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Lessons from the Silicon Valley Bank crisis for the supervision of China's financial institutions for banks

Yue Yu

Hang Zhou NO.4 High School International School, Hangzhou, China

3165238076@qq.com

Abstract. The Silicon Valley Bank (SVB) crisis not only triggered fear in the financial market at that time but also led to a series of chain reactions—such as deposit outflows from other banks, which further heightened their risk of failure. Therefore, it is crucial for China to optimize its financial institution supervision system to reduce the risks in the financial market. Based on the literature measurement and case anatomy, this paper analyzes the implications of the Silicon Valley banking crisis for the banking supervision of Chinese financial institutions. Specifically, the authors analyze the direct and indirect causes of the banking crisis in Silicon Valley, and from a regulatory perspective, put forward insights for the banking supervision of Chinese financial institutions. Based on this crisis, the enlightenments for Chinese finance are empowerment in regulation with technology, strengthening the current system by including medium-sized banks in the dynamic assessment of the liquidity coverage ratio, and promoting international collaborative governance.

Keywords: financial risk, risk management, bank takeover, compulsory takeover, Silicon Valley Bank crisis

1. Introduction

On March 10, 2023, Silicon Valley Bank (SVB), the 16th largest bank in the US, and a subsidiary of Silicon Valley Bank Financial Group(SVBFG), was closed by the California Department of Financial Protection and Innovation (CDFPI). The Silicon Valley Bank crisis spread rapidly to Europe. Dynamic Conditional Correlations (DCCs) between the bank stock returns of the United States, France, Germany, Italy, and the United Kingdom surged significantly during the week starting March 6, 2023—when Silicon Valley Bank collapsed [1]. Hence in the two years since the Silicon Valley Bank crisis occurred, numerous experts have investigated the reasons behind it, and the issues of the SVBFG as well as the Federal Reserve Oversight. Moreover, specialists worldwide also researched the enlightenment for their own nation's banks, corporations and financial institutions. Against the backdrop of China's financial sector opening-up, the prevention and control of homogeneous risk is imperative given that there are also some inefficiencies for the banking supervision of Chinese financial institutions, "although China's overall banking supervision system is well-established. By analyzing the Silicon Valley Bank crisis, the theoretical framework for financial risk management and banking regulation has been enriched, particularly in the areas of fintech applications and international collaborative governance.

2. Related concept

2.1. Basel Accord

The Basel Accords, also known as the Basel Committee on Banking Supervision Agreements, are a set of international banking supervision standards formulated by the Basel Committee under the Bank for International Settlements (BIS). The purpose of these agreements is to enhance the stability of the banking industry, reduce the occurrence of financial crises, protect the interests of depositors, and maintain the security and stability of the global financial system. The BCBS released the new Basel Capital Accord (commonly referred to as Basel II) in 2004 to address major shortcomings of the 1988 Basel Accord (Basel I), thereby promoting financial system stability. One of the central changes proposed by Basel II is the increased sensitivity of a bank's capital requirement to the risk of its assets: the amount of capital that a bank has to hold is to be directly connected to the riskiness of its underlying assets [2].

2.2. Interest rate mechanism

In managing its assets and liabilities in light of uncertainties in cash flows, cost of funds and return on investments, a bank must determine its optimal trade-off between risk, return and liquidity. The multiperiod stochastic linear programming model (ALM) includes the essential institutional, legal, financial, and bank-related policy considerations, and their uncertainties, yet it is computationally tractable for realistically sized problems. A version of the model was developed for the Vancouver City Savings Credit Union for a 5-year planning period. The results indicate that ALM is theoretically and operationally superior to a corresponding deterministic linear programming model, and that the effort required for the implementation of ALM, and its computational requirements, are comparable to those of the deterministic model. Moreover, the qualitative and quantitative characteristics of the solutions are sensitive to the model's stochastic elements, such as the asymmetry of cash flow distributions [3]. Asset-liability management (ALM) is a comprehensive risk management approach that addresses market risks and credit risks to achieve the operational risk management objectives of financial institutions, covering multiple dimensions including operational risks.

2.3. Modern Portfolio Theory

Modern Portfolio Theory (MPT) is a foundational framework in finance that revolutionized how investors approach risk and return in portfolio construction. Developed by economist Harry Markowitz in 1952 (for which he later won the Nobel Prize in Economics), MPT argues that investors can optimize their portfolios by strategically diversifying assets, balancing risk and expected return. A key insight of MPT is that portfolio risk depends not only on the individual risks of its assets but also on the correlations between those assets. MPT transformed finance by popularizing diversification and quantitative portfolio management. It laid the groundwork for later theories like the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) [4].

3. An analysis of the causes of the Silicon Valley Bank crisis

3.1. Federal reserve oversight assessment

Federal Reserve oversight of supervised firms involves the Federal Reserve Board and the 12 Reserve Banks. The Board establishes the regulations to which banks are subject and designs the programs used to supervise firms. The Federal Reserve oversight of SVBFG proved inadequate for the well-documented and significant vulnerabilities and managerial weaknesses at SVBFG. Records show that Federal Reserve oversight identified some material issues but overlooked critical ones [5]. The Federal Reserve failed to recognize the severity of key flows specifically corporate management, liquidity, interest rate management and other aspects. As its scale continued to grow in 2021, Silicon Valley Bank faced higher regulatory requirements. However, the Federal Reserve was reluctant to quickly apply high standards supervision to small banks. After an initial assessment, despite fundamental flaws in Silicon Valley Bank's risk management and increasing evidence that the situation is deteriorating, the liquidity rating remains 'satisfactory' [6].

3.2. Regulatory Capture and the exemption of liquidity requirements

Regulatory Capture believed that regulatory authorities may be dominated by the regulated industries or interest groups, thereby leading to regulatory policies biased toward the interests of the regulated. The fact that small and medium-sized banks can obtain exemptions through lobbying is driven by complex mechanisms and multiple factors.

According to Stigler.G. j's view, some regulatory agencies are easily controlled or captured by their targets for the following reasons: the targets often benefit from market entry regulation and are limited in number. They are easy to organize to influence and control the regulatory agencies. The cost of lobbying is always less than the benefit from the regulation. Additionally, regulation is typically a highly technical and professional task: regulatory officials and personnel in regulated industries often have similar levels of expertise, may even come from the same academic circles, and maintain close professional connections.

3.3. Issues for consideration and reasons for bankruptcy

The primary direct cause of SVB's bankruptcy was a severe asset-liability maturity mismatch: the bank relied on short-term deposits to fund long-term bond investments. During the COVID-19 pandemic, the quantitative easing policy of the Federal Reserve led to abundant market liquidity. After obtaining a large amount of financing, start-up technology enterprises deposited a large amount of surplus funds in Silicon Valley Bank in the form of short-term deposits. In order to increase use of assets, SVB used the deposits to purchase U.S. Treasury Securities and Mortgage-Backed Security(MBS) with an interest rate of

approximately 1%. These assets have a relatively long duration, while most of its deposits are current deposit, resulting in a situation of "short-term debt for long-term investment". When the Federal Reserve raises interest rates causing changes in the market environment, this mismatch puts banks in a difficult position in liquidity management.

SVB also faced concentrated deposit risks, including customer concentration, industry concentration, and regional concentration. The customer base of SVB focuses on science and technology innovation enterprises; the clients of SVB constituted 50% of the technology and biotech companies that American venture capital institutions invested in. What's more, 44% of the public companies in the technology and medicine care sectors that were invested in by venture capital institutions were SVB's clients. This customer structure makes the sources of its deposits and the withdrawal behavior of depositors special. In addition, the customer structure of a single industry has also improved the loan concentration of SVB. The proportion of loans that were invested in venture capital institutions and technology-innovative industries was around 80%. Therefore, once the technology industry experiences fluctuations, the risks faced by banks will be exposed in a concentrated manner. Specifically, the U.S. technology innovation cycle experienced a pullback in the second half of 2022, leading to a reduction in the new capital flow of Silicon Valley Bank, making it difficult to fill the gap caused by the book loss of assets.

The root cause of SVB's crisis was regulatory arbitrage. By taking advantage of loopholes in regulatory rules and differences in accounting treatment, it systematically circumvented core regulatory requirements such as liquidity and capital adequacy ratio, ultimately leading to the loss of control of risks. Banks with assets of less than 250 billion US dollars are classified as Category 4 banks and are exempted from the two core liquidity regulatory indicators of Basel III, namely the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR) [7]. Silicon Valley Bank's assets at the end of 2022 were approximately 212 billion US dollars, which falls within the exemption range. The loopholes in the regulatory tiered system enabled Silicon Valley Bank to conceal its true liquidity risks. For instance, its actual liquidity risks. For example, its 2022 liquidity rating was still "strong", but during the bank run, it lost over $42 billion in deposits within 48 hours, depleting its cash reserves.

4. Lessons for the supervision of China's financial institution

4.1. Current situation for the supervision of China's financial institutions

China has established a national financial regulatory administration that integrates the responsibilities of the former China Banking and Insurance Regulatory Commission and is uniformly responsible for the supervision of the financial industry except for the securities industry since 2023. With comprehensive upgrades in regulatory functions and risk prevention and control mechanisms, China's financial supervision system provides solid support for high-quality economic development and lays the foundation for building a more resilient modern financial regulatory framework.

4.2. Enlightenment

China's current financial institution has improved significantly, whereas there are still some enlightenments. First, it is necessary to continue improving the financial regulatory mechanism and empower supervision with technology—including enhancing coordination between functional supervision and institutional supervision and strengthening the "early risk warning-rule response" mechanism. What's more, it is also crucial to use technology to help establish an intelligent risk monitoring system, which is the key to solving the problems of insufficient regulatory resources and information asymmetry. For instance, dynamic liquidity coverage ratio (LCR) assessment technology addresses the limitations of traditional static LCR assessment, such as "information lag" and "one-size-fits-all" approaches. The dynamic LCR assessment technology can access the capital trading system to obtain core indicators, and the LCR value is automatically updated and the risk threshold is set, thereby improving the efficiency of liquidity risk supervision for financial institutions. Apart from that, blockchain technology provides a trusted data sharing and coordination framework for cross-border supervision, solves the problems of 'low data credibility' and 'difficult supervision coordination' in cross-border supervision, reducing the waste of regulatory resources and improving supervision efficiency.

In addition, strengthening the current system by including medium-sized banks in the dynamic assessment of the liquidity coverage ratio is also essential. Medium-sized banks are the main force in serving regional economies and small and medium-sized enterprises, but their liquidity risks are characterized by "strong infectivity and high handling difficulty". Dynamic LCR (Liquidity Coverage Ratio) aligns with countercyclical adjustment by flexibly adjusting liquidity buffers across economic cycles. During economic booms, when credit expansion and risk-taking behavior intensify, regulators may require medium-sized banks to raise dynamic LCR thresholds. This forces banks to accumulate more liquidity buffers, curbing excessive credit expansion and preventing the buildup of hidden liquidity risks. In economic recessions, as market confidence declines and liquidity tensions emerge, regulators can lower dynamic LCR requirements. Medium-sized banks can then release pre-accumulated liquidity buffers to meet increased funding demands (e.g., supporting regional SMEs' financing needs) and ease liquidity pressures. This countercyclical adjustment of dynamic LCR helps smooth economic cycle fluctuations, reduces the probability of liquidity crises

triggering systemic risks, and maintains the stability of the financial system. Incorporating it into the dynamic LCR assessment can not only force banks to optimize their asset-liability structure, but also enhance regulatory flexibility through dynamic adjustments. This system design not only absorbs the lessons of Silicon Valley Bank's loss of control due to the exemption of liquidity regulation, but is also based on the differentiated characteristics of medium-sized banks in China.

Furthermore, international collaborative governance should be promoted given that in the context of deepening financial globalization, financial risks in a single country can easily spread to global crises through cross-border capital flows and transnational financial institutions (such as the global shortage of dollar liquidity caused by the bankruptcy of Silicon Valley banks). International collaborative governance does not weaken a country's regulatory sovereignty; instead, it reduces frictions through rule alignment, enhances efficiency through collaborative monitoring, and lowers costs through joint risk prevention.

5. Conclusion

This article starts from the issues behind Silicon Valley Bank's bankruptcy, analyzing the deficiencies in SVB's internal risk management and summarizing the multi-dimensional, interrelated causes that ultimately led to the bank's collapse. After analysis, the essay points out that the direct reasons are severe asset-liability and maturity mismatch, in addition to the root cause —regulatory arbitrage. On this basis, the article further links these findings to the current development status and supervision reality of China's financial institutions—considering the characteristics of China's banking industry, such as the large scale of commercial banks, the diversity of asset portfolios, and the continuous deepening of financial marketization—and explores the multiple valuable enlightenments that SVB's bankruptcy can offer for optimizing China's financial supervision system. China's financial supervision system needs to continue to improve the financial regulatory mechanism and empower regulation with technology, refine the regulatory system by incorporating medium-sized banks into the dynamic assessment of the Liquidity Coverage Ratio, and promote international collaborative governance.

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