Financial Performance Evaluation of A Bankrupt Bank: The Case of Silicon Valley Bank

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ABSTRACT: The aim of this research paper is to evaluate and compare the financial performance of Silicon Valley Bank spanning the two-year period prior to its eventual bankruptcy in March 2023, using financial data derived from the former bank's annual reports. Comparative financial ratio analysis was conducted pertaining to four groups of financial indicators, profitability, capital structure, liquidity and market performance. The results of this analysis reveal a decline in performance in 2022 in comparison with the 2021 business year. The decline coincided with the public emergence of formidable business and market risks for the bank. This study fills a critical gap in the literature by assessing the connection between firm performance and both accounting & market indicators during a time of heightened financial distress, whereas previous studies tended to take a closer look at the relationship between firm performance and one specific class on financial indicator while neglecting the other, equally important class of indicators.

KEYWORDS: Bankruptcy, Firm Performance, Accounting, Financial Risk, Market Performance.

JEL Classification: G32, G33, L19, L25, M41

I. INTRODUCTION

Business failures are a frequent occurrence within any healthy and optimally functioning economy. Indeed, organizational mismanagement is a common and frequently cited cause of business failures, with new businesses witnessing an especially high failure rate of upwards of 70%. However, as no firm is an island of isolation and as such is thus frequently exposed to the external macroeconomic factors such as industrial & technological trends, changing consumer preferences & demand, government policy and financial crises taking root in the wider economic sphere, it is important to look at how firms respond to these everchanging conditions. As a firm's health is crucial to vast array of important stakeholders such as employees, creditors, investors, suppliers and banks. Indeed, solely owing to fact of the sheer number of parties with a vested interest in the future of the firm, the wider implications of firm failure become significantly more pronounced and as such the prediction of the upcoming financial crisis and the formulation of appropriate business strategies to weather against such crises becomes an ever more imperative endeavour. In light of the 2008 financial crisis as well as the more recent inflation crisis considerable attention has been devoted to the topic of bankruptcy prediction within academic financial circles. Various methodologies and strategies have been investigated in the research domain with the goal of attempting to accurately and definitively foresee the impending threat of corporate financial insolvency. Previous attempts at, insolvency risk prediction have traditionally relied on historic financial data trends as the primary data set used for prediction.

In the realm of corporate finance, the accurate appraisal of a company's financial health is a task of central importance, impacting investment decisions, lending practices, and strategic planning. At the Centrepoint of this process is the utilization of financial ratio analysis, which serves as a tried and tested barometer of a company's fiscal well-being. Financial ratios are numerical metrics that express the quantitative relationships between various financial elements in a company's financial statements. These ratios encompass different categories, each shedding light on specific aspects of a company's financial operations. They are divided into four main groups: liquidity ratios, profitability ratios, efficiency ratios, and solvency ratios.

Financial analysis is used in a variety of contexts. Ratio analysis of a company's present and past performance aim to measure liquidity, profitability, capital structure, turnover, market performance using various ratios, providing past performance as a suitable basis for making forecasts and predictions of future performance, using data primarily derived from income statements, balance sheets, cash flow statements and market data.

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In this context, the downfall of Silicon Valley Bank, once a major financial player catering to the financial needs of the tech industry, raises many important questions. Many analysts have questions regarding the presence of warning signs and if so, why and how such warning signs could be missed. From an economic and financial diagnostic perspective, the cause of this financial giant's collapse could not be more conventional. SVB primarily relied on considerable investments in long term government treasuries that eventually suffered considerable market devaluation when the Federal Reserve raised interest rates. Additionally, the increased borrowing costs led depositors to rely more heavily on deposits than debt financing to cover their needs, resulting in the widespread withdrawal of deposits at banks such as Silicon Valley Bank, ultimately causing a bank run and the bank's inevitable bankruptcy. What is much less understood is how the obvious & present warning signs were overseen and more cynically, whether these obvious red flags were ignored due to the fact that SVB was perceived to be too big to fail.

II. LITERATURE REVIEW

Jan *et al* (2019) use Altman Z-score model to evaluate bankruptcy rates of five Islamic banks in Pakistan for the period 2009 to 2015. Their ANOVA test results indicate that Islamic banks do differ in their rates of bankruptcy. Moreover, the result of regression analysis showed that liquidity and productivity ratios have a significant positive impact on mitigating bankruptcy risk, while profitability and insolvency ratios showed an insignificant impact on bankruptcy risk.

Najib and Cahyaningdyah (2020) test both Altman and Ohlson models of bankruptcy to determine the degree of predictive capability of each of the two models in determining the future survival of 17 Indonesian companies during the years 2015 to 2019. The result of their analysis indicate that accuracy of the Altman model is 58.3%, while the accuracy of Ohlson model is 79.2% indicating that the Ohlson model is a more reliable predictor of bankruptcy risk.

Rettobjaan (2020) assesses the predictive value of financial ratios on future bankruptcy rates across 32 SMEs companies in Indonesia for the period 2013 to 2017. The dependent variables are liquidity, profitability, debt structure, solvency and activity ratio, and control variables are size and age while the dependent variable is the bankruptcy. The researcher used logistic regression analysis to test their hypotheses. The resulting analysis indicated that liquidity, profitability, and age all have a significant negative effect on bankruptcy, while debit structure has a significant positive effect on bankruptcy. Lastly, solvency, activity ratio and size do not have significant effect on bankruptcy.

Samanhyia and Oware (2016) use data derived from five banks operating in Ghana during the years 2008 to 2014 to test the Altman Z-score and Bonne indicators. They found that poor corporate governance contributed negatively to financial distress of the banking sector. The authors also found a negative, inverse relationship between board size and corporate performance, specifically that smaller board sizes adversely affected corporate performance. Moreover, the authors concluded that in a highly competitive industry, firms become more efficient and less prone to financial distress, adding further support to the benefits of competition to firm efficiency.

Sharmah and Mayanka (2013) apply Altman modelling to evaluate the overall performance of the Indian banking sector. The banks under study consisted of 20 Indian public sector banks and 16 Indian private sector banks. The variables assessed in their research were: ratio of working capital to total assets, proportion of retained earnings to total assets, ratio of operating profit to total assets and the ratio of book value of equity to total liabilities. Altman modelling results of their analysis indicate that the overall financial position of Indian banks was generally satisfactory, with two exceptions where the bank's financial position was observed to be suboptimal in comparison with their peers.

III. RESEARCH METHODOLOGY

This research is conducted with the aim of measuring the financial performance of Silicon Valley Bank for the two years prior to its eventual bankruptcy in March 2023, due to several factors including the its investments in bonds followed by the increase in the interest rate on bonds imposed by Federal Reserve which made it riskier investments. The data were obtained from the financial statements reports of the years 2021 and 2022. The performance indicators will be grouped into four groups, profitability, capital structure, liquidity and market indicators groups. To evaluate its performance, this research will compare indicator performance within each group between the years of 2021 and 2022 to assess the financial performance three months before the bank's eventual bankruptcy.

IV. RESEARCH ANALYSIS

IV.1: Profitability. Table1shows the important indicators for the years 2021 and 2022.

1. **Net income available to common stock holders**. It is the net income minus preferred stock dividend divided by weighted average of common stock shares and potential common shares outstanding. This ratio declined from $1.770 million in 2021 to $1.509 million in 2022. it is declined by %14.75

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2. **Net interest margin**. Defined as the difference between interest income and interest expense expressed as the percentage of income generated from assets. This ratio is saw a slight change from %2.02 in 2021 to %2.16 in 2022. The percentage of change was calculated at %0.069.

3. **Noninterest income**. It is the income from other activities. The level of income declined from $2738 million in 2021 to $1728 million in 2022. In percentage terms, noninterest income declined by %0.368.

4. **Return on average assets**. This ratio can be calculated by dividing net income of the average assets. It was declined from %0.84 in 2021 to %0.70 in 2022. The percentage drop of return on average assets was calculated at %0.166.

Table 1: Profitability Indicators Analysis

Indicator	2021	2022
Net income available to common stockholders	$1.770	$1.509
Net interest margin	%2.02	%2.16
Noninterest income	$2738	$1728
Return on average assets	%0.84	%0.70

I.V.2: Capital Structure Indicators. Table 2 shows three indicators related to the capital structure.

1. **Equity to total assets.** This ratio shows the profitability of assets. It is calculated by dividing total equity on total assets. The high ratio indicates the percentage of financing by inside organization with less probability of risk. For the year 2021, %7.86 of the total assets financed by owner's equity and %7.69 in 2022. The declining percentage is %0.021 indicating the increased in the level of risk where this reduced its dependence on internal financing of its activities.

2. **Liabilities to Total Assets.** This ratio gauges the proportion of a firm's operations that is being financed by debt. A high ratio indicates a high level of risk. It can be calculated by dividing total liabilities over total assets. This ratio slightly increased from %92.14 in 2021 to %92.31 in the year of 2022. This indicator increased in 2022 by %0.002 in the level of risk.

3. **Liabilities to Total Equity**. This ratio indicates the percentage of total liabilities to total equity. The ratio increased from %1172.25 in 2021 to %1200.00 in 2022. This is due to increase of total liabilities from $194699 million in 2021 to $195498 million in 2022. The value amount of total equity decreased from $16609 million in 2021 to $16295 million in 2022. This bank was exposed to more risk since it increased its dependence on external funds by %0.024 over the two years.

Table 2. Capital Structure Analysis

Indicator	2021	2022
Equity to total assets	%7.86	%7.69
Liabilities to total assets	%92.14	%92.31
Liabilities to Equity	%1172.25	%1200.00

I.V.3: Liquidity Indicators Analysis. Table 3 shows the analysis of liquidity levels between 2021 and 2022.

1. **Loan to Customer Deposit Ratio**. This ratio represents the percentage of customer deposits being used to offer loans to borrowers. The bank increasingly relied on existing deposits as the main source of funding for loans, going from a %34.80 utilization rate in 2021 to %42.52 in 2022. Thus, the bank increased its use of customers deposits to provide financing by %0.222, leading to a decrease in the amount of cash on hand, and thus liquidity, available to the bank.

2. **Operating Cash Flow to Total Liabilities**. This ratio highlights the ability of the bank to meet its liability obligations solely using operating cash flow and is calculated by dividing operating cash flow by total liabilities. The analysis indicates the bank improved its ability in covering liability payments using operating cash flow, increasing from %0.959 in 2021 to %1.47 in 2022. In percentage terms, this represents a rate of increase of %0.533 over the two years studied.

3. **Noninterest Expense to Noninterest Revenue**. This ratio indicates the percentage of noninterest expenses to noninterest revenues. The analysis reveals that noninterest expenses formed %24.46 of noninterest revenue in 2021, showing a marked increase to %32.26 in 2022 led to reduce the level of liquidity, reducing the level of liquidity for this indicator by %0.318.

4. **Cash to Total Assets**. This ratio is defined as the proportion of a company's total assets that consists of cash. This ratio was measured to be %6.90 in 2021, dropping to %6.51 in 2022. This translates to a reduction in the level of liquidity available to the bank. In percentage terms, the level of cash as a proportion of total assets declined by %0.056.

5. **Loans to Total Assets**. This ratio measures the total value of outstanding loans as a proportion of total assets. A high ratio points to a lower level of available liquidity. In the year 2021, the total value of bank loans to debtors formed %31.16 of total

assets, increasing to %34.75 in 2022. Thus, increased financing provision to customers caused a shift in the level of liquidity at the bank's disposal, representing a %0.115 decrease in percentage terms.

Table 3: Liquidity Analysis

Indicator	2021	2022
Loan to Customers Deposits	%34.80	%42.52
Operating cash flow to Liabilities	%0.959	%1.47
Noninterest Expense to noninterest Income	%24.46	%32.26
Cash to Total Assets	%6.90	%6.51
Loans to Total Assets	`%31.16	%34.75

I.V.4: Market Indicators Analysis. Table 4 shows the analysis of three indicators, earnings per share and closing stock price.

1. **Earnings per Share**. A commonly used, highly valid measure of firm performance, the earnings per share indicator shows the profitability of outstanding shares. It is calculated by dividing net income over outstanding shares. Earnings per share declined from $31.74 in 2021 to $25.58 in 2022, translating to %19.40 reduction over the 2 years in question. Moreover, diluted EPS declined from a value of $31.25 in 2021 to $25.35, an 18.88% reduction, the following year. The diminishing returns for stockholders did little to encourage investor confidence in the long-term performance of SVB.

2. **Book Value per Common Share**. Defined as the value of common equity, it can be computed by dividing common shareholders' equity by the number of outstanding shares. This can be more simply expressed as the value of a company's total assets, minus its liabilities, on a per share basis. It is useful to identify the true value of the common stocks. If a stock is trading below its book value per share, it means that the market is valuing the company at less than its liquidation value. Moreover, an increase in book value per share, may consider by investors the stock is more valuable and the stock price may increase further. The book value per share in 2021 was $214.30, eventually declining to $208.85 by 2022. corresponding to a %2.55 decline in percentage terms.

3. **Closing Stock Price**. It represents the last price at which a stock trades at the end of year. The closing price of stocks is important not only for investors, but also to financial institutions who use it as a guide for future policy decisions. For the year 2021, the closing stock price was $678.24 as of December 31. Closing stock price declined to $230.14 as of December 31, 2022, a drop of %66 in percentage terms. The decline in stock value can be partially attributed to the selling of stock by investors who anticipated the banks declining financial condition and thus acted accordingly by reducing their stock portfolio's exposure. This selling of stock by current investors, along with reduced purchases of stock at its peak prices by prospective investors, were the main driving forces behind the significant stock price depreciation that took place in 2022.

Table 4: Market Indicators Analysis

Indicator	2021	2022
Earnings per Share	$31.74	$25.58
Diluted Earnings per Share	$31.25	$25.35
Book Value per Common Share	$214.30	$208.85
Closing Stock Price	$678.24	$230.14

V. CONCLUSION

The aim of this research paper has been to assess the financial performance of the Silicon Valley bank across the two-year period (2021 and 2022) prior to its eventual bankruptcy on March 2023. Profitability indicators such as net income available to common stockholders, return on average assets and noninterest income all saw declines in 2022 signalling the firms entry into a period of heightened business risk. Capital structure indicators were used to assess the overall financial rigidity of the firm. The equity to total assets ratio saw consecutive declines over the two years measured, while both liabilities to total assets and liabilities to equity ratios saw positive trends, indicating decreasing independence/increasing weakness stemming from the banks increased reliance on external funds to cover its business operations. A thorough examination of SVB's liquidity position revealed that the bank increased its ability to use customer deposits to offer financing. Similarly, the bank also improved its ability to cover liability payments using operating cash flow. In addition, the percentage of noninterest expenses to noninterest income increased over the two years studied, indicating a rise in outward cash flows. Meanwhile, cash reserves as a portion of total assets declined while the value of loans as a proportion of total assets appreciated in 2022. These results collectively point towards a significant drop in liquidity taking place during the banks final year. Market analyses showed that earnings per share, book value per share and closing

stock price levels all saw downturns in 2022 over the previous year. This pattern of decline further diminished the overall attractiveness of the bank to investors as it hinted towards the bank's financial instability and uncertain future.

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