for a deposit run
  - The run was fueled by social and other media - We are ill-equipped for the information age, and in so many ways

- SVB's deposits were concentrated with tech sector and venture capital clientele and were much more sensitive to "flight" than SVB probably believed
  - Virtually all DDA and MMDA, and over the FDIC insurance limit "temporary" by nature"
  - Link between deposit growth and Covid?
  - Funds awaiting use

- SVB didn't' have sufficient asset liquidity or the cost of monetizing it was so great that it failed on liquidity and/or capital inadequacy grounds.

Banking Red Flags (OCC Directors Reference Guide)

- General Red Flags
  - Rapid growth
  - Significant changes in asset or liability mix
  - Significant changes in income and expenses

- Interest Rate Risk Red Flags
  - There is a high or increasing volume of assets and liabilities with embedded options or fixed-rate loans
  - The duration of the investment portfolio has extended

- Liquidity Red Flags
  - There is a significant increase or decrease in funding sources or availability
  - Rapid asset growth is funded with rate- or credit-sensitive funding sources
  - There are excessive funding concentrations from a single source or multiple sources with a common rate or credit sensitivity
  - There is an imbalance of funding, such as funding short-term assets with long-term liabilities or long-term assets with short-term liabilities containing embedded options.

SVB Specific - Red Flags

- Between 12/31/2019 and 12/31/2021 SVB's deposits grew over 200% from $62.9 billion to $191.4 billion.
  - Deposits peaked at $200.4 billion as of 3/31/2022 and then declined quarterly to $175.4 billion as of year end 2022
  - Deposits were flight sensitive, virtually all DDA and MMDAs, almost all SVB deposits were over the FDIC insurance limit
  - Special character of deposits - "temporary" by nature - much concentrated in VC and tech clients and awaiting use by those clients

- Most of the deposit growth was invested in HTM securities with long durations
  - Held to Maturity Portfolio (HTM) grew from $16.6 billion at year end 2020 to $91.3 billion at year end 2022 – year end 2022 weighted average duration was 6.2 years
  - Fixed-rate securities decline in value with rising interest rates, and mortgage-backed securities extend in duration with rising interest rates
  - 78% of HTM securities were invested in mortgage backed (residential and commercial) with embedded options – negative convexity
  - Weighted average duration of HTM securities increased from 3.7 years at year end 2020 to 4.1 years at year end 2021 to 6.2 years as of year end 2022

SVB Specific - Red Flags - continued

- In addition, SVB markedly changed the mix of HTM and AFS securities held
  - At year ends 2019, 2020, 2021 and 2022 HTM as a percentage of total securities was 50%, 35%, 78% and 78% respectively

- HTM securities receive favorable accounting treatment (amortized cost), but only if the holder has the “intent and ability” to carry them to maturity, if used for liquidity management their accounting treatment changes to “fair value” - ASC 320
  - If not able to hold to maturity or need to sell the accounting requires marking the portfolio to fair value
  - This diminishes their utility for liquidity risk management

- As rates rose throughout 2022 depreciation in SVB’s HTM and AFS portfolios increased each quarter
  - Combined depreciation in the AFS and HTM portfolios as a percentage of SVB’s Tier 1 Capital rose each quarter from 7.5% (Q4/21) to 54.6% (Q1/22) to 79.6% (Q2/22) to 108% (Q3/22) respectively - at year end 2022 it was 102%

SVB Specific - Governance Red Flags

- SVB had no Chief Risk Officer (CRO) for 8 months in 2022
  - The Bank's Chief Risk Officer vacated her position in April 2022 and formally left the bank in October
  - The new CRO was not announced January 4, 2023

- The Board members lacked substantive banking experience and expertise
    - One, recently appointed, Board member had investment banking experience, but not commercial banking
    - One member was a Fixed Income Division Manager at a large investment firm and a Treasury Undersecretary under the Obama Administration

  - Its debatable whether the Board Risk Committee had at least one member with expertise and experience in identifying, assessing, and managing risk exposures of large, complex financial firms

- The Board Risk Committee met 18 times in 2022 and its ranks swelled from the minimum of three directors (per risk committee charter) to 7
  - 18 meetings in one year is a sign of significant concern/something serious

Other - Red Flags

- SVB's net interest income as a percentage of average assets declined from 3.45% at year end 2019 to 2.15% at year end 2022, as did its ranking relative to peer banks from the 68th percentile (100th percentile is best) to 37th percentile (0 percentile is worst)

- Federal Home Loan Borrowings ramped up from zero in 2021 and first quarter 2022 to $3.5 billion (6/30/2022) to $13.5 billion (9/30/2022) and to $15 billion at year end 2022
  - These are characterized as less than 1 year in maturity potentially exacerbating duration issues

- Pledged securities as a percentage of total securities grew from 3.58% at the end of 2021 to 47.19% at the end of 2022

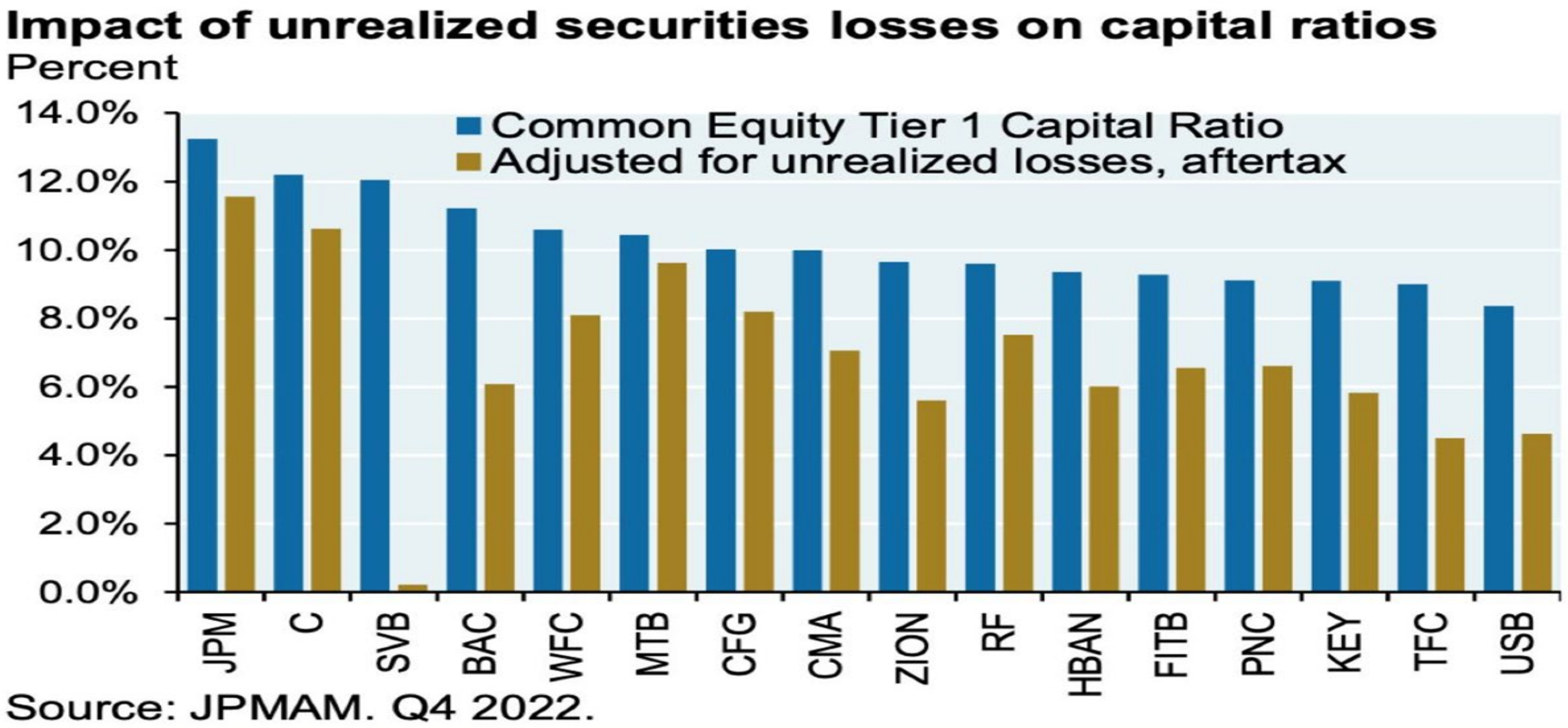
- A number of interest rate risk indicators increased including the Net Over One, and Three, Year Positions (defined as Loans/Securities over one year and three years less liabilities over one year and three years divided by assets).
  - At the end of 2019 SBV ranked well among its peers in these measures, and by 2021 and 2022 SVB ranked among the worst of its peers

- SBV's efficiency ratio (Total Overhead Expense expressed as a percentage of Net Interest Income (TE) plus Noninterest Income) has ranked well among its peers for a number of years and could be an indication of what they are willing to spend on non-revenue generating activities such and risk and compliance.

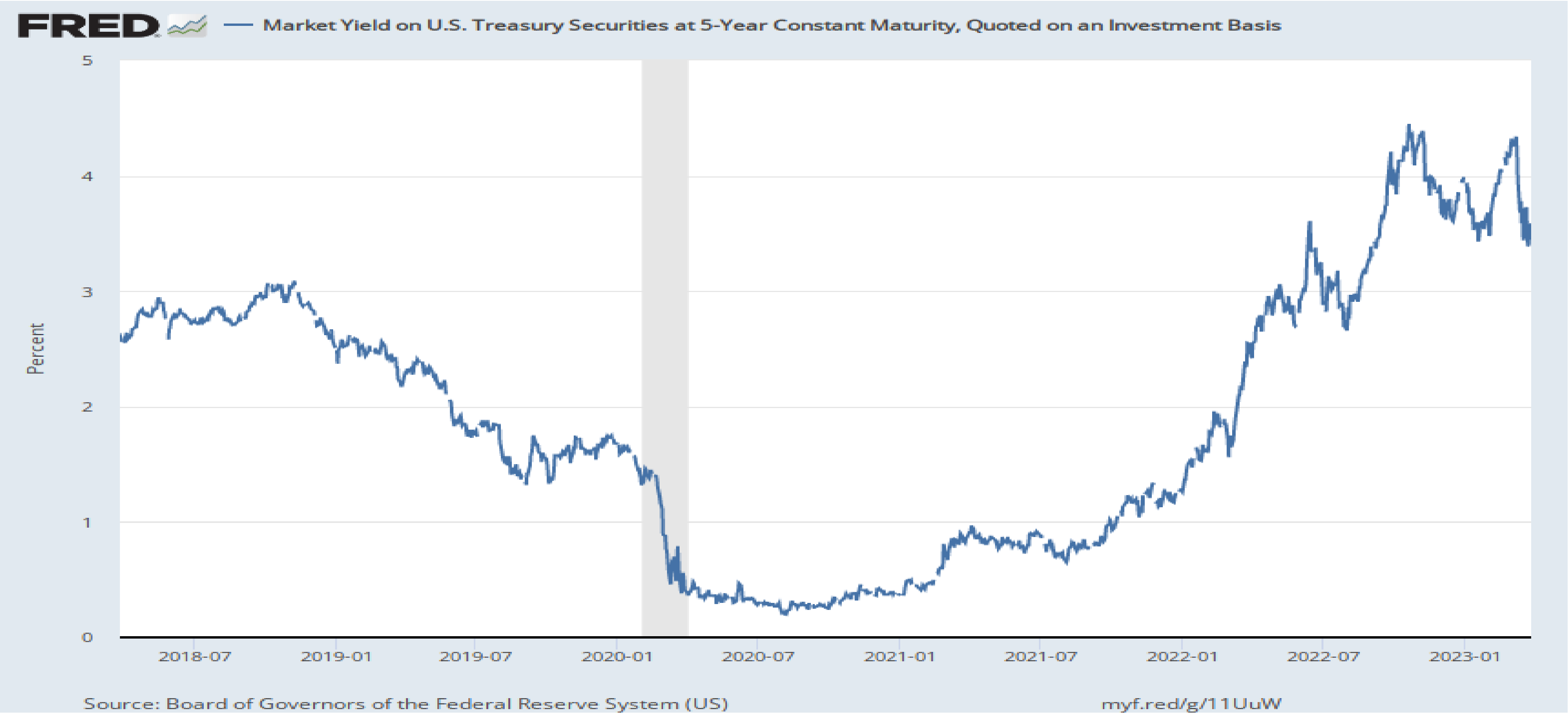
Relevant UBPR Data Points – SVB (Billions)

	$TDEP	$HTM	%DPN HTM	$AFS	%DPN AFS	$Total DPN	$CAP	$DPN% $CAP	
Q422	174.4	91.3	-16.6	26.0	-8.9	17.4	17.0	102.4	
Q322	178.9	93.3	-17.1	26.6	-9.5	18.5	17.0	108.8	
Q222	190.2	95.8	-11.7	26.1	-6.8	13.0	16.3	79.8	
Q122	200.4	98.7	-7.1	25.9	-4.8	8.2	15.1	54.3	
Q421	191.4	98.2	-1.0	27.1	-0.5	1.1	14.6	0.08	
Q321	172.3	82.4	-0.5	22.9	NA +	NA +	NA +	NA +	NA +
Q221	147.5	60.0	NA +	23.7	NA +	NA +	NA +	NA +	NA +
Q121	125.3	41.2	NA +	25.9	NA +	NA +	NA +	NA +	NA +
Q420	103.2	16.6	NA +	30.8	NA +	NA +	NA +	NA +	NA +
Q320	86.3	25.8	NA +	13.0	NA +	NA +	NA +	NA +	NA +
Q220	76.1	18.4	NA +	12.9	NA +	NA +	NA +	NA +	NA +
Q120	62.8	12.6	NA +	13.6	NA +	NA +	NA +	NA +	NA +
Q419	62.9	13.9	NA +	13.8	NA +	NA +	NA +	NA +	NA +

Unrealized Depreciation to T1 Capital



5 Year Treasury Yield



Summary

- Rapid deposit intake and corresponding asset growth
  - Balance sheet grew over 60% in 2020 and doubled in 2021due to a deposit influx from concentrated tech clientele
  - Almost all deposit growth was over FDIC insurance limits – credit and thus, “flight”, sensitive

- Invested in Held To Maturity fixed rate securities with long durations and embedded options
  - Fixed rate securities were purchased in 2020 and 2021, a near zero rate environment

- A classic, and extreme, duration mismatch between deposits and the assets they were invested in

- Fed raises rates 450 basis points throughout 2022 and into 2023
  - Depreciation in the securities portfolio is over 100% of bank capital

- SVB’s March 8, 2023, Mid-Quarter Update scared credit sensitive depositors and sparked a massive run on the bank
  - SVB had insufficient liquidity to handle existing and expected deposit outflows, and/or could run out of capital due to securities losses taken to meet deposit obligations, or tainting the accounting basis of the HTM portfolio

- Bank was placed into receivership due to either liquidity grounds, insolvency grounds, or both

Root Causes?

- Poor balance sheet balance sheet management - rate risk or liquidity risk?
  - Where basic, regulator required, measures of earnings at risk and economic value of capital used and reported to the Board or its Risk Committee?
  - What stresses were applied?
  - Didn't adhere to changed measures, triggers and limits?
  - Were models used to re-characterize the duration of assets and liabilities e.g.,stickiness, of the deposits?

- Mismanagement, greed, ignorance – all the above?
  - Borrowed short, invested long
  - Didn't like margin and ROAA implications of using shorter duration securities to offset these deposits
  - Didn't understand the optionality risk in mortgage-backed securities

- No, or compromised, independent risk function
  - Talent, stature, independence, budget, pressured, compromised access to the Board?

- Complacency - thought Fed was done raising rates? What goes up will come down?

What Could Have Been Done Differently?

- SVB could have better managed rate and liquidity risk by keeping securities durations shorter – cash hedge
  - This would have hurt margin and ROAA, but allowed for less depreciation and a softer landing given the run, probably not an insolvency
  - Less depreciation means assets are saleable at lower discounts to par, and improved borrowing capacity using securities as collateral at thee FHLB
  - Hedging would have helped, at least for the AFS book

- Both the SVB risk function and the regulators should have acted stronger and faster
  - When does an MRA or MRIA really need to be an enforcement action?

- Had the Bank Term Lending Program been in place earlier, SVB could have borrowed the funds it needed to manage the run at par

What Could Have Been Done Differently? - Continued

- The speed at which deposits grew is quite remarkable, that alone could have signaled that they may be more temporary than permanent

- SVB could have managed the risk by using its investment management, broker dealer, or trust powers to invest customer funds into a money market funds, sweep accounts, etc. invested in high quality-short duration government securities for which SVB would be investment manager and custodian
  - Low flight risk to SVB, no balance sheet blow up and margin and ROAA effects
  - Investment management and custodial fee income

- Focus on fundamentals like earnings at risk, economic value of equity and gap reporting
  - Act on triggers and limits, don't just reset them

- Improved Board member expertise/experience in banking and risk management

Big Picture Issues/Consequences – Near Term?

- Contagion – systemic risk
  - Fears spread quickly and very quickly to other banks with uninsured deposits and potential duration and/or large depreciation in HTM or AFS securities

- Short-term government action was needed to stabilize the system, but comes with questions and consequences
  - Guarantying all depositors – protecting wealthy, corporate, and other sophisticated uninsured depositors who should be credit risk savvy and should be analyzing it regularly
  - How many others will receive government deposit guarantees in the near term?
  - This is not without cost to the taxpayer as increased insurance fees or special assessments on other banks will be passed along to customers

- Regulatory scrutiny has already increased at a number of institutions
  - Currently focused on large banks, horizontal type reviews – liquidity and liquidity risk management
  - More sophisticated examiners and other supervisors as well as policy responses
  - More emphasis on CRO independence and authority and Board Risk Committee responsibility

Big Picture Issues/Consequences – Longer Term?

- Guarantying all deposits?
  - I hope not, very expensive and comes with big risk
  - Moral hazard and perverse outcomes
  - Customers will end up paying through higher interest and fee charges
  - Nationalization of the U.S. Banking system can subject it further to partisan politics

- Other options?
  - DFAST/CCAR for all – I hope not, its absence at SVB was not the cause of the failure to detect and act
  - Government liquidity facilities – Bank Term Funding Program or those used in the great recession?
  - TARP like equity investments?
  - All on the table given the systemic risk exception?

What Should Board Members Expect of Management?

- Diversify funding base as much possible, particularly uninsured and professionally managed monies that are subject to credit sensitivity and flight risk

- Careful use of HTM
  - HTM can source liquidity, but only for borrowing and cash duration matching of liabilities
  - Can borrow from FHLB and FRB, and can repo, but only at market value
  - Consider your LCR without HTM securities
  - Demand "common person" explanations of hedge effectiveness and accounting implications
  - Understand the added risks of mortgage-backed securities - negative convexity

- Regularly plan for liquidity using forward sources and uses of funds over a 12-to-18-month timeframe and have management explain how gaps will be filled

What Should Board Members Expect of Management? - continued

- Regularly receive standard measures of earnings at risk, economic value of equity and gap reporting– raise standard stresses - challenge stress outcomes
    - Beware measurements, triggers, limits, and model changes
    - Have independent risk/audit ensure they are righteous
    - If something doesn't appear to make sense, question, analyze, and escalate

- Don't rely on model outcomes without applying common sense and independent validation
    - SVB may have modeled these deposits as "sticky" and therefore not flight sensitive

- Ensure the board and board risk committee have members with sufficient banking and risk experience, and
    - Question independent risk management about the reliability of such models and imputes thereto
    - Question risk management in executive session

What Should Board Members Expect of Management? - continued

- Review contingency funding plans for reasonableness
  - Sources need to be what you can use immediately and monetize near term
  - Plans to monetize aspirational sources need to be realistic and operational (sale leaseback, deposit raise, loan participations or sales, etc.)
  - Pie in the sky aspirations won't get you through

- Require contingency communications plans
  - Communications content needs C-Suite and board involvement - scripts, talking points, etc., should be developed at the highest levels of the company
  - Depending on the severity of the issues and the concern of stakeholders, professional crisis management communications firms should be considered
  - There should be scripts and talking points for all levels of interaction with both customers and employees - overall message is basically the same, but tailored a bit for different constituents, professional funding providers, depositors, shareholders, creditors, employees, etc.
  - Differentiate your bank from the one or group being cast as potentially dangerous

Excerpts from the March 27, 2023 - Testimony of Federal Reserve Vice Chair for Supervision Michael S. Barr before the U.S. Senate Banking Committee

March 27, 2023 - Testimony of Federal Reserve Vice Chair for Supervision Michael S. Barr

- “SVB's failure is a textbook case of mismanagement”

- “During the early phase of the pandemic, and with the tech sector booming, SVB saw significant deposit growth. The bank invested the proceeds of these deposits in longer-term securities, to boost yield and increase its profits.[3] However, the bank did not effectively manage the interest rate risk of those securities or develop effective interest rate risk measurement tools, models, and metrics”

- “At the same time, the bank failed to manage the risks of its liabilities. These liabilities were largely composed of deposits from venture capital firms and the tech sector, which were highly concentrated and could be volatile”

- “The bank waited too long to address its problems, and ironically, the overdue actions it finally took to strengthen its balance sheet sparked the uninsured depositor run that led to the bank's failure”

March 27, 2023 - Testimony of Federal Reserve Vice Chair for Supervision Michael S. Barr

- “SVB had inadequate risk management and internal controls that struggled to keep pace with the growth of the bank”
- “Near the end of 2021, supervisors found deficiencies in the bank's liquidity risk management, resulting in six supervisory findings related to the bank's liquidity stress testing, contingency funding, and liquidity risk management
- “In May 2022, supervisors issued three findings related to ineffective board oversight, risk management weaknesses, and the bank's internal audit function”
- “In the summer of 2022, supervisors lowered the bank's management rating to "fair" and rated the bank's enterprise-wide governance and controls as "deficient-1”
- “These ratings mean that the bank was not "well managed" and was subject to growth restrictions under section 4(m) of the Bank Holding Company Act”