Proceedings of the 7th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/42/20232106

Banking Risk Assessment During the COVID-19 Crisis

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Abstract: The COVID-19 outbreak has had a profound impact on the global banking industry and poses a variety of risks. Through an analysis of the global banking industry, this paper examines in detail the impact of COVID-19 on liquidity risk, credit risk, market risk, and systemic risk. The study finds that liquidity risk is mainly related to the recent Fed's interest rate hike, which, overlaid with the impact of the epidemic on the economy, has exacerbated banks' liquidity risk. Credit risk is mainly related to the increase in non-performing loan ratio and banks' credit management while studying Credit Suisse which plunged due to credit management. Market risk is mainly reflected in changes in interest rates and stock market volatility, which in turn contributed to a series of large bank losses and the bankruptcy of Silicon Valley Bank. Factors such as climate change and the development of digital currencies pose the systemic risk to banks, and the role of Basel III in insulating banks against systemic risk is significant. Based on these findings, the authors recommend that governments and regulators should take steps to address these risks and provide additional policy support.

Keywords: banking sector, COVID-19 crisis, risk management

1. Introduction

The outbreak of Coronavirus Disease 2019 (COVID-19) in 2020 has had a major impact worldwide. In addition to posing a serious threat to human lives, the pandemic also poses various risks and threats to the banking industry. As the world economy enters a downturn cycle, the banking industry, as one of the major players in the financial sector, will also need to face the uncertainties and challenges posed by the pandemic.

On the bank side, due to the macroeconomic development hindered, banks' business becomes difficult to carry out, and investment products also face great volatility. Bank solvency may be at risk if non-performing loans and capital buffers are handled more laxly during the pandemic [1]. Banks are vulnerable during economic downturns because nonperforming loans are more likely to occur and bank runs could happen in the worst-case scenarios [2]. Some products associated with the stock market or other riskier investment markets may be exposed to large price fluctuations, resulting in losses to clients' investments. For depositors, the tightening economic situation has lowered expectations for future economic development. The massive wave of unemployment and business closures has led to the development of risk-averse investment preferences by both companies and individuals, who are reluctant to engage in highly leveraged investment activities. The recent spate of bank financial collapses has also led to pessimism about the banking industry's

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growth prospects and risk management. The public began to take out deposits from banks in large numbers in favor of lower-risk investments such as Treasury investments, which increased banks' liquidity risk.

In response to the impact of the post-epidemic era on economic development, starting in March 2022, the Federal Reserve began a policy of continuous interest rate increases, which, however, posed significant systemic risks to the banking sector. One of the causes of the series of bank failures described earlier was the Fed's ten consecutive interest rate hikes. The successive takeovers of Silicon Valley Bank, Signature Bank, and First Republic Bank heightened concerns about systemic risk in banking. Commercial banks and regulators should begin to develop policies to address this before a chain reaction occurs and leads to a financial crisis similar to the one in 2008.

2. Liquidity Risk

Lower market liquidity has resulted from the pandemic's impact on the financial markets and decreased economic activity. The ability of commercial banks to operate and provide loans may be hampered if they have trouble satisfying their liquidity needs. As the U.S. chose to over-issue money in order to promote national consumption and boost the economy during the peak of the global epidemic, the inflation rate remained high. Later, the Federal Reserve made ten consecutive increases in benchmark interest rates since March 2022 to curb the high inflation rate, leading to the emergence of liquidity risks in the banking sector.

Banks' borrowing costs, including mortgage interest rates and other loan costs, rise in response to an increase in the federal funds rate [3]. Fewer people are looking for loans as a result of the higher cost of borrowing, which affects the profit of banks. Meanwhile, the ability of individuals and businesses to repay loans is already declining due to the world recession caused by COVID-19, and the increase in lending rates worsened the rate of non-performing loans, leading to higher funding costs for banks and affecting liquidity. The bank's liquidity risk will be also reflected in its deposit business. The cost of holding cash and depositing with banks increases, and individuals and businesses are more willing to put their money into investments that yield higher returns (e.g., bonds) because banks tend not to immediately pass on to depositors the increase in the cost of funds due to higher prime rates in order to secure their own profits. Deposits leaving banks reduce the amount of money that banks may lend, which causes a gradual decrease in liquidity [3].

As the Federal Reserve raises interest rates, central banks are beginning to take steps to address liquidity risks. For example, they ensure that banks have sufficient liquidity by injecting funds into the market or by reducing the interest rate at which banks borrow from the central bank. Financial regulators also increased supervision of the banking sector during the outbreak to ensure that banks had sufficient short-term liquidity to withstand liquidity risks. Banks also strengthened their liquidity risk management. A study showed that banks with higher levels of corporate social responsibility (CSR) exhibit lower liquidity risk exposures [4]. This is mainly due to the fact that increased CSR enhances public trust and confidence in banks [4]. That is why more and more banks have started to report their ESG development goals on their annual reports during the pandemic. During the epidemic, many banks stepped up their scrutiny of loan applications to reduce the risk of loan defaults. Banks also provided assistance to lenders, such as offering grace periods for loans. Such initiatives protect liquidity by reducing banks' own profits.

However, if banks do not effectively manage their liquidity, it is likely to have serious consequences. The most typical instance of a liquidity risk explosion occurred on March 10, 2023, when Silicon Valley Bank filed for bankruptcy in just two days as a result of a collapse in short-term liquidity. Silicon Valley Bank's asset structure made it less resilient to liquidity risk. When interest rates were very low in 2021, the bank increased its debt securities investments, which made for 60.07 percent of total assets [5]. Combined with the impact of this rate hike and a number

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of factors contributed to the rapid collapse of Silicon Valley Bank. The collapse of Silicon Valley Bank caused a series of panic and increased public concern about bank liquidity risk. The Federal Reserve's interest rate hike policy was also affected as a result. Liquidity risk in the banking sector remains and could lead to systemic risk if regulators and commercial banks make the wrong decisions.

3. Credit Risk

As previously mentioned, the risk of default on loans and other credit products is higher as businesses and individuals face financial difficulties due to the epidemic. Commercial banks may see an increase in non-performing loans (NPLs) and delinquent loans, which could lead to significant losses. In addition to the impact of COVID-19, the world economy has hit a bottleneck and come into a downward cycle. Consequently, this combination of pandemic-related financial stress and general economic slowdown has synergistically amplified the overall credit risk, creating an unprecedented challenge for financial institutions worldwide.

Elevated credit risk has not been consistent across all industries. Certain industries, such as food distribution, have shown resilience and even find themselves struggling to cope with increased demand [6]. Conversely, industries like travel, transportation, tourism, and hospitality have been severely challenged, leading to elevated credit risk in these sectors [6]. This requires banks to take a more granular approach to risk assessment so that they can minimize the credit risk they face. In response to the crisis brought about by the epidemic, the government and banks set out to counteract the credit risk it posed. Governments have taken steps to ease repayment pressure by offering incentives to individuals or companies who take out loans. Banks themselves have also set out to resist credit risk. By increasing non-interest income, banks will have a stronger ability to withstand credit risk [7]. From the first year of the epidemic, banks in many countries reduced the number of credit applications approved and lowered overdraft limits for customers [8]. This helped to reduce the rate of non-performing loans and reduce credit risk. In addition, given the requirements of Basel III, banks in many regions have also maintained good capital quality and liquidity, which has significantly reduced their exposure to credit and liquidity risk

The impact of COVID-19 on the world economy was much greater than the global financial crisis of 2008. The importance of credit management is increasing. The model of credit risk during the epidemic, proposed by Sean et al. has become an effective tool for credit risk management [9]. However, there are some banks that have experienced problems with credit risk management. The most typical example was the recent credit collapse of Credit Suisse. Although the seeds of Credit Suisse's current situation were planted a decade ago, several events since the epidemic have exacerbated Credit Suisse's credit collapse. Credit Suisse Bank has had a series of scandals since COVID-19. It has seen huge losses in a series of highly leveraged speculative trades. The most far-reaching and costly of these was the blow-up of hedge fund Archegos Capital Management in 2021. The fund's highly leveraged stock market investments suffered a big drop due to the epidemic, leading to huge losses for financial firms, including Credit Suisse. Credit Suisse was the biggest victim of this, with losses in excess of billions of Swiss francs.

On June 12, 2023, UBS announced its acquisition of Credit Suisse, declaring the official completion of the largest bank merger since the 2008 financial crisis [10]. Despite the Swiss government's efforts to rescue Credit Suisse from the negative impact, the market's confidence in the banking sector is declining. The government's rescue operation is only an emergency measure, the real solution is that banks should start to improve their credit risk management capabilities. By making the right decisions and structuring their assets well, the banks can rebuild the public's trust in the banking sector and reduce the negative impact associated with the 2023 blow-up of Silicon Valley Bank and Credit Suisse.

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4. Market Risk

In the early days of COVID-19, the world economy was severely damaged. Central bank interest rate cuts led to a decline in both bank lending and deposit rates, directly affecting banks' net interest margin, which is the difference between interest on loans and interest on deposits. Influenced by COVID-19, on top of the decline in lending rates, the demand for loans is also declining, resulting in the impact on banks' main source of income. In addition to the direct impact on banks' income caused by the drop-in loan rates, the impact of deposit business on banks cannot be ignored. The public's uncertainty about future economic developments has caused precautionary deposits to begin to rise considerably [11]. Between January 2020 and October 2020, demand deposits have increased from approximately $160 billion to $270 billion in the United States and from approximately €900 billion to €1,100 billion in the Eurozone [11]. Although deposit rates are decreasing, the soaring total deposits have increased banks' interest expenses, making their net interest margin smaller. The positive initiatives of some banks significantly supported the stability and even growth of their net interest margin during the epidemic, enhancing the ability of these banks to withstand interest rate risk.

In the three years since the COVID-19 outbreak, exchange rate risk has been gradually increasing. The global economy and markets are filled with great uncertainty and the degree of exchange rate volatility of various currencies is increasing as countries are not in sync regarding the control of the pandemic. For example, China took the lead in controlling the spread of the outbreak in 2020, and the exchange rate of the Chinese yuan saw an increase of about 6% from May to July [12]. The significant volatility in exchange rates has increased market instability and raised banks' foreign exchange asset risk and foreign exchange transaction risk.

The interest rate environment has a significant impact on banks. Despite the apparent differences in the reasons of the Credit Suisse and Silicon Valley Bank crashes, the underlying logic of both occurrences is quite tightly tied to the current interest rate environment and interest rate increases over the past two years. Take Silicon Valley Bank for example, there are many reasons for the bank's failure. As mentioned earlier, the poor ability of this bank's asset structure to withstand liquidity risk may be caused by bad decisions made by this bank's executives. In addition, the bank's deposits came mainly from various technology companies located in Silicon Valley, increasing the risk of a bank run [13]. The bank's series of asset sales prior to its bankruptcy also exacerbated an already existing public mistrust. However, the above factors were not enough to make Silicon Valley Bank have a flash crash in two days. The core reason for Silicon Valley Bank's bankruptcy was the exposure to the financial risk caused by the rapid rise in the short-end interest rates on U.S. debt following the Fed's rate hike.

In addition, COVID-19 has led to global stock markets exhibiting high volatility. Global equity markets fluctuated significantly and so did the value of banks' portfolios. Beginning in March 2020, the U.S. stock market experienced a historic four consecutive meltdowns, with losses of over a trillion dollars across the stock market. Many banks suffered significant losses in their portfolios. Banks such as JPMorgan Chase, Goldman Sachs, and Wells Fargo lost billions of dollars in their portfolios. The aforementioned Archegos Capital Management was a group of banks, including Credit Suisse, that suffered significant losses as a result of the large volatility in the stock market that led to the blowout, coupled with its own use of high leverage.

5. Systemic Risk

Liquidity risk, credit risk or market risk should be taken seriously by banks and supervisors to prevent it from evolving into systemic risk and triggering a financial crisis similar to the one in 2008. A 2021 report by the International Monetary Fund points to emerging risks from climate

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change, risks in areas such as financial technology and cybersecurity as factors that could trigger systemic risk [14]. Climate warming is a global issue. In recent years, extreme weather has emerged. three consecutive years of La Niña from 2020 to 2022 have had a significant impact on people's productive activities. This adds to the pressure on food, energy, water, etc., and many businesses and industries, including banks, could be at great risk [14]. The development of digital currencies has also posed some systemic risk to the banking industry. Digital currencies like Ethereum are difficult to regulate due to their inherent characteristics. If digital currencies are hacked, it could lead to serious losses, which could trigger market panic and lead to systemic risk [14].

Geopolitical risks and high inflation also continue to affect the world economy and pose systemic risks since 2022 [15]. The failures of Silicon Valley Bank and Credit Suisse are both challenges posed by the tight monetary and financial environment and the accumulation of vulnerabilities since the global financial crisis, as well as the challenges facing the global financial system [15]. Concerns are emerging that this series of events may not be an accident caused by bad decisions by some banks, but rather a larger vulnerability in the financial system. These events are also reminding banks that money can disappear quickly, and that events at even small banks can cause a widespread loss of confidence in the market and spread quickly throughout the financial system [15]. How to prevent the continued expansion of systemic risk, revive public and banking confidence, and prevent a "domino effect" has become a key concern for regulators in the post-epidemic era.

During the epidemic, the promotion of Basel III greatly increased the resilience of banks. Basel III introduced regulatory requirements such as leverage ratio, liquidity coverage ratio, net stable funding ratio, and systemic risk. Its core requirement is that banks should improve their capital quality and capital adequacy ratios. During COVID-19, the capital adequacy ratio became a more important indicator. Increasing the capital adequacy ratio can increase the resilience of the banking system and help banks better cope with the crisis [16]. The aforementioned Silicon Valley Bank was not properly implementing Basel III requirements, which led it to encounter higher liquidity risk. Since the implementation of Basel III, large international banks, particularly global systemically important banks, have achieved significant increases in core tier 1 capital and capital adequacy ratios. Banks with high regulatory capital ratios are more resilient and resilient and better positioned to continue to provide solid lending support to the real economy [17].

It is worth mentioning that while Basel III has made an outstanding contribution to systemic risk reduction during the epidemic, it is not suitable for all banks. In countries with faster economic growth, Basel III's strict regulatory rules could instead affect the lending business of banks located in these countries, where lending growth outpaced capital adequacy growth. For most banks, however, Basel III has had a positive effect.

6. Conclusion

This paper examines four types of risks posed by COVID-19 to the global banking industry, including liquidity risk, credit risk, market risk, and systemic risk. The study finds that all of the above risks have increased in varying degrees during COVID-19 and caused certain consequences. In terms of liquidity risk, due to the impact of COVID-19 on economic expectations and the rapid rate hikes by the Federal Reserve since 2022, individuals and businesses began to take out large amounts of deposits, and demand for bank liquidity increased. The elevated credit risk is mainly attributed to the recession and uncertainty due to COVID-19. The paper analyzes the causes of the Credit Suisse blow-up and the need for credit management. Market risk is mainly reflected in the changes in interest rates and high market volatility during the epidemic. The article points out that market instability exposes financial risks and analyzes in detail the reasons why Silicon Valley banks failed to make decisions and went bankrupt during market volatility. The article also

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examines the factors that can lead to systemic risk and examines the role and effects of Basel III during the epidemic. It suggests that banking regulators should increase the supervision of financial risks including the four types of risks mentioned in the article to minimize the impact of liquidity risk, credit risk, and market risk on the banking sector. More importantly, the banking industry should accelerate the implementation of Basel III in order to prevent systemic risks for banks. Overall, it is believed that commercial banks need to pay close attention to these risks and implement mitigation measures to ensure their stability and continuity of operations during the pandemic.

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