

Silicon Valley Bank Would Have Passed The Liquidity Coverage Ratio Requirement

Bill Nelson | March 14, 2023

One result of S. 2155, the 2018 law tailoring regulation, was to exempt banks under \$250 billion from the liquidity coverage ratio, or LCR. In the wake of the failure of Silicon Valley Bank, some bank critics have alleged that this relief was a proximate cause of that failure. Of course, that raises a factual question that they have not addressed: Would SVB's problems have been caught by the LCR, and would it have had to fund itself in a more sound way? The answer appears to be no. SVB probably would have received a passing score on the LCR.

That result should not be surprising, given the underlying cause of SVB's failure, which is interest rate risk. Its problem was not that it did not hold liquid securities like Treasuries and agency-guaranteed mortgage-backed securities. Its problem was that those securities were long-term and paid low interest rates, and thus suffered extraordinary losses when rates rose. That's not a problem that the LCR is designed to catch.

Analysis

The liquidity coverage ratio is designed to require banks to have high-quality liquid assets (HQLA) sufficient to meet net cash outflows under stress. The LCR for the largest institutions is designed to cover 30 days of stress. For smaller and less complex institutions, the LCR's stress assumptions are relaxed by multiplying projected net cash outflows by 70 percent. Absent S. 2155, SVB would have been subject to this reduced LCR requirement. To estimate SVB's LCR, it is necessary to estimate the two components, HQLA and net cash outflows. All data are as of Dec. 31, 2022, and are from SVB's 10-K and call report. The results are summarized in table 1.

High-quality liquid assets consist of reserve balances (deposits at a Federal Reserve Bank), Treasuries, agency debt and agency MBS, and a few other things. The securities are marked to market. Reserve balances, Treasury securities and Ginnie Maes (which are fully guaranteed by the U.S. government) are included in level 1 HQLA, which must be at least 60 percent of HQLA. Agency debt and agency MBS are included in level 2a and are subject to a 15 percent haircut. SVB had \$7.8 billion in reserve balances, \$16.2 billion in Treasury securities at fair value and \$7.7 billion in Ginnie Maes at fair value, so \$31.7 billion in level 1 HQLA. SVB had \$61.7 billion in agency debt and agency MBS (excluding Ginnie Maes) at fair value; after the 15 percent haircut, that's \$52.4 billion in level 2 HQLA. Because level 1 HQLA must equal at least 60 percent of HQLA, SVB's holdings of level 2a HQLA are capped at \$21.1 billion. In sum, SVB would have had \$52.8 billion in HQLA for LCR purposes.

Net cash outflows are more complicated. They are calculated by applying pre-specified factors to various balance sheet and off-balance-sheet items. The factors are chosen to replicate the situation during the GFC, with significant idiosyncratic and market-wide stress. In many cases, the precise factor to apply depends on information that is not contained in the 10-K. An additional restriction in the LCR is that projected inflows cannot exceed 75 percent of projected outflows. As noted, for a bank of SVB's size and other characteristics, net cash outflows are then multiplied by 70 percent.

First, outflows. SVB has \$173.1 billion in deposits, of which \$161.5 were domestic. Of domestic deposits, \$151.6 billion were uninsured, indicating \$9.9 billion were insured. We therefore estimate that \$163.2 billion of total

deposits were uninsured (total – domestic insured). The outflow rate on uninsured deposits of retail and nonfinancial business customers varies between 10 and 40 percent depending on the characteristics of the depositor and deposit, with the lower outflow rate applied to retail customers including those small businesses that are treated like retail customers. The outflow rate on uninsured deposits of financial business customers varies between 25 percent for operational deposits and 100 percent for nonoperational deposits. If we assume a 30 percent outflow rate, that's a \$49.0 billion outflow.¹ The outflow rates on insured deposits are 3-40 percent, where 3 percent is for a stable retail deposit. Assuming an outflow rate of 5 percent results in a \$0.5 billion outflow. SVB had \$13.6 billion in short-term borrowings, which are almost entirely FHLB advances. The rollover rate on FHLB advances is 75 percent so the outflow from the short-term borrowing is \$3.4 billion. SVB had \$62.2 billion in lines of credit and letters of credit. The drawdown rate assumption on lines of credit is between 0-30 percent depending on the type and the counterparty. If the drawdown rate is 20 percent, the outflow would be \$12.5 billion. Total estimated outflows are \$65.4 billion.

Second, inflows. SVB had \$5.3 billion in deposits at other financial institutions, all of which are assumed to be an inflow. It had \$73.6 billion in loans of which \$59.4 billion mature within three months. Half of scheduled repayments on most loans are treated as an inflow. If we assume, conservatively, that one third of the loans that mature within three months mature within one month, the inflow would be \$9.8 billion. Total estimated inflows are \$15.1 billion.

Estimated net cash inflows is \$50.3 billion, or \$35.2 billion after multiplying by 70 percent.

SVB's LCR would therefore have been 150 percent (\$52.8 billion/\$35.2 billion) on Dec. 31, 2022. The requirement is that the LCR be equal to or above 100 percent.

Other Reasons SVB Would Not Have Been Able To Withstand the Run if Subject To the LCR

There are two other reasons why SVB would not have been better able to withstand the run it experienced if it had been subject to the LCR. SVB reportedly had \$42 billion in outflows on Thursday alone.

First, SVB was subject to the Regulation YY internal liquidity stress tests. Not only do examiners reportedly make banks make assumptions in the ILSTs that are more severe than the LCR, the ILSTs include projected cash flow needs at the overnight horizon, the more relevant horizon than the LCR. In particular, for a bank to pass the overnight test it must have cash on hand or the ability to raise cash immediately such as from the discount window, requirements especially helpful for preparing for a run. Perhaps SVB appears to have been compliant with the LCR precisely because the ILST requirement is tougher.

Second, even if SVB had been subject to the LCR and had not passed (which seems highly unlikely), it presumably would have adjusted by increasing its holdings of longer-term Treasury securities, thereby exacerbating its excessive interest rate risk. Every additional dollar of Treasuries would have raised its HQLA by \$1.66 because it would also have freed up capped agency debt. While SVB could have added reserve balances or short-term Treasuries, there is no reason to think that being subject to the LCR would have changed its interest rate risk preferences.

¹ The correct outflow assumption depends critically on the distribution of deposits by types of depositors and the share of deposits that are nonoperational, information that is not available. If deposits were evenly divided between retail/small business with balances below \$1.5 million, nonfinancial businesses, and financial businesses; and 20 percent of business deposits were nonoperational, the outflow rate would be 26 percent.

Conclusion

As discussed in a BPI statement released yesterday, the failure of SVB appears to reflect primarily a failure of management and supervision rather than regulation. In particular, SVB took on extensive interest rate risk that resulted in large losses that undermined confidence in the bank and triggered a run. Such fundamental risk management is first and foremost the responsibility of bank management and then the province of supervision.

By contrast, some have argued that the failure is the consequence of the regulatory tailoring put in place by S. 2155, in particular not requiring that SVB be subject to the LCR. As this note shows, however, SVB would probably have passed the LCR. Moreover, SVB remained subject to the internal liquidity stress tests required by Regulation YY, which are better suited to address the liquidity situation SVB encountered. Again, however, the ILSTs are only as good as the implementation by bank management and oversight by bank examiners. Lastly, even if SVB had been required to maintain more HQLA, that HQLA would likely have been longer-term Treasury securities, adding further to SVB's troubles rather than solving them.

Table 1: Silicon Valley Bank's Liquidity Coverage Ratio December 31, 2022

High Quality Liquid Assets			
Balance sheet Item	\$billions	Haircut percent	Contribution \$billions
Level 1			
Reserve balances	7.8	0	7.8
Treasuries	16.2	0	16.2
Ginnie Maes	7.7	0	7.7
Total			31.7
Level 2			
Agency debt and MBS excluding Ginnies	61.7	15	52.4
Capped amount			21.1
Total HQLA			52.8

Net Cash Outflows			
Balance sheet item	\$billions	outflow/inflow percent	Contribution \$billions
<i>Outflows</i>			
Uninsured deposits	163.2	30	49.0
Insured deposits	9.9	5	0.5
ST borrowing (FHLB)	13.6	25	3.4
Lines of credit	62.2	20	12.5
Balance sheet item	\$billions	outflow/inflow percent	Contribution \$billions
Total			65.4
<i>Inflows</i>			
Deposits at financial institutions	5.3	100	5.3
Loans w/in 3 months	59.5		
Estimate w/in 30 days	19.6	50	9.8
Total			15.1
Net cash outflow			50.3
x 70 percent			35.2
			<i>Percent</i>
LCR			150
Source: 10-K, Y-9C, and Call Report			

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