



Something Happened: An Initial Try at an Explanation

BPI Staff | March 21, 2023

As we learn more about the circumstances that led to the failure of Silicon Valley Bank, below are some of the questions we are hearing, and our answers. We won't duplicate our initial [statement](#) and its sense that SVB was more a question of failed management, examination and resolution than of failed regulation, and that its fate stemmed from rapid growth and an unusual business model, with singular reliance on the tech industry and its venture capitalists for both its lending business and deposit base, and a high percentage of its assets in its securities book. Recent news reports suggest that some of those problems were raised along the way, and we will wait to see exactly what happened. But in the meantime, here is a preliminary look at what went wrong and potential policy implications.

Your last note said that interest rate risk was more art than science – are there no measures for that?

There is not the equivalent of a Basel risk-based or leverage capital ratio or a liquidity coverage ratio, and while there are measures for interest rate risk, judgment needs to be applied in assessing them.

As background, if all of a bank's assets and liabilities are coming due on the same day, the bank is running no interest rate risk, as both assets and liabilities will reprice to current market rates at the same time. Any timing deviation represents interest rate risk. (So, in the case of SVB, it had short-dated liabilities and long-dated fixed-rate assets; thus, as rates rose, its deposits repriced faster than its loans and securities.)

Two primary measures of interest rate risk are duration and convexity. Duration tells you how much an asset or liability value will change when interest rates change; it typically measures the expected change in value for a financial instrument for a given change in interest rate, expressed in years. Convexity tells you how much duration will change when interest rates change.

In practice, banks measure the relative duration of their assets and liabilities and, as part of their so-called risk appetite, establish limits (really corridors) for how much risk they can take, expressed in years. (The limits aren't always symmetrical, but that's a longer story.) They then do stress tests to see how much a securities portfolio would change in value in case of large interest rate moves, up or down. Those limits and stress tests are reviewed by senior management and the board of directors, and managed and regularly reported on by the CFO, CRO and treasurer.

Convexity is a lot more complicated, and we'll save that for another day. But it is important, particularly with respect to mortgages.

Furthermore, in 2016, the Basel Committee on Banking Supervision finalized a regulatory framework called IRRBB, which stands for Interest Rate Risk in the Banking Book. It uses an Economic Value of Equity (EVE) test to evaluate the percentage of a bank's capital that it would lose under a variety of stress scenarios. U.S. regulators use this method to assess banks' interest rate risk under a range of scenarios.

So, what was SVB doing to manage its interest rate risk?

SVB's 2022 10-K, filed in February 2023, states:

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.

Those numbers indicate that the securities portfolio had a long average duration compared to the short duration of deposits, with minimal hedging being undertaken. This suggests that the bank was chasing higher yields at the cost of higher risk. We do not yet know what happened in the first few months of 2023, but it is now evident that SVB's expectations regarding deposit duration were overly optimistic. Most other banks of comparable size would have assumed that the post-COVID deposit surge was hot money that should be deposited at the Fed rather than invested in long-dated assets.

Furthermore, we do not know how the IRRBB was conducted or examined over the first quarter of 2023. SVB disclosed its EVE in its 3Q22 quarterly financial statements (10-Q), which showed a 29.5 percent reduction, or a 33 percent decrease in capital, for a 200-basis-point increase in rates, which appears to be high.

This topic should be a (maybe the) principal focus of any investigation of SVB's failure. It was the root cause of the bank's failure, and action to avoid a repeat at other banks is likely to have higher benefits and lower costs than more blunt-force regulatory responses. The solution here is likely to be better examination of interest rate risk (and guidance for that process), though conceivably regulatory guardrails could be imposed.

So, what about the Liquidity Coverage Ratio (LCR)? You've published research showing that public data suggests that SVB would have passed the LCR if it had been subject to it. If so, does that mean that the LCR is not a good measure of liquidity?

For most banks, the LCR tells you a lot about their ability to withstand a run: it logically looks at what liabilities could run over a 30-day period and what assets could be sold over that same period to meet the run. Its ratio consists of liquid assets divided by likely-to-run liabilities. However, the LCR was never really designed to measure *interest rate risk*. Basically, the LCR thinks of high-quality liquid assets (Treasuries, agency MBS) as good assets, because they can be sold easily. SVB held a lot of those assets. But they were long-dated and therefore came with significant interest rate risk.

Put another way, a bank that funded itself only with deposits and held only Treasury securities would be a very liquid bank. But it would also be a bank running a lot of interest rate risk.

If SVB held all these Treasury and agency securities, why didn't it meet the run by converting them into cash at the Federal Home Loan Banks, the Fed's discount window, and the Fed's new Standing Repo Facility?

SVB was a heavy user of the FHLBs, but apparently was (appropriately) restricted from further usage at some point. The discount window was also used, though stigma may have dissuaded SVB from using it early on; we don't know the full story there yet. We do know that the SVB, like most regional banks, never signed up for the Standing Repo Facility because doing so is costly and because examiners had advised SVB that it would not receive any credit for such access in assessments of its liquidity. That appears like a serious mistake – two mistakes, actually: the examiners telling them that and SVB failing to sign up anyway. Furthermore, the Fed only provides liquidity on the marked-to-market value of the securities, minus a haircut, so SVB may simply have not had enough collateral in the end to raise the funds it needed.

This topic is an important one, as the reason these facilities exist is to prevent a bank from having to do what SVB did: sell assets under pressure. Again, if policymakers are looking for a way to prevent a repeat of SVB without imposing significant costs on bank borrowers and the broader economy, this issue would appear to deserve significant attention.

Well, that’s the asset side of the LCR (its liquid assets); what about the liability side of the LCR (stable funding)? Wasn’t the stability of SVB’s funding overstated in retrospect?

We have yet to see the numbers, but one clear lesson from SVB’s failure is that some uninsured deposits are more likely to run than previously assumed. In the distant past, depositors had to walk to a branch to withdraw their funds. In the GFC, we saw corporate treasurers do so electronically – but they did so independently. Here, SVB worked hard for the premier position it held with venture capital and private equity investors with a particular focus on the technology sector, but in the end, there were too few individuals making decisions about SVB’s deposits – their own, and those of the operating companies in their portfolios. (At Signature Bank, a similar industry concentration appeared to contribute to the run and subsequent failure.) So, while in the past regulators did not need to ask, “Do your depositors know each other?” this concentration risk may need attention in the future.

In sum, a key question is whether some types of uninsured deposits are less stable than others. For example, *operational* uninsured deposits generally are stable even during times of stress because they are tied to specific operational services, such as custody, clearing and cash management operations, that may take months to move. These operational deposits and operational services must meet specific and detailed regulatory criteria to qualify, including that the services must be provided per a legally binding written agreement, the termination of the agreement must be subject to a minimum 30-day notice period, there must be significant switching and termination costs to moving the services and the deposits must lack significant volatility.

But even if this problem is unlikely to recur, why not solve it anyway?

Liquidity requirements produce a bottom line. The largest U.S. banks already hold over 20 percent of their assets in high-quality liquid assets (the Treasuries and agencies that SVB held in bulk). If post-SVB changes increase that number even further, banks will see a major disruption to their core maturity transformation mission and be unable to support the economy as they traditionally have by lending to deserving businesses and individuals.

There is no area where any benefits of stricter regulation are likely to come with massive costs than this one.

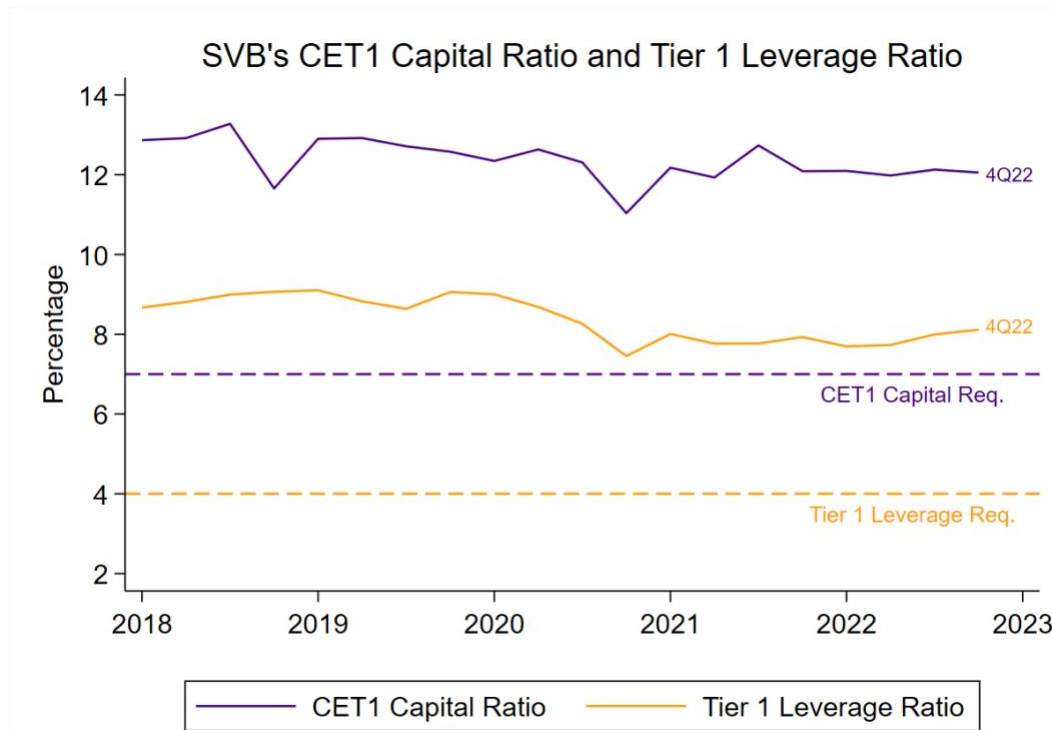
Thus, if there is one thing in regulation that needs a holistic review, it is liquidity regulation. Our colleague Bill Nelson outlined what such a review could look like last month, ahead of SVB’s failure; that note is available [here](#).

Isn’t the easiest way to prevent runs to insure all deposits?

Yes, though that comes with a set of costs in addition to that benefit. This topic will doubtless continue to receive a lot of attention.

Moving from liquidity to capital, some people are saying that SVB needed more capital, and that regulatory capital requirements need to increase.

See below a chart of SVB’s capital ratios: both the key risk-based requirement (common equity as a percentage of risk-based assets) and its leverage ratio (tier 1 capital as a percentage of total assets).



Source: S&P Global Market Intelligence.

In sum, through fourth quarter 2022, SVB was comfortably in compliance with regulatory capital requirements as of Q422, its last reporting date.

But what about unrealized losses in SVB’s Available for Sale securities portfolio – which have been shielded from capital by the so-called “AOCI filter” for most banks since 1995?

If those losses had been reflected in capital, SVB’s ratios would have been lower, though not a lot lower. While in most times, the benefits of avoiding capital fluctuations exceed the costs, this was a case, however unusual, where the filter helped to hide a problem, though it was probably not a major factor.

What about the Held to Maturity portfolio – how are those securities valued?

Banks can opt to hold securities in the HTM category if they intend to keep them until maturity. When securities are held in this way, banks can value them at their original price or “par.” Even though a bank does assign a fair value to its HTM securities, this valuation does not affect its capital or income. If a bank sells any portion of its HTM portfolio, all securities in that portfolio are considered tainted. At that point, they must be fair-valued, and any changes in valuation are immediately reflected in the bank’s earnings or in a separate component of shareholder’s equity.

Is this why people refer to HTM as “Hide to Maturity”?

While the unrealized losses are not recognized for capital purposes, they are fully disclosed in quarterly financial statements. It is fair to observe, though, that uninsured depositors generally do not review that line of the financial statements and evaluate the risk of their holdings in that light. SVB’s problems arose when they suddenly did.

Does a bank needing additional liquidity have any option with respect to its HTM portfolio besides selling some of those securities, tainting the entire portfolio and having to recognize an immediate loss?

Yes. Those securities are eligible for pledge to the discount window (currently at par value for Treasuries agency debt and agency MBS at the Fed's new Bank Term Funding Program), and such a pledge does not taint the accounting treatment. Furthermore, HTM securities can be repoed out to the market in exchange for cash at any time. If there are obstacles to doing so, regulators (and FASB, if the problem lies there) should remove them. Again, reform in this area has high potential to produce significant benefits without significant cost.

So, why not just mark the HTM portfolio to market?

Two basic reasons.

First, at that point, banks would be marking a large portion of their assets to market but not their liabilities. That presents a skewed picture of a bank's balance sheet.¹ The problem arises because the deposit franchise value is an intangible asset that is difficult to evaluate.²

Second, and relatedly, banks' loan portfolios are not marked to market. Thus, it would not make sense for credit card, commercial and mortgage loans to *not* be marked to market, but to mark to market securities comprising those loans or (in the case of corporate bonds) securities presenting exactly the same risk. Furthermore, those securities are inherently more liquid asset than a loan.

Well then, should banks mark their *loans* to market as well?

Marking all of a bank's assets to market value presents a significant challenge. Such a move would necessitate fair valuing all of its liabilities as well as all of its assets, including the deposit franchise value. Deposit rates, which are sticky and don't adjust one-to-one with interest rates, serve as a critical hedge against changes in a bank's asset market value. For instance, when rates rise and the market value of banks' assets falls, deposit rates increase more slowly which reduces banks' financing costs relative to market rates. However, as evidenced by the SVB failure, this hedge is only effective when uninsured depositors are not incentivized to run.

Requiring banks to mark their loans to market would represent a fundamental and perhaps ruinous change to the banking system, with massive implications for the U.S. economy. Such a policy has been considered and rejected before, back to the bank failures of the 1980s.

So, could you have some rule that says you don't mark to market your HTM securities, but you should still have a little capital left if you have to sell them all?

Conceivably, and it would be a good topic for study. Another possibility would be to set limits on the proportion of securities held in HTM versus AFS. Such limits would become more important if the AOCI filter were removed, as banks would then be incentivized to shift more securities to HTM. But any restriction of this type could entail costs and would definitely need to be phased in gradually over time.

How important is it to fix the HTM problem?

There are compelling reasons for the existing accounting and regulatory capital treatment for HTM securities, and unwinding that treatment would have major repercussions for the business of banking. The problem flagged by SVB's failure, and one not likely to recur, is the interest rate risk that can arise from that treatment in extreme

¹ See Morris, C.S. and Sellon, G.H., "Market Value Accounting for Banks: Pros and Cons," *Federal Reserve Bank of Kansas City Economic Review* (March/April 1991) at 5-19.

² See Dreschler, Savov and Schnabl, "Why do Banks Invest in MBS?" (2023), manuscript available at http://pages.stern.nyu.edu/~pschnabl/research/DSS_SVB.pdf

cases – that is, a series of significant interest rate increases by the Fed at a time when loan demand was low and banks therefore were holding a large volume of investment securities. A targeted look at that problem would have the potential to generate at least some benefit without tremendous cost; the solution could be either supervisory or regulatory.

Some have argued that the Fed’s annual stress test was deficient because it overlooked the risk of a rapid rise in interest rates. Fair criticism?

Well, no. The Federal Reserve has always described its stress test as ensuring that a bank can survive a significant macroeconomic downturn, including a significant drop in GDP, a large and sudden increase in unemployment, a massive drop in housing prices and the like. It also assumes for the largest banks significant upheaval in securities markets. There is no such scenario where the Federal Reserve would be raising interest rates, and so the stress test quite logically has assumed that rates would be flat or falling. Put another way, a test designed to assess credit and market risk in dismal economic conditions simply cannot be expected to assess interest rate risk from rising rates at a time of strong economic growth, low unemployment and inflation. Furthermore, a second stress test featuring strong economic growth, low unemployment and rising rates would be unlikely to produce losses for large, diversified banks that would exceed those in the current test, so therefore would not be binding.

Of course, this is not to say that interest rate risk cannot be the subject of a stress test. In fact, as described above, it is the subject of the stress testing done under the IRRBB framework – basically, estimating the impact on a bank’s capital from a significant increase or decreases in interest rates.

Change of topic -- there seems to be some debate about whether to call SVB a “bailout”...

That seems overstated. There was not a general bailout of the system, or of SVB’s equity or creditors other than uninsured depositors.

So, who exactly benefited here, and who bore the cost?

At SVB, the beneficiaries were primarily venture capitalists, the startups they funded, other technology firms and a major stablecoin issuer; at Signature Bank, they include many crypto firms. The cost will be paid by the nation’s banks.

Do we know how much the banking system will have to pay?

That depends on how the FDIC resolves the SVB and Signature bridge banks. Only time will tell.

Speaking of the resolution process, what about this statement from a recent POLITICO story? “A person familiar with the FDIC’s thinking said the issue was a legal requirement for the agency to pursue the option that would cost the deposit insurance fund the least. Because there were so few insured deposits, the FDIC could just liquidate the bank and still not lose any money, according to the person, who was granted anonymity because of the sensitivity of the situation. So when banks tried to figure out what kind of loss-sharing arrangements might be on the table, the agency — legally — had to say: none.”

This statement accurately reflects an important feature of SVB’s failure – that there were so few insured deposits at SVB (relative to its assets) that a simple liquidation of the bank would have come at no cost to the Deposit Insurance Fund. And it accurately reflects the FDIC’s general duty under the FDI Act, which is to choose a method for resolving a failed bank that is “least costly to the [DIF].”³

³ (12 USC § 1823(c)(4)(A).)

However, it is incorrect to say that the FDIC was legally obligated to take any type of loss-sharing arrangement in an SVB sale off the table. The FDI Act also contains a systemic risk exception, which is an exception from the least cost requirement and permits the FDIC (with the concurrence of the Federal Reserve and Treasury Department) to choose a more costly method of resolution where needed to avert serious adverse effects on economic conditions or financial stability, subject to requirements that such costs be borne by the banking industry by special assessment.⁴ It is precisely this authority that the FDIC invoked on the evening of Sunday, March 12, to guarantee all uninsured deposits – and thus, presumably, the FDIC could have equally determined to use this authority to provide the types of loss-sharing arrangements that would have made a rapid sale of SVB more likely – a much more limited commitment of “exceptional” support than the broad coverage of all uninsured deposits ultimately adopted.

Silvergate and Signature also failed. Why aren’t you talking about them?

We think it’s fair to say that it was the SVB failure that triggered the market anxiety. It is also fair to say that we don’t understand as well what happened at Silvergate and Signature.

Disclaimer: The views expressed do not necessarily reflect those of the Bank Policy Institute’s member banks, and are not intended to be, and should not be construed as, legal advice of any kind.

⁴ (12 USC § 1823(c)(4)(G).)