

Risk Assessment of the Banking Industry under the COVID-19 Crisis

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Abstract: This paper shows that increased bank asset liquidity does not necessarily reduce risk-taking. The help provided by the government in the epidemic crisis has also been provided after the damage occurred. On the other hand, the merger of banks is not a good thing for low-risk banks. Regulators should conduct frequent financial reports on banks to ensure that the risk of sudden default due to weak supervision is reduced. Foreign exchange risk management is especially important for banks involved in cross-border transactions and foreign exchange business. Reasonable control of the market exchange rate prohibits the impact of the foreign exchange black market on the market. The COVID-19 epidemic has led to fluctuations and instability in global exchange rates and the banking industry. For the foreign exchange transaction risks caused by exchange rate fluctuations, banks usually need various foreign exchange derivatives instruments to ensure that foreign exchange risks are effectively managed.

Keywords: systemic risk, banking industry, risk assessment

1. Introduction

The 2008 financial crisis was one of the worst financial crises since the Great Depression in 1929. The outbreak of the crisis originated from the bursting of the bubble in the US real estate market. In addition, many financial institutions related and transmitted risks through complex financial derivatives and leveraged transactions, which led to the contagion effect of systemic risks and further amplified the scale of the crisis. To prevent the collapse of the financial system, many governments and central banks have adopted emergency rescue measures, including capital injection, bank mergers, and nationalization, etc., to avoid the chain reaction caused by the collapse and cause more serious harm to society. This situation is called "too big to fail".

The 2022 year's laureates in the Economic Sciences, Ben Bernanke, Douglas Diamond, and Philip Dybvig, have different understandings of the definition of banking in the financial industry, especially during the financial crisis. An important finding in their research is why avoiding bank collapses is vital. As a core component of the financial system, modern banks are responsible for the storage, financing, and credit allocation of funds. How to reduce the greater impact of bank failures on the financial crisis and the impact of the crisis on the bank's capital chain need to be focused on. In the current situation where regulatory agencies and policies are perfect, there will still be bank runs.

In addition to excessive leverage, the panic caused by people's mistrust is also one of the fuses of the crisis.

The U.S. banking system played an important role in financial intermediation and credit distribution during the financial crisis. This has led to the strengthening of financial regulatory policies and compliance requirements to supervise and review banks, requiring banks to strengthen requirements for risk management, internal control, capital adequacy, and liquidity management. Banks need to address more stringent compliance policies and procedures to ensure compliant operations. Nowadays, The COVID-19 crisis has similarly weighed on banks' profitability and financial positions. It has affected the business model and digital transformation of banks. With the implementation of epidemic prevention and control measures, many banks closed their branches and accelerated the development and promotion of digital channels to meet customers' needs for online banking and digital financial services. This poses challenges to the business model and profit model of traditional physical banks. The purpose of this paper is to analyze the risk management of banks in normal times, during the financial crisis, and during the COVID-19 period. The increase and decrease of bank liquidity and the risk framework are compared. Under what circumstances will increase the probability of bank default and whether financial regulators play an important role in bank risk management? The existing literature is analyzed and compared to study the possibility of bank risk increase under different behaviors.

2. Liquidity Risk

As an important aspect of management, bank liquidity is the focus of financial supervision. Effective management plays a key role in the operation of banks and the stability of financial markets. The emergence of the Basel Accord has strengthened risk management and regulatory monitoring to ensure the adequacy of bank capital. In the face of economic crisis and market chaos, sufficient capital reserves can guarantee a certain buffer effect, enabling banks to fulfill their payment obligations and avoid insolvency. The increase in the liquidity of bank funds can ensure the reduction of liquidity risk, and the bank is in a relatively stable environment. But the paradox is that increased liquidity leads to lower costs for banks in a crisis, and thus additional capacity to take on new lending risks. These risks and the positive impact of increased liquidity outweigh each other [1]. In addition, excessive liquidity does not comply with the relevant regulations of the regulatory agency. Additional assets are underutilized, negatively impacting the bank's return on capital.

While low bank liquidity does not comply with the Basel Accord, banks themselves need to bear more risks. When a crisis emerges, low-deposit banks may face the risk of a run. Silicon Valley Bank of the United States has many deposits in 2021, so it has invested a large amount of U.S. Treasury bonds. However, in 2023, to curb inflation, the Federal Reserve adopted a policy of raising interest rates to raise interest rates, causing the prices of bonds held by Silicon Valley Bank to continue to decline. On March 8, Silicon Valley Bank announced that it would raise \$2.25 billion in funds to cover its bond investment losses. The announcement of the news led to a crisis of market confidence, and the bank was run on, and customers withdrew their deposits one after another. SVB declared bankruptcy 48 hours later. The behavior of excessive use of liquidity also leads to the insufficient cost of risk-taking in the event of a crisis. The view is that avoiding short-term financing improves asset quality, and effective monitoring and risk-taking discipline can prevent banks from aggressive behavior during the financial crisis [2].

Due to the cultural issues of Islamic teachings, there are some differences in the design of liquidity risk policy framework between Islamic banks and traditional banks in Malaysia. To ensure compliance with Islamic principles and avoid high-interest rates, bank financing options and customers jointly invest and take risks. And Islamic banks have their own separate regulatory mechanisms and standards. A study on the financing structure of Islamic banks and traditional banks

shows that in terms of real estate financing, financing concentration only affects the liquidity risk of traditional banks, but the long-term financing structure will affect the long-term stability of Islamic banks [3]. It may be because traditional banks rely on market funds and central bank financing tools, while Islamic banks are limited by funds and have the principle of risk sharing, thus reducing the occurrence of liquidity risks to a certain extent. When a financial crisis occurs, Islamic banks are more likely to be exposed to the risks associated with investing in the real assets of the cause. And traditional banks can reduce damage in a crisis through the discount window and central bank liquidity, although at a higher-than-normal rate of funding cost.

The stability and performance of banks were clearly negatively affected in the early days of the COVID-19 outbreak. The popular technology boom in response to the requirements of the home office environment has allowed related banks, such as Silicon Valley Bank, which leverages technology start-up financing, to receive a lot of deposits during the epidemic, ensuring that the negative impact of liquidity risks is reduced. However, other industry-related banks are not so lucky, and their performance has been damaged to a certain extent. During the financial crisis, the liquidity pressure on banks came more from the market's credit crunch and tight funds. In contrast, during the epidemic, liquidity mainly came from the decline of the real economy and the increase in demand for repayment default funds. While central banks provided liquidity support during both events, it was more damaging to banks during economic crises. Mainly because the liquidity provided through the discount window is to seek government help when there is no other way after suffering the cost of risk. So, while the government has provided support, the damage has already been done [4]. In contrast, the government's support during the epidemic was more proactive and the policies were different.

3. Credit Risk

Credit risk arises when the borrower or issuer fails to perform its debt or debt instrument payment of interest or principal in accordance with the time and method agreed in the contract. Banks respond to frequently changing risks by adjusting their investment portfolios, reducing risks while ensuring maximum investment returns. Fiordelisi & Marqués-Ibañez argues a quantitative study on the risk appetite of the newly established ASEAN countries' regional economies in 2022, using 202 banks from different countries as samples [5]. The results show that lower risk appetite ratios lead to banks taking more risks and greatly increasing the probability of default during the outbreak. Although the reduction of risky assets reduces the probability of default, the overall portfolio is stable, but the low return may not meet the bank's profit expectations, resulting in insufficient funds for contract repayment in the later period. During the epidemic, the deterioration of the economic environment, the continuous decline of the real economy in various industries, and the lack of trust in the banking economy by customers will reduce investment, which will also lead to an increase in the probability of bank default.

In addition, the negligence of supervision and management leads to poor internal risk control, and the reduction of bank profitability and failure to perform contractual obligations in time is also one of the reasons for the breach of contract. A similar situation can be seen in the crisis of Credit Suisse Bank, Archegos Capital obtained huge loans through Credit Suisse and other US investment banks for highly leveraged investments, but the eventual default broke out and caused Credit Suisse to suffer huge losses. At the same time, the high-risk loans issued by Greensill Capital in the UK were packaged into bonds, and Credit Suisse invested in them through four supply chain funds established without risk monitoring, which eventually resulted in a default loss of US\$3 billion. The dismissal of the chief risk officer of Credit Suisse also showed the omission of supervision within Credit Suisse. Therefore, it is necessary for banks to moderately report quarterly or semi-annual financial

performance to regulators. Timely and frequent regulatory analysis can guarantee the occurrence of default probability to a certain extent.

Since the business of the banking industry is very similar, there are also related connections between different banks. The bankruptcy or default of a single bank has a certain impact on the entire financial industry. A study on the data of listed banks in Europe shows that the default or failure of listed banks will also lead to an increase in the risk of the entire European banking industry, which means that bank defaults are systematic [5]. If banks have close ties with other companies, such as Silicon Valley Bank, they often obtain equity in technology start-ups through loans. After bankruptcy, it is bound to cause the credit of related companies, which will have a negative impact on the entire financial industry and the stocks of some related technology companies. The systemic risks caused by the default of most listed public banks are often non-diversifiable. Therefore, after the acquisition of Credit Suisse, the US market was unstable, and the overall banking industry experienced a crisis of confidence.

After Credit Suisse was acquired by UBS, it also brought about a problem, whether the bank's credit risk will be reduced after the merger. The diversification of the industry business brought about by the integration of the merged business may reduce the investment risk of the bank and reduce the impact of a credit risk after a certain industry receives an economic shock. But the instability of management personnel at the beginning of the merger may also lead to operational chaos and increase credit risk. Through the research on the sample data of 134 investment banks in Europe, it is found that the merger of banks will not improve the risk status of the banks themselves. There is also no direct evidence of risk reduction resulting from business diversification brought about after the merger, but banks with low risk before the merger increased default risk after the transaction was completed. The data across the board suggests that European banks are at best showing neutral risk post-consolidation. Although the overall performance of bank mergers and acquisitions is negative. However, considering the social impact and the stability of the financial market, it is more reasonable to conduct acquisitions after bankruptcy or default.

4. Market Risk

4.1. Interest Rate Risk

The loose monetary policy typically leads to lower interest rates, which in turn increases borrowing and investment activity. During the 2008 economic crisis, various countries implemented non-standard policy measures of low or even negative interest rates to stimulate banks to borrow from other companies to promote currency circulation. However, when formulating an expansionary monetary policy, it is necessary to consider the impact of banks on the risk of borrowing objects. Excessive reduction of interest rates may cause banks to have insufficient funds to lend to customers with higher risks, thereby increasing the probability of risk [6]. A study based on Japanese bank loan data found that under the long-term low-interest rate policy, banks with less industry influence are more inclined to lend to companies with low credit risk and high risk [7]. While lowering interest rates, it is necessary to have supporting policies and measures to ensure stricter supervision, provide a better market lending environment to ensure that the probability of banks' risk-taking is reduced, and reduce lending to any unqualified companies. Another article pointed out that under the short-term interest rate cut policy, although the net interest margin of European bank samples decreased during 2011-2019, it did not affect ROA, and banks did not take more risks. Investment and retail banks also showed no difference in terms of risk and financial stability, although the net interest margins of retail banks fell more [8]. In addition, the concentration of the investment industry also showed differences under the interest rate cut policy. For banks that have been in a region of low interest rates for a long time, the insulation on capital generation is low. Therefore, they suffered a

greater market impact in the 2008 economic crisis, although some banks had sufficiently high liquidity before the crisis [9].

The recent Fed tightened monetary policy by raising interest rates due to persistent inflation. Although inflation has been effectively suppressed, at the same time, the long-term interest rate hike has also had a negative impact on the banking industry. Many banks held a large amount of government bonds, but the price of government bonds continued to fall during the period of interest rate hikes. The increase in costs also led to a tight supply of funds in the market, which eventually led to the default of many companies. Therefore, the impact on bank risk-taking behavior should be considered when formulating monetary policy. The long-term policy of raising or lowering interest rates has a direct or indirect negative impact on bank risk. In addition to considering the credit risk of loan failure, it is also necessary to consider whether the overall social depositor mentality is affected. While providing banks with certain market environments and institutional factors, monetary policy can be designed and implemented in a more transparent manner to effectively address the impact of risk-taking.

4.2. Exchange Rate Risk

As the foreign exchange market is an important part of international trade and investment, foreign currency transactions need to consider the fluctuation of exchange rates. Exchange rate fluctuations will bring certain risks to the bank's transactions, which will affect the bank's profitability and customer credit. Interbank foreign exchange transactions are mainly controlled and supervised by the central bank. But at the same time, there is also an independent foreign exchange market, which is also called a foreign exchange black market. Although it is banned, it is still affected by the black market for various banking institutions and regulatory agencies [10]. Prices are lower on the black market compared to official foreign exchange. However, the foreign exchange black market usually lacks supervision and transparency, and transaction participants may be involved in high-risk transaction activities, such as money laundering and unknown sources of funds. If a large amount of foreign exchange black market funds flood into the market, it may cause abnormal fluctuations in market prices, resulting in banks being unable to obtain exchange rate differences normally and affecting profitability. In addition, it may also affect the repayment ability of the lender, thereby increasing the difficulty of loan recovery.

During the COVID-19 period, countries around the world are facing financial constraints, and exchange rates fluctuate greatly under a series of monetary policy adjustments. Banks with foreign currency positions may face exchange losses or fluctuations in exchange gains. The reduction in liquidity will also cause banks to face increased default risks in their foreign exchange loan business, requiring increased provisions, which will have a negative impact on their capital and profitability. Therefore, banks need to use financial instruments such as forward contracts and options to offset potential losses caused by adverse exchange rate changes. For example, if a bank makes a cross-border investment in a foreign currency, it might use a forward contract to lock in a future exchange rate for converting the foreign currency back into its home currency. This protects banks from potential losses in the event of a financial crisis where the exchange rate moves unfavorably. On the other hand, banks with large cross-border portfolios may actively trade currencies in the foreign exchange market to offset potential losses from exchange rate fluctuations.

5. Conclusion

This article examines three main risks for banks. The results indicate that banks should be developing corresponding management strategies and processes. A separate management framework should be set for a special banking system, and more secure lending measures are needed during a crisis.

Strengthen regulatory measures during the crisis, avoid aggressive investment strategies, and reduce losses on high-risk customer loans. Regular financial reports help banks find problems in management and deal with them in a timely manner. In addition, banks should establish sound contingency plans and crisis management mechanisms to deal with insufficient funds during crises. Diversification should be achieved in business, avoiding too much concentration in a specific business or market, to diversify risks. Identify, measure, and monitor risks in a timely manner to help banks discover and deal with potential systemic risks early. Avoid a chain reaction of risky loans disguised as bonds that cause bank failures. Banks should strengthen the training of professionals in the foreign exchange market and cultivation of risk awareness and improve employees' understanding and management capabilities of foreign exchange risks, to better respond to fluctuations and changes in the foreign exchange market. And through the layout of the multi-currency business and decentralized asset allocation, the dependence on a single currency is reduced, thereby diversifying foreign exchange risks.

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