

Analyzing the Financial Catastrophe of Silicon Valley Bank and its Influence on Indian Start-ups and the Indian Stock Market

Shubham Tibrewal

Chartered Accountant, Member of ICAI; Associate 2, PwC SDC Kolkata Private limited; India
shubhamtibrewal4@gmail.com

Arshi Firdous

Ph.D. Scholar (JRF); Dept. of Commerce, University of Calcutta, India
firdousarshi09@gmail.com

Abstract

The paper explores the financial disaster of Silicon Valley Bank and its consequences for Indian start-ups and the Indian stock market. The study uses secondary data from 2018–2022 to analyse the bankruptcy of Silicon Valley Bank, analysing the relationship between interest revenue and non-interest revenue on the net profit of SVB and studying the impact of the collapse on Indian start-ups and the Indian stock market through regression analysis and existing literature, respectively. The findings suggest that 2018, 2019, and 2021 indicate a moderate risk of bankruptcy and a low likelihood of bankruptcy in 2020; however, 2022 provides a clear indication of bankruptcy. The paper also suggests that non-interest revenue significantly influenced or had an optimistic effect on Silicon Valley Bank's net profits, while interest income has not significantly influenced or positively impacted Silicon Valley Bank's net profits. The paper also finds that the Silicon Valley Bank crisis, primarily affecting the US, may not have the same profound impact as the 2008 Lehman Brothers crisis, which caused a global recession, and may have fewer repercussions in India due to unfavourable public opinion.

Keywords: The Silicon Valley Bank Collapse, Indian start-ups, Indian Stock Market,

DOI: 10.7176/RJFA/15-1-02

Publication date: January 31st 2024

Introduction

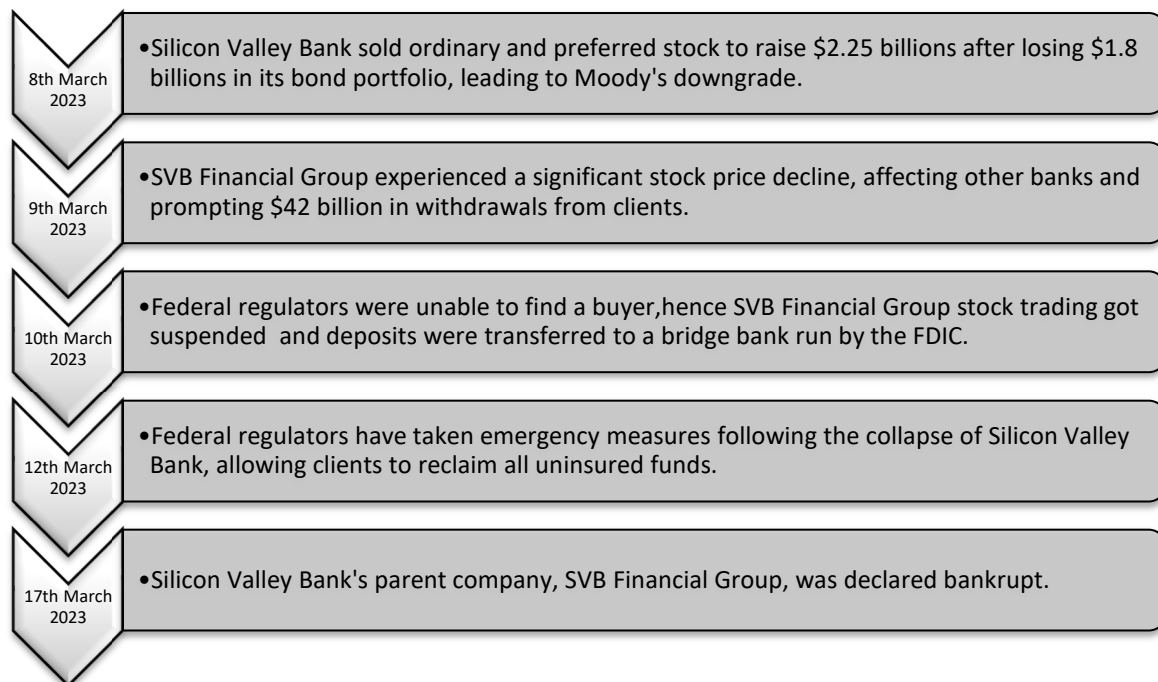
About Silicon Valley Bank

The world economy depends largely on the banking sector, and its failure can have a significant impact on the economy as a whole (Cowan et al., 2022; Dorfleitner et al., 2017; Ozdemir et al., 2019). “The Silicon Valley Bank (SVB) is the 16th largest bank in the US” and is well-known for its contribution to the world’s economy. Its assets were predicted to be worth \$209 billion as of December 2022. The bank is well-known for providing commercial banking services, especially to start-up and venture-backed businesses. In 2022, “the technology and healthcare sectors were backed by 44% of venture-backed IPOs, demonstrating the industry's major influence on the world economy”.

Collapse of Silicon Valley Bank

Silicon Valley Bank witnessed substantial growth with a huge amount of deposits and assets in 2019 and 2022. Long-term obligations, such as Treasury bonds, were in high demand among the depositors, as these securities have low risk as well as low returns. The Federal Reserve increased the interest rate in order to curb inflation, due to which bonds lost their value as investors could now purchase them at higher rates. Many clients experienced financial difficulties as a result, and many in the IT industry withdrew money from their accounts. The bank made an unsuccessful attempt to sell some investments to cover these withdrawals, which led to a \$1.8 billion loss and signaled the start of the bank's collapse.

Timeline for the Collapse of Silicon Valley Bank



Literature Review:

Lai Van Vo and Huong T.T. Le (2023) in their paper explore the reasons behind Silicon Valley Bank's collapse, highlighting its heavy debt securities investment during low interest rates, concentrated deposits among venture capitalists, inefficient risk management, and mismanagement of assets and liabilities, leading to significant unrealized losses in 2022. M.P. Yadav et al.'s (2023) study examines the effect of Silicon Valley Bank's downfall on global equity indices from September 6 to March 22, 2023. The principal cause of the abrupt selling-off of equities suggested that the bank's failure could have a significant impact on global equity markets, with massive effects spreading across the globe. D.K. Panday et al. (2023). The study showed that the collapse of Silicon Valley Bank had a significant impact on global stock markets, leading to panic, uncertainty, and negative returns worldwide. The influence was more prominent on developed markets as their economic interdependence was higher with one another. The post-event period was marked by high abnormal volatility and the countries with robust banking systems were impacted differently. M. Akhtaruzzaman et al. (2023) analysed if Silicon Valley Bank's failure caused financial contagion in the G7 countries of Brazil, China, India, and South Africa. The result showed that the contagion was prominent within global banks but slight in other areas. It was short-existing, most dominant during the week following the bank's disaster. G. Gabbi (2023): The 2023 collapse of Silicon Valley Bank highlighted the complexity of risk factors. This column proposes improvements to asset correlation models to align with empirical evidence across firms and economic cycles.

Research Objectives:

- To interpret the bankruptcy of Silicon Valley Bank.
- To study the effect of Interest Revenue and Non- Interest Revenue on Net Profit of SVB.
- To study the influence of Silicon Valley Bank collapse on Indian start-ups and Indian Stock Market.

Research Methodology:

The research study is based on the secondary data all the annual data has been collected from the period of 2018-2022 and Altman Z Score has been used to decipher the bankruptcy of Silicon Valley Bank. Regression Analysis and existing literature has been used to study the impact of Interest Income and Non- Interest Income on Net Profit of SVB and the impact of Silicon Valley Bank collapse on Indian start-ups and Indian Stock Market respectively.

Analysis of results:

Table 1: Financial Ratios and their formulae

Financial Ratio used for Analysis	The formula used for the calculation of ratio
A. Ratio of Liquidity	(Current Asset- Current liability) divided by Total Assets
B. Ratio of Leverage	Retained Earnings divided by Total Assets
C. Ratio of Profitability	Earnings Before Interest and Tax divided by The Total Assets
D. Ratio of Solvency	Book value of Equity divided by The Total Assets
E. Turnover Ratio	Ratio of Sales divided by The Total Assets

Source: Authors' own computation

The Altman Z-Score Model was used to understand Silicon Valley Bank's bankruptcy journey. It has been utilized to identify the deteriorating flaws in the bank's financial structure. The Model has three variations:

(i) Z Score of Publicly Traded Manufacturing Firms: This model helps in understanding the likelihood of bankruptcy=“Summation of (1.2 x A), (1.4 x B), (3.3 x C), (0.6 x D), (0.999 x E)”.

ii) Z Score of Private firms = “Summation of (0.717 x A), (0.847 x B), (3.107 x C), (0.420 x D), (0.998 x E)”.

(iii) Z Score of Non-manufacturing firms – Developed Markets Z Score = “Summation of (6.56 x A), (3.26 x B), (6.72 x C), (1.05 x D)”.

(iv) Z Score of Non-Manufacturing firms – Emerging Markets Z Score= “Summation of 3.25, (6.56 x A), (3.26 x B), (6.72 x C), (1.05 x D)”.

Inferences for the Z-Score

Z Score	Zone	Inferences
The score is greater than 2.99	Zone of Safety	Lower Risk of Bankruptcy
The score is greater than 1.81 but less than 2.99	Zone being Grey	Moderate Risk of Bankruptcy
The score is less than 1.81	Zone of Distress	Higher Risk of Bankruptcy

Silicon Valley Bank, a non-manufacturing organization in the United States, was analysed using the formula mentioned under point (iii) for developed markets.

Table 2: Calculation of the Financial Ratios

Ratios/Years	2018	2019	2020	2021	2022
A. Liquidity Ratio	0.1884	0.2926	0.4204	0.1973	0.1242
B. Leverage Ratio	0.0667	0.0644	0.0491	0.0352	0.0423
C. Profitability Ratio	0.0240	0.0227	0.0151	0.0129	0.0103
D. Solvency Ratio	0.1020	0.1028	0.0787	0.0853	0.0834
6.56* A	1.2365	1.9198	2.7582	1.2941	0.8148
3.26*B	0.2171	0.2101	0.1601	0.1147	0.1378
6.72*C	0.1609	0.1524	0.1013	0.0866	0.0690
1.05*D	0.1070	0.1080	0.0827	0.08958	0.0875

Source: Authors' own computation

Table 3 shows the calculation of the Altman Z score for the respective years. In 2018, 2019, and 2021, the Z-score lies between 1.10 and 2.60, which shows that bankruptcy is at a moderate level. However, in 2020, the Z-score will be greater than 2.60, which indicates a lower chance of bankruptcy. However, in 2022, the Z-score will be near 1, which gives a clear indication of the risk of bankruptcy.

Table 3: Calculation of the Altman Z-Score

Years	Altman Z-Score
2018	1.72149
2019	2.39022
2020	3.10226
2021	1.58496
2022	1.10903

Source: Authors' own computation

Table 4 shows the effect of interest revenue and non-interest revenue on the net profit of SVB. The value of the correlation coefficient shows a comparatively strong correlation between interest income and net profits. The independent variable, interest income, accounts for 58% of the dependent variable, net profits, according to R-Square, also known as the coefficient of determination. Therefore, it can be concluded that interest revenue has no significant effect on net profits. $F_{0.05} = 10.13$ when $v_1 = 1$ and $v_2 = 3$. F's calculated value is less than its value in the table. Therefore, it suggests that interest income has not significantly influenced or positively impacted Silicon Valley Bank's net profits. Non-interest income and net profits have a very high correlation coefficient, which

suggests a significant correlation between the two variables. The independent variable, non-interest income, accounts for 83% of the dependent variable, net profits, according to R-square, also known as the coefficient of determination. Therefore, it can be concluded that non-interest revenue had a significant effect on net profits. $F_{0.05} = 10.13$ when $v_1 = 1$ and $v_2 = 3$. F 's calculated value is higher than its value in the table. Therefore, it suggests that non-interest revenue has a significant and positive effect on Silicon Valley Bank's net profit.

Table 4: Regression Analysis

Statistics	Net Profit and Interest Revenue	Net Profit and Non-Interest Revenue
Multiple R	0.76644	0.91405
R Square	0.58743	0.83549
F-Value	4.2715	15.2361

Source: Authors' own computation

Impact of Silicon Valley Collapse on Indian Start ups

The world equity market saw a sell-off after the Silicon Valley Bank (SVB) crisis surfaced. But with several more banks filing for bankruptcy, including Signature Bank, First Republic Bank, and others, the SVB crisis is now resembling a bank crisis in the US. Actually, the second-biggest Swiss bank and a major player in Europe, Credit Suisse, has also gone through a crisis that has contributed to the global banking crisis. The Indian stock market saw a fall, with the BSE Sensex falling by 2.18% and the NSE Nifty falling by 2.29% due to the bank crises in the US and Europe. Beginning on March 13, 2023, Indian start-ups received a big financial boost as the US government allowed bank account holders of the closed Silicon Valley Bank to access their money. Furthermore, for the qualified depository institution, the government has increased the available loan amount. However, this issue is expected to be minor for startups that have made deposits only with SVB because they are able to withdraw their funds. However, for startups that have secured funding, the circumstances are distinct. The Indian government is trying to figure out how to shield new businesses from any possible economic instability caused by SVB's demise. The Ministry for Electronics and Information Technology has put forward several initiatives in this regard, such as facilitating the transfer of US dollars to Indian banks as well as promoting the growth of innovative credit instruments such as deposit-backed credit lines. Compared to the US, India will not be as affected by the SVB unrest because start-ups based in India are not subject to the SVB (AviralBhatnagar, 2023). Due to its incorporation in the US, India may have a 15-20% exposure to the US (out of funded companies). Most of these are SaaS and Y Combinatory companies. Sub-Series B members are most likely highly exposed to SVB. Since they can withdraw the funds to pay for ongoing operating costs, startups with SVB deposit accounts alone might not be greatly impacted. Startups that have received equity funding from SVB should not be alarmed just yet, as those stocks might be transferred to the company making the acquisition. Start-ups that obtained debt capital from SVB may find their circumstances to be somewhat complex, especially considering undrawn capital lines.

Impact of Silicon Valley Collapse on Indian Stock Marks

The world equity market saw a sell-off after the Silicon Valley Bank (SVB) crisis surfaced. But with several more banks filing for bankruptcy, including Signature Bank, First Republic Bank, and others, the SVB crisis is now resembling a bank crisis in the US. The second-biggest Swiss bank and a major player in Europe, Credit Suisse, has also gone through a crisis that has contributed to the global banking crisis. The previous week, the Indian stock market saw a fall, with the BSE Sensex falling by 2.18% and the NSE Nifty falling by 2.29% due to the bank crises in the US and Europe. During this period, the Nifty Bank index fell 2.42 percent. The SVB crisis influenced the Indian stock markets as well, causing them to fall, particularly the Nifty Bank index, which dropped by about 850 points in early trading on March 10th, 2023. With a loss of about 2.26% on Friday, March 10, 2023, PNB was the biggest loser in the banking industry. Industry behemoths like HDFC Bank, SBI, and ICICI also experienced some price declines. Analysts and business experts predict that the Silicon Valley Bank crisis will not have the same kind of profound effects as the 2008 Lehman Brothers crisis, which led to a global recession. Overall, the crisis is concentrated in the US and may have fewer repercussions in India because public opinion there may still be unfavourable. The auto and power stock sectors appear to be good opportunities for positional investors due to their strong fundamentals and recent large capital expenditures on numerous domestic projects. Similar corrections have been successfully recovered by these industries in the past. Positional investors can monitor these two sectors during a market selloff and start building up from lower levels with an emphasis on the mid- to long-term future (Swastika, 2023)

Conclusion:

Indian startups should take a lesson from the SVB Bank debacle. Rather than counting on the regulator to intervene whenever necessary, everyone should exercise personal prudence and employ risk management. Since deposits are only fully insured up to a certain amount, Diversification of risk by keeping multiple accounts in different banks should be encouraged among Indian start-ups. Also, the Indian banking system is now more regulated and

strong, so start-ups can deposit more money with Indian banks than abroad. Since the RBI's monetary policies and stringent banking regulations have made things much better in India and led to the opening of more accounts in GIFT City, the future may hold significant changes for the startup community there. Indian entrepreneurs need to build long-term businesses. Indian startups need to develop viable business plans that address real business problems. There might be a division between businesses that receive funding and those that don't if SVB fails. While superior, innovative companies with unique value propositions and capable management teams will likely continue to receive funding and possibly even gain market share, speculative business models with less tangible proof-of-concept products will probably face pressure. Less initial public offerings (IPOs) in the ensuing years could then reinforce these companies' competitive moats. Thus, even though the SVB collapse has raised short-term volatility, we think the event will probably make the environment more favourable for innovation stocks.

In conclusion, the SVB crisis serves as a sobering reminder of the reverberations that national markets and companies can experience because of global economic events. This crisis was an accident waiting to happen (UdayKotak, 2023), and its aftermath has left many investors in shock. For investors with a long-term horizon, there is an opportunity to add quality stocks to their portfolios amidst the chaos. The collapse of the US stock market may offer savvy investors who are prepared to endure short-term volatility in search of long-term gain a buying opportunity.

References

- Aastveit, K. A., Natvik, G. J., and Sola S., 2017, Economic uncertainty and the influence of monetary policy, *Journal of International Money and Finance*, 76, 50–67.
- Acharya, V. V., and Richardson, M., 2009, Causes of the financial crisis, *Critical Review*, 21(2- 3), 195-210
- Anderson, R. C., and Fraser, D. R., 2000, Corporate control, bank risk taking and the health of the banking industry, *Journal of Banking & Finance*, 24(8), 1383-1398
- Aubuchon, C.P., and Wheelock, D.C., 2010, The geographic distribution and characteristics of US bank failures, 2007-2010: Do bank failures still reflect local economic conditions? *Federal Reserve Bank of St. Louis Review*, 92(05), 395-415.
- Blau, B. M., Hein, S. E., & Whitby, R. J. (2016). The financial impact of lender-of-last-resort borrowing from the federal reserve during the financial crisis. *Journal of Financial Research*, 39(2), 179–206.
- Corrado, C. J. (1989). A nonparametric test for abnormal security-price performance in event studies. *Journal of Financial Economics*, 23(2), 385–395.
- Dharen Kumar Pandey, M.Kabir Hassan, VineetaKumari, Rashedul Hasan. (2023). Repercussions of the Silicon Valley Bank collapse on global stock markets. *Finance Research Letters*. Vol (55) Part B.
- Elia, Jean &Toros, Elena &Sawaya, Chadia&Balouza, Mohammad. (2021). Using Altman Z"-Score to Predict Financial Distress: Evidence from Lebanese Alpha Banks. *Management Studies and Economic Systems*. 6. 10.12816/0059150.
- Miklesh Prasad, Yadav, Amar Rao, Mohammad ZoynulAbedin, SabiaTabassum, Brian Lucey.(2023).The domino effect: Analyzing the impact of Silicon Valley Bank's fall on top equity indices around the world. *Finance Research Letters*. Vol 55 (B).
- MdAkhtaruzzaman ,SabriBoubaker, John W. Goodell (2023). Did the collapse of Silicon Valley Bank catalyze financial contagion? *Finance Research Letters*, Volume 56.
- Rahim, K. F., Ahmad, N., Ahmad, I., & Rahim, F. A. (2013). Determinants of Cross Border Merger and Acquisition in Advanced Emerging Market Acquiring Firms. *Procedia Economics and Finance*, 7, 96–102.
- Vo, L. Van, & Le, H. T. T. (2023). From Hero to Zero - The Case of Silicon Valley Bank. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4394553>
- [Disclaimer: Authors are thankful to *Dr. Sarbapriya Ray, Supervisor, Ph.D Programme in Commerce & Associate Professor in Commerce, Vivekananda college, University of Calcutta, Kolkata, India* for reviewing earlier draft of the article. Nevertheless, if any pitfall lies, responsibility is solely ours.]