



How Did Regulatory Tailoring Affect SVB's Capital Requirements?

Francisco Covas | May 3, 2023

The Fed's SVB report asserts that Silicon Valley Bank Financial Group (SVB), in the absence of adopting the Fed's 2019 regulatory tailoring rule, would have experienced a decline in regulatory capital and been subject to stress tests earlier. Therefore, the report speculates these requirements may have led SVB to raise capital earlier or change its behavior prior to its failure.

In this post, we demonstrate otherwise. First, as noted in the Fed's report, SVB's capital ratio would have declined by 1.7 percentage points in 2022 if the firm had been an advanced approaches bank. However, even after the decline, SVB's common equity tier 1 capital ratio, at 10.4 percent, was well above its regulatory requirement. Moreover, if the firm had been required to include unrealized losses on available-for-sale (AFS) securities in the calculation of its regulatory capital, it could have increased the proportion of securities classified as held-to-maturity, which would have reduced volatility in its regulatory capital ratio when it became an advanced approaches bank. Second, we show that SVB's stress capital buffer would have been at or close to the 2.5 percent floor, regardless of whether the stress test scenarios involved increasing or declining interest rates. Therefore, the stress tests would likely not have raised SVB's 7 percent capital requirement.

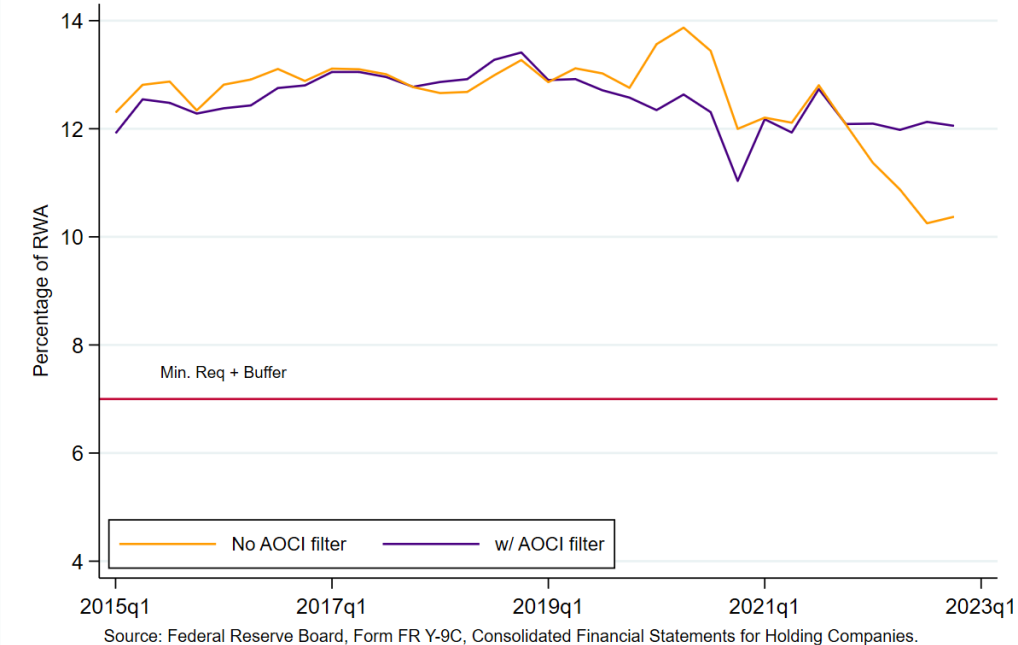
SVB's Regulatory Capital Would Have Remained Well Above Regulatory Minimums Even If It Reflected Unrealized Losses in Its AFS Securities Portfolio (No AOCI Filter)

In the United States before 2013, all banks excluded unrealized gains or losses on their investment securities classified as available-for-sale (AFS) when calculating their regulatory capital. This exclusion was then and is still now known as the accumulated other comprehensive income (AOCI) filter.

In 2013, the U.S. regulatory agencies finalized the Basel III capital standards. These began to require that all "advanced approaches" banks include most elements of AOCI in regulatory capital. This, in effect, meant those banks were no longer permitted to avail themselves of the AOCI filter. Unrealized gains and losses on AFS securities were henceforth reflected in their regulatory capital. At that time, "advanced approaches" banks were defined as those with consolidated assets of \$250 billion or more, or on-balance-sheet foreign exposures of at least \$10 billion. The 2019 tailoring rule redefined "advanced approaches" banks as those with consolidated assets of \$700 billion or more or cross-jurisdictional activity of \$75 billion or more. The \$10 billion on-balance-sheet foreign exposure threshold was eliminated.

The Fed's report contemplates a world where the 2019 tailoring rule never took effect. It states that because SVB crossed the \$10 billion on-balance-sheet foreign exposure threshold in the second quarter of 2020, by definition it would have been an "advanced approaches" bank and would no longer been able to avail itself of the AOCI filter starting in 2021.

Figure 1: Effect of AOCI on CET1 Capital Ratios
Silicon Valley Bank Financial Group



In Figure 1, SVB's key regulatory capital measure is presented with and without the AOCI filter. If SVB had not been eligible for the AOCI filter, its CET1 capital ratio would have been above 10 percent at the end of 2022, more than 300 basis points higher than the required minimum of 4.5 percent plus its stress capital buffer of approximately 2.5 percent (as discussed below). While the report suggests that the removal of the AOCI filter could have motivated SVB to change its behavior or to increase its capital, there is no evidence to support this claim. In addition, SVB could have increased the proportion of securities classified as held-to-maturity after the AOCI filter was removed in 2021, which would have reduced the volatility in its capital ratio.¹

This shows that SVB's regulatory capital ratios were well above the regulatory requirements, whether or not it was allowed to avail itself of the AOCI filter. Therefore, asserting that the AOCI filter had any role in the decisions made by SVB's management in the months leading up to its failure is purely speculative.

SVB Would Have Performed Well in the Fed's Supervisory Stress Tests, Which Would Not Have Led to Significant Increases in SVB's Regulatory Capital Requirements

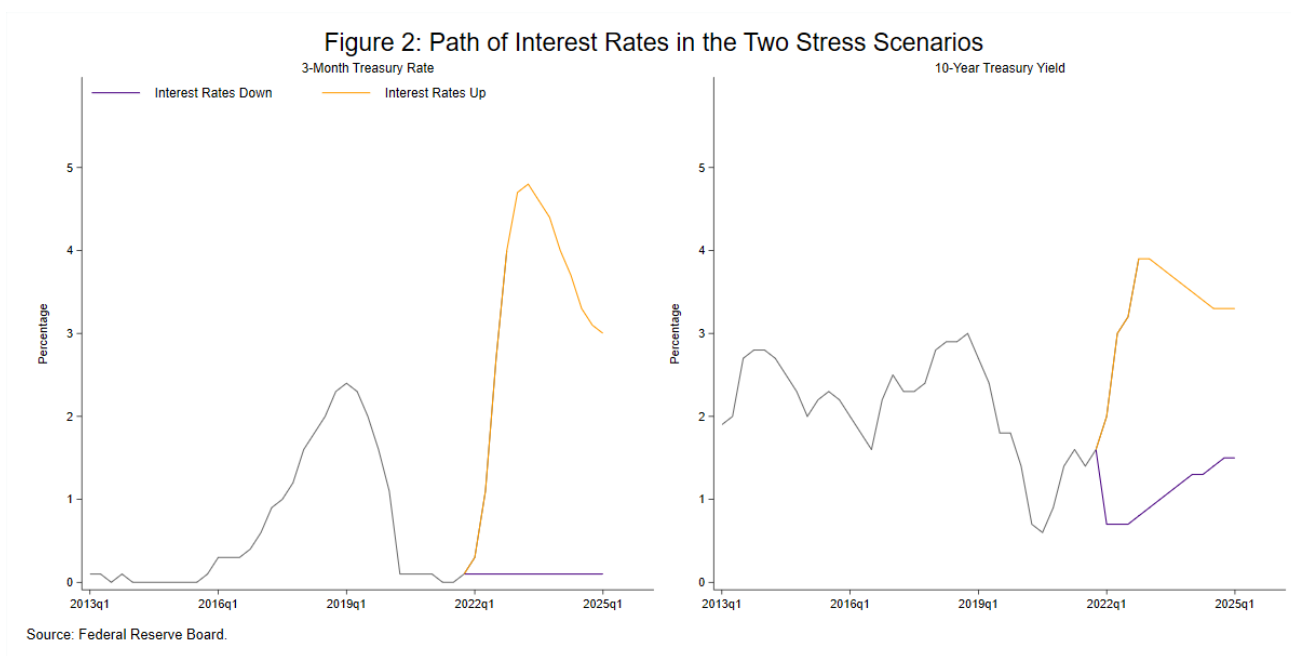
The Fed's report asserts that without the 2019 regulatory tailoring rule, SVB would have been obligated to undergo annual and mid-cycle company-run stress tests, and to explore its own idiosyncratic scenarios in these tests starting in 2020. Moreover, before the 2019 tailoring rule, the supervisory stress tests had two scenarios, with one typically featuring a significant increase in inflation and a corresponding sharp rise in long-term interest rates.²

¹ The effect of the removal of the AOCI filter on the behavior of banks is well documented in the academic literature. See for example the papers by [Kim, Kim and Ryan \(2019\)](#) and [Fuster and Vickery \(2018\)](#). Moreover, since SVB had difficulties in monetizing its HTM securities and already experienced some deposit outflows in 2022, it is possible that moving securities from AFS to HTM would have worsened SVB's situation and accelerated its demise.

² SVB would have been subject to supervisory stress tests under the Fed's tailoring rules in 2024. In June 2021, SVB became a Category IV firm when it surpassed \$100 billion in consolidated assets. Since Category IV firms are required to participate in stress tests every other year, and

The current design of the supervisory stress test is unable to identify the type of vulnerability that led to SVB’s failure. Although we observed in SVB’s case that capital and liquidity factors were interconnected, the amount of unrealized losses did not pose a capital problem until the market realized that the firm could not to raise enough liquidity from its investment securities.

The two macroeconomic scenarios used by the Federal Reserve before the implementation of the tailoring rules would not have significantly increased SVB’s capital depletion in the stress tests. To support this claim, we simulate the hypothetical performance of SVB under two different stress scenarios: one with interest rates declining, and another with increasing rates. The exercise begins at the end of 2021, around the time the Fed started to tighten monetary policy. This gave the bank enough time to raise more capital or make different business decisions had the supervisory stress tests uncovered any significant vulnerabilities.



The scenario with declining interest rates is the same as the severely adverse scenario in DFAST 2022. The scenario with rising rates combines the realization of interest rates in 2022 with the base scenario in DFAST 2023. The paths of short-term and long-term interest rates in the two scenarios are shown in Figure 2. The chart on the left displays the three-month U.S. Treasury rate, while the one on the right shows the 10-year Treasury yield. The scenario with decreasing interest rates assumes the three-month Treasury rate stays at 0.1 percent throughout the stress testing horizon. The 10-year Treasury yield decreases from 1.6 percent at the end of 2021 to 0.7 percent in the first quarter of 2022, then it starts to recover to around 1.3 percent by the end of the scenario. The scenario with increasing interest rates assumes the three-month Treasury rate increases from about 0.1 percent at the end of 2021 to about 4.8 percent in the second quarter of 2023, then declines to around 4 percent in the first quarter of 2024. The 10-year Treasury yield increases from 1.6 percent at the end of 2021 to 3.9 percent in the fourth quarter of 2023, then declines to around 3.5 percent by the end of the scenario.

SVB’s balance sheet is somewhat atypical, because the loan-to-deposit ratio was slightly above 40 percent at the time of its failure, well below that of a typical lending bank. As a result, loan losses would not be a significant factor

the transitional arrangements provide banks with at least a full calendar year to prepare after crossing the threshold, SVB would have had to participate in the 2024 supervisory stress tests for the first time.

in the bank's performance during the stress tests. Instead, the bank's projections of net interest income and unrealized losses on its AFS securities portfolio are the primary drivers of its performance.

Figure 3 displays the projections of net interest income under the two stress scenarios. According to the Fed's report, SVB is asset-sensitive, meaning that interest rate increases result in higher net interest income projections. Our top-down model does an adequate job of generating reasonable net interest income projections, as demonstrated by the comparison between the projected (yellow line) and realized (gray line) net interest margins during 2022 under the increasing interest rate scenario.

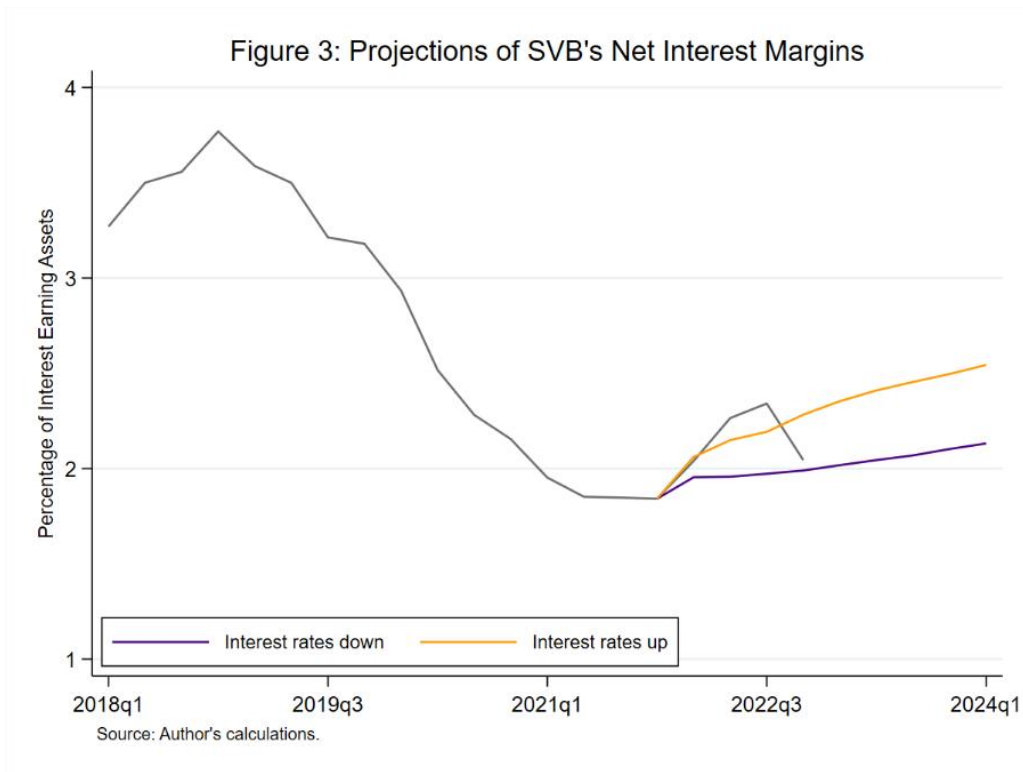
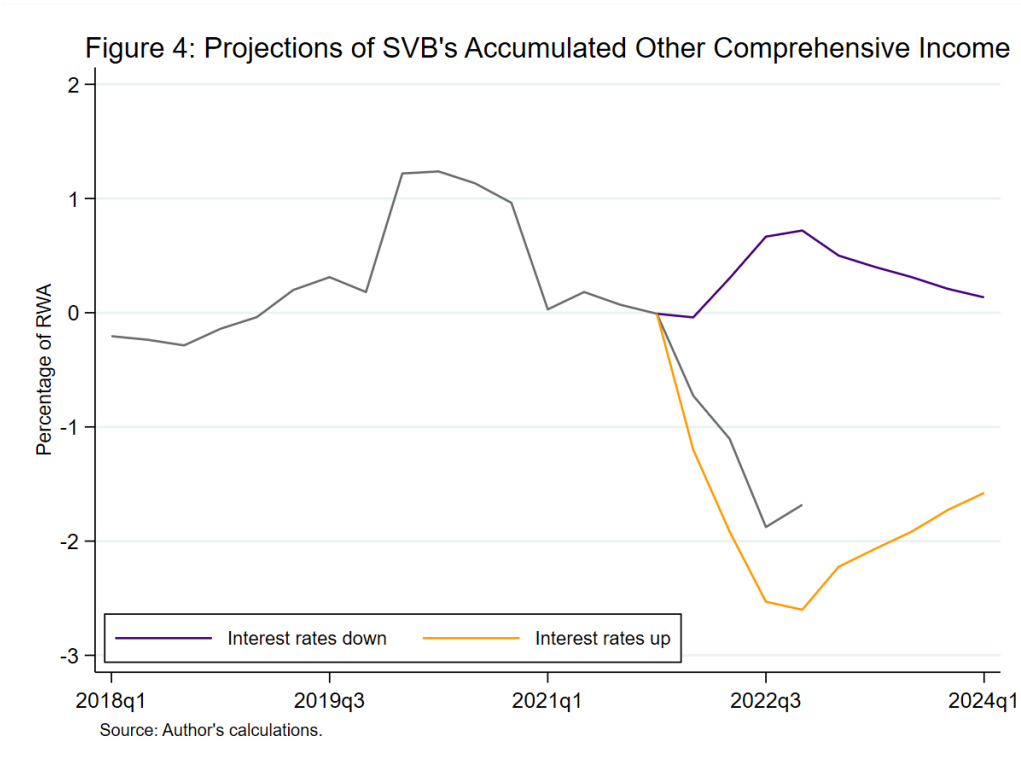
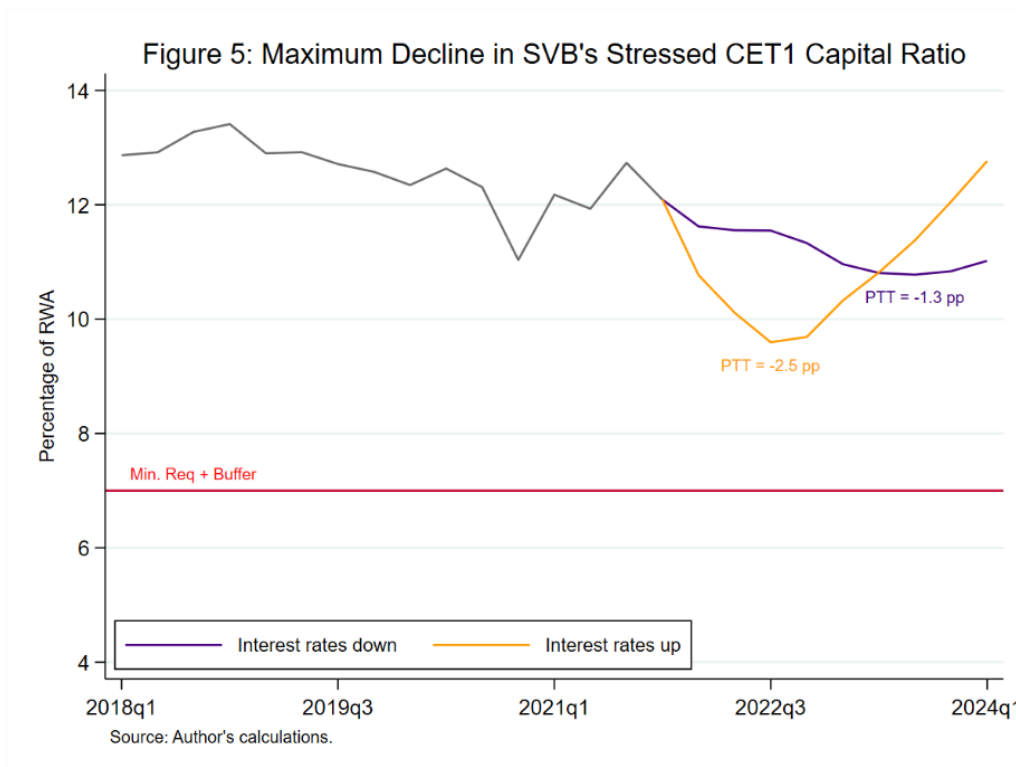


Figure 4 displays the projections for unrealized losses in investment securities classified as AFS under the two scenarios. Our top-down AOCI model projects a slightly larger reduction in AOCI relative to what we observed in the data under the increasing interest rate scenario. This model is calibrated based on industry AOCI movements. Any gaps between our projections and SVB could be driven by differences in the duration of securities, which are not captured in variables reported in the regulatory reports. As expected, AOCI would be projected to increase under the scenario with decreasing interest rates.



Combining the results from the net interest income and AOCI projections creates a trade-off between the two projections. On the one hand, higher rates increase net interest income, but on the other hand, they also increase unrealized losses on AFS securities. Either one effect or the other can dominate, depending on the composition of the bank's own portfolios.

We used these projections to estimate the impact of the two stress scenarios on the peak decline in SVB's CET1 capital ratio. To make these estimates, we had to make further assumptions about other significant components of the stress tests, such as loan losses and operational risk losses. To estimate loan losses, we assumed that SVB would experience losses similar to those of other banks that participated in DFAST 2022 under the scenario of decreasing interest rates. Specifically, we used the 4.1 percent loss rate for other loans, which represent the vast majority of SVB's outstanding loans, a 7.9 percent loss rate for commercial and industrial loans, and a 1.4 percent loss rate for mortgage loans. In the scenario with increasing interest rates, loan losses were negligible due to the relatively stable unemployment rate. As for operational risk losses, SVB's losses were proportional to those of other stress-tested banks, with an aggregate loss level of \$188 billion, based on DFAST 2022 results. We used the same level of losses for both scenarios, which is a conservative assumption for the scenario of increasing interest rates.



As shown in Figure 5, based on these assumptions, SVB’s CET1 capital ratio decreases from 12.1 percent in the fourth quarter of 2021 to a projected minimum of 10.8 percent under the 2022 severely adverse scenario (a 1.3-percentage point decline, as indicated by the purple line). The decline in SVB’s CET1 capital ratio under the scenario with rising interest rates would reach a projected minimum of 9.6 percent and would correspond to a 2.5-percentage point decline, as shown by the yellow line. Under our assumptions, SVB’s stress capital buffers would therefore be at 2.5 percent under both scenarios.³ So subjecting SVB to the supervisory stress tests with multiple scenarios in 2022 would most likely not have made a significant difference, nor would it have incentivized SVB to raise capital earlier.

Conclusions

We have shown that subjecting SVB to enhanced capital requirements and stress testing would not necessarily have forced the firm to raise more capital or change its behavior. Although removing the AOCI filter would have caused a decrease in the bank’s CET1 capital ratio, it would still have remained well above regulatory minimums and buffers. SVB could also have adjusted its balance sheet when it became subject to the AOCI filter in 2021 to mitigate the decrease in regulatory capital after the Fed started increasing interest rates. SVB’s main problem was its inability to monetize its HTM securities, which was in part why SVB repeatedly failed its internal liquidity stress tests per the Fed’s SVB report. Finally, introducing multiple scenarios in the stress tests would likely improve the current stress testing framework, but it would not have prevented SVB from failing.

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.

³ According to SVB’s FR Y-9C filing, dividends on common stock were zero. Therefore, the dividend add-on component of the stress capital buffer would also be set at zero.