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MEMORANDUM

Date: March 13, 2023

To: General Distribution

Subject: Silicon Value Bank Postmortem Analysis

When an interesting incident occurs with a large company in the capital markets, we look to see what we can learn from the situation. The recent collapse of SVP Financial Group known as Silicon Valley Bank (SIVB) presents such a learning opportunity.

Much has already been written about the factors that contributed to SIVB's failure – most notably a rapid withdrawal of deposits by the bank's venture capital backed clients as a result of their cash burn. This memorandum aims to go a bit deeper providing a review of the actual financial statements, accompanying schedules, and footnotes from SIVB's most recent annual 10-K report and highlight any prior red flags. The good news is that one does not need to go too deep to find some large, bright red ones.

We do not intend to imply that we saw this catastrophe coming. We are simply evaluating the wreckage to see what contributed to the collapse. Please note that Midway Partners Capital Management and its affiliates do not have, nor have ever had a position in SIVB or any of its securities. Let's jump in.

Background and Situation

SIVB was the 16th largest bank in the U.S. by assets. It had $212 billion of assets reported on its balance sheet as of December 31, 2022 per the company's 10-K. The bank was originally chartered by the state of California in 1983 and grew significantly since then providing a variety of commercial banking and financial services primarily to venture capital and private equity backed companies and their sponsors.

On Wednesday, March 8, 2023, SIVB released a statement announcing that it was attempting to raise $2.25 billion of new equity comprised of common and preferred stock. They stated that the equity capital raise was needed to plug the whole left by a $1.8 billion realized loss they were taking on the liquidation of their Available-For-Sale (AFS) securities portfolio. This was a portfolio comprised of highly liquid, low credit risk U.S. Treasuries and Agency-Issued MBS. The AFS securities were marked to market and the unrealized loss that was becoming realized

upon liquidation was already reflected on the bank's December 31, 2022 balance sheet. The accompanying presentation laid out the plan in brightly colored slides and charts making the claim that SIVB had ample liquidity.

However, at that point the bank was insolvent and likely had been insolvent at December 31, 2022 based on a review of its financial statements. Here is the trail of breadcrumbs that we will follow:

- Securities Tenor Is Stretched – Increases in deposits were invested in very long duration securities.
- Mark to Market Games – Increasing market interest rates caused unrealized losses in SIVB's securities portfolio, only a portion of which were reflected on its balance sheet.
- Deteriorating Deposits Offer A Clue – SIVB's deposit base was rapidly deteriorating causing the bank to plug the whole with short term debt.

Securities Tenor Is Stretched

The collapse of SIVB was not driven by credit quality fear or contagion in the asset base. On the contrary, the majority of the securities portfolio of SIVB was composed of U.S. Treasuries and highly rated Agency-Issued MBS. These securities provide little to no default risk and are highly liquid. Why did a reduction in deposits cause the bank to fail so quickly? The answer is not simply rising interest rates and the cash burn of its depositor base. The problem lay in the term, also referred to as tenor, and duration of its securities portfolio.

Since the COVID-19 pandemic began in early 2020, SIVB received a deluge of deposits caused by the rapid funding of businesses by venture capital and private equity investors. These funds found their way into depositor accounts at SIVB. The bank saw its deposits increase from $62 billion at December 31, 2019 to $173 billion at December 31, 2022. What does a bank do when it receives a massive increase in deposit funds? It buys highly rated and liquid U.S. Treasuries and Agency-Issued MBS. How could this go wrong?

Before we answer that question, we need to explain that SIVB holds its highly rated, liquid securities portfolio in two categories on its balance sheet labeled, Available-For-Sale (AFS) and Held-to-Maturity (HTM). Despite being similar assets, these two buckets are accounted for differently. The securities prices of the AFS bucket are based on the current market price. They are marked-to-market.

The HTM bucket of asset are said to be held for the entire tenor of the bond until maturity as the name implies. For example, regardless of how high or low a bond's price might move over its, say 15-year life, the holder will not experience any actual gain or loss provided the principal is fully repaid at maturity. A bondholder may experience significant unrealized gains or losses along the way, but they will not actualize those gains or losses if they do not sell or, more importantly, are not forced to sell.

At December 31, 2022, the bank had $26 billion of AFS securities that were marked-to-market and $91 billion of HTM securities on the balance sheet at cost. Now back to how holding a high credit quality, liquid portfolio of securities can end badly.

The problem was that when the bank purchased its AFS and HTM securities, they went way out on the yield curve, especially with the HTM portfolio. They didn't invest in predominately short- or medium-term bonds that are less sensitive to rising interest rates – referred to as short duration. Oh no, with interest rates as close to zero as humanly possible with nowhere to go but up, they bought long tenor fixed rate bonds at historically low rates. A full 94% or $86 billion of the $91 billion of HTM securities had maturities of over 10 years! In a second shocking move, as interest rates skyrocketed in 2022, SIVB actually managed to significantly increase the duration of the HTM securities from 4.1 years at December 31, 2021 to 6.2 years at December 31, 2022 adding even more sensitivity to rising interest rates.

The red circles in Figure 1 taken from the bank's most recent 10-K show the maturities of the HTM portfolio and the increase in duration.

Figure 1

	December 31, 2022									
	Total		One Year or Less		After One Year to Five Years		After Five Years to Ten Years		After Ten Years	
(Dollars in millions)	Net Carry Value	Weighted Average Yield	Net Carry Value	Weighted Average Yield	Net Carry Value	Weighted Average Yield	Net Carry Value	Weighted Average Yield	Net Carry Value	Weighted Average Yield
U.S. agency debentures	$ 486	1.91 %	$ 1	2.39 %	$ 118	2.50 %	$ 367	1.72 %	$ —	— %
Residential MBS:										
Agency-issued MBS	57,705	1.56	—	1.65	25	2.38	1,066	2.32	56,614	1.54
Agency-issued CMO - fixed rate	10,461	1.48	—	—	90	1.47	129	1.71	10,242	1.48
Agency-issued CMO - variable rate	79	0.74	—	—	—	—	—	—	79	0.74
Agency-issued CMBS	14,471	1.63	39	0.45	153	0.86	966	1.93	13,313	1.62
Municipal bonds and notes	7,416	2.82	29	2.26	235	2.48	1,362	2.74	5,790	2.85
Corporate bonds	703	1.86	—	—	115	1.72	588	1.88	—	—
Total	$ 91,321	1.66	$ 69	1.25	$ 736	1.90	$ 4,478	2.43	$ 86,038	1.63

Portfolio duration is a standard measure used to approximate changes in the market value of fixed income instruments due to a change in market interest rates. The measure is an estimate based on the level of current market interest rates, expectations for changes in the path of forward rates and the effect of forward rates on mortgage prepayment speed assumptions. As such, portfolio duration will fluctuate with changes in market interest rates. Changes in portfolio duration are also impacted by changes in the mix of longer versus shorter term-to-maturity securities. The estimated weighted-average duration of our fixed income investment securities portfolio was 5.7 and 4.0 years at December 31, 2022, and December 31, 2021, respectively. The weighted-average duration of our total fixed income securities portfolio including the impact of our fair value swaps was 5.6 years at December 31, 2022, and 3.7 years December 31, 2021. The weighted-average duration of our AFS securities portfolio was 3.6 years at December 31, 2022, and 3.5 years at December 31, 2021. The weighted-average duration of our AFS securities portfolio including the impact of our fair value swaps was 3.6 years and 2.4 year at December 31, 2022, and December 31, 2021, respectively. The weighted-average duration of our HTM securities portfolio was 6.2 years at December 31, 2022, and 4.1 years at December 31, 2021.

Source: SIVB December 31, 2022 10-K Page 127

Why a sophisticated management team would make this kind of move is difficult to understand. Exposing the bank's balance sheet to interest rate risk of this magnitude is also hard to fathom. The answer is likely that they were grasping for yield in a historically low yield environment. After all, 150 bps spread on $100 billion of securities multiplied by a reasonable multiple creates quite a bit of incremental market cap. It looks like long-term solvency was once again sacrificed for short-term profit.

Mark-To-Market Games

Let's remember that the AFS portfolio reflected current prices, but the HTM portfolio did not. The effect of the long tenor HTM portfolio and increased duration was that as interest rates rapidly rose in 2022 from the Federal Reserve's crusade against inflation, the HTM securities experienced significant losses as the prices of their fixed rate bonds fell. However, these losses were not reflected on the SIVB's balance sheet because the HTM portfolio, after all, is to be held to maturity. At December 31, 2022, the total unrealized losses on these securities amounted to $15 billion as displayed in the red circle in Figure 2 taken from the bank's most recent 10-K.

Figure 2

	December 31, 2022					
(Dollars in millions)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	ACL (2)	Net Carry Value
HTM securities, at cost:						
U.S. agency debentures (1)	$ 486	$ —	$ (52)	$ 434	$ —	$ 486
Residential MBS:						
Agency-issued MBS	57,705	—	(9,349)	48,356	—	57,705
Agency-issued CMO—fixed rate	10,461	—	(1,885)	8,576	—	10,461
Agency-issued CMO—variable rate	79	—	(2)	77	—	79
Agency-issued CMBS	14,471	—	(2,494)	11,977	—	14,471
Municipal bonds and notes	7,417	2	(1,269)	6,150	1	7,416
Corporate bonds	708	—	(109)	599	5	703
Total HTM securities	$ 91,327	$ 2	$ (15,160)	$ 76,169	$ 6	$ 91,321

(1) Consists of pools of Small Business Investment Company debentures issued and guaranteed by the SBA, an independent agency of the United States.
(2) Refer to Note 2—"Summary of Significant Accounting Policies" for more information on our credit loss methodology.

Source: SIVB December 31, 2022 10-K Page 125

SIVB's auditors do a fine job of breaking out the unrealized loss in the footnotes to the financial statements on page 125 of the annual 10-K. For fun, let's take a look at what the SIVB balance sheet at December 31, 2022 would look like if the unrealized loss was included. Figure 3 below presents a just such a summarized version of the balance sheet for review.

The red highlighted cells and Adjusted 2022 column shows what the banks highly liquid assets actually looked like at December 31, 2022 if the $15 billion of unrealized losses in the HTM portfolio were included at fair-market-value. It is easy to see that the bank's equity account was virtually wiped out at the end of 2022.

With continued unrealized losses thus far in 2023 as interest rates continued to rise, it is easy to see how the bank was insolvent. It was probably insolvent at December 31, 2022 and possibly earlier.

Figure 3

USD in millions	Reported on 10-K		FMV	Adjusted
December 31,	2021	2022	Adjustment	2022
Assets				
Cash and Equivalents	$14,586	$13,803		$13,803
Available-For-Sale Securities	$27,221	$26,069		$26,069
Held-To-Maturity Securities	$98,195	$91,321	($15,152)	$76,169
Other Securities	$2,543	$2,664		$2,664
Loans, Net of Allowance for Losses	$65,854	$73,614		$73,614
Other Assets	$2,909	$4,322		$4,322
Total Assets	**$211,308**	**$211,793**		**$196,641**
Liabilities and Equity				
Non-Interest Bearing Deposits	$125,851	$80,753		$80,753
Interest Bearing Deposits	$63,352	$92,356		$92,356
Total Deposits	$189,203	$173,109		$173,109
Short-Term Borrowings	$71	$13,565		$13,565
Other Liabilities	$2,855	$3,454		$3,454
Long-Term Debt	$2,570	$5,370		$5,370
Total Liabilities	$194,699	$195,498		$195,498
Total Equity (Commend and Preferred)	$16,609	$16,295		$1,143
Total Liabilities and Equity	**$211,308**	**$211,793**		**$196,641**

Source: SIVB December 31, 2022 10-K page 95; Midway Partners combined some accounts combined for presentation purposes

We do believe that market prices do not always accurately reflect value. After all it is the philosophy from which we invest. However, we would argue that any assets related to a bank's ability to support its deposit base should be accounted for on financial statements at their most current and relevant price. Just because a bank intends to hold something for a period of time does not mean that its current price is irrelevant. Banks are forced to provide liquidity to their creditors, i.e. depositors, at the depositors whim. This dynamic is unique to banks and makes them highly leveraged and fragile institutions.

The greater the leverage, the more sensitive solvency is to changes in asset prices. Listing $15 billion of asset losses, even if unrealized, on page 125 of an annual report does not strike us as a conservative approach to bank management or accounting.

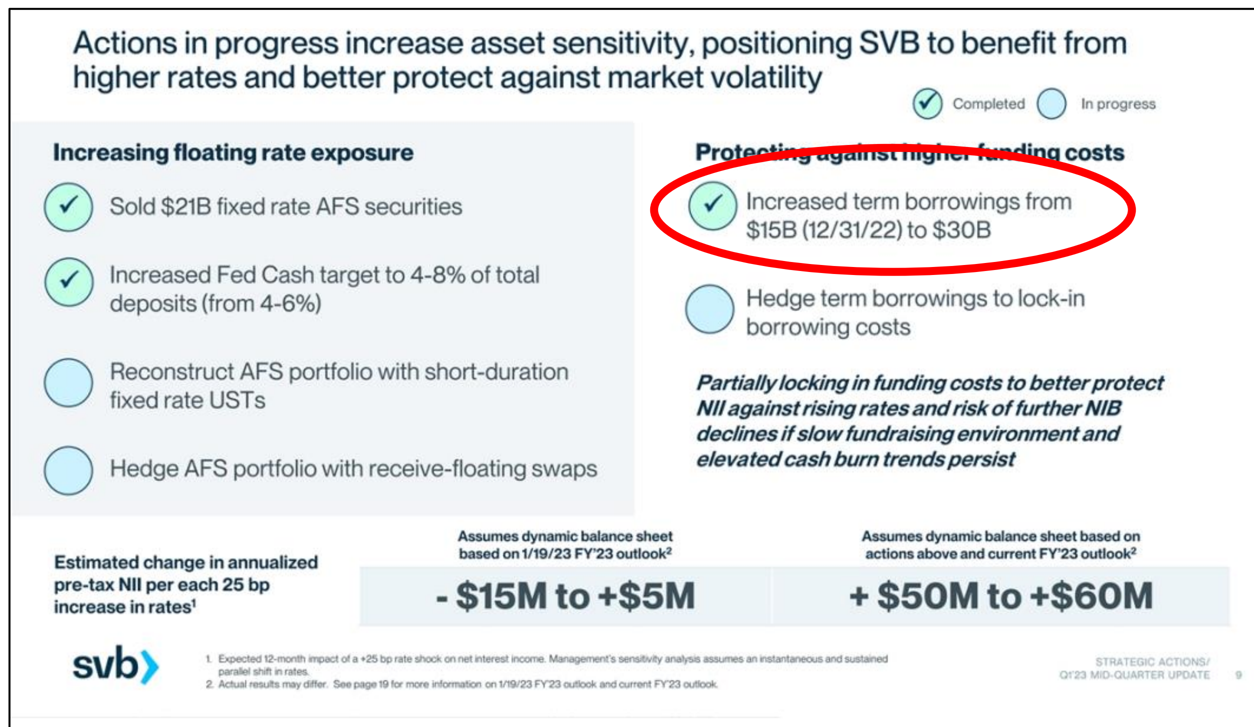
Deteriorating Deposits Offer A Clue

The green highlights in Figure 3 show a significant decline in the deposits from 2021 to 2022 of about $16 billion or 15% of the December 31, 2021 balance. SIVB plugged the liquidity gap with debt, the majority of which was short term. A decline in deposits of this magnitude is significant and could have indicated that more deposit withdrawals were on the way.

This trend was exacerbated when the bank provided its presentation outlining its plan to raise emergency capital on Wednesday, March 8, 2023. The red circle in Figure 4 shows the page in

SIVB's Strategic Actions presentation where the bank indicates that since December 31, 2022 it had needed to increase its term borrowings from $15 billion to $30 billion. The presentation indicated that deposits at February 28, 2023 had fallen an additional $8 billion since December 31, 2022 to $165 billion. The increased debt and falling deposits point to a serious liquidity squeeze.

Figure 4



Source: SIVB March 8, 2023 Strategic Actions Q1'23 Mid-Quarter Update Page 9

The bank also states on this page of their presentation that they are reconstructing their AFS portfolio with short-duration U.S. treasuries and are looking to hedge their interest rate risk. It seems that management has finally decided that they have an interest rate risk problem.

There is no mention of the HTM portfolio regarding duration risk or interest rate hedging. Note that the HTM portfolio is more than 3x the size of the AFS portfolio. The only mention of the HTM portfolio is a reference to the amount of these securities that are being paid down each quarter providing a miniscule amount of liquidity. Management really does intend to hold these securities to maturity even as the ship takes on water and sinks.

Conclusion

As we know, SIVB was closed by the California Department of Financial Protection on Friday, March 10, 2023. This was less than 48 hours after they released their plan to raise additional capital. We hope that the sale and liquidation of the bank's assets and various businesses will be sufficient to make creditors to the bank whole, starting with depositors.

There was no contagion in the asset base or material credit losses in the loans at SIVB. This appears to be a simple case of bank mismanagement. The banking business lends long and borrows short exposing all banks to interest rate risk. One of the primary jobs of bank managers is to manage this fundamental risk. Most mitigate interest rate risk by controlling the duration of their securities portfolios or through hedging. This gives bank managers flexibility regardless of the direction of interest rate moves. This may lead to slightly reduced interest profitability (Net Interest Margin and Net Interest Spread) in the short term but ensures the bank's survival in the long term.

SIVB is a situation where management failed to exercise this discipline. Perhaps being the poster bank to an industry that prizes growth at all costs played into management's motivation.

While the causes of SIVB's failure have been expounded upon by many journalists and articles, we hope this memorandum provides some specific references within the financial statements, footnotes, and presentations of the bank that contributed to SIVB's ultimate demise.

Sincerely,

Jordan Lampos

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