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ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

Managing and Reporting Liquidity Risks: Silicon Valley Bank Case

Likidite Risklerinin Yönetimi ve Raporlanması: Silikon Vadisi Bankası Örneği

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ABSTRACT

Liquidity problems are one of the most important causes of business failures. This risk can appear related to the funding structures and asset quality of the enterprises. In an enterprise operating in the banking sector, liquidity problems have the potential to contaminate the financial system and create social impacts, since funding is mainly composed of deposits. Therefore, liquidity risk in banking is among the risks that are closely monitored. The recent Silicon Valley Bank collapse offers important lessons for analyzing liquidity risks. In this study, the Silicon Valley Bank failure is analyzed as a case study. As changes in macroeconomic policies have an impact on the liquidity of the markets, it becomes important to monitor liquidity risks. In general, the liquidity risks in the banking system are followed with the ratios calculated over the scenarios, while the Silicon Valley Bank case in the USA showed that regulatory agencies do not use this monitoring mechanism for banks below a certain size. On the other hand, the weaknesses arising from financial reporting standards in reporting the asset quality, combined with this lack of monitoring, caused difficulties in monitoring liquidity risks for financial statement users. As a result, the demand for cash created by depositors in the banking sector caused the bankruptcy of Silicon Valley Bank. Lessons learned from this case can guide the active management of liquidity risks.

Keywords: Corporate Failures, Liquidity Risk, Liquidity Risk Management, Silicon Valley Bank
JEL Code: G34, M42, M41

ÖZ

Likidite sorunları, işletme başarısızlıklarının en önemli nedenlerindendir. Bu risk işletmelerin fonlama yapıları ve aktif kaliteleri ile ilişkili olarak ortaya çıkabilmektedir. Bankacılık sektöründe faaliyet gösteren bir işletmede, fonlamanın ağırlıklı olarak mevduattan oluşması nedeniyle likidite sorunlarının finansal sisteme bulaşma ve toplumsal etkiler yaratma potansiyeli mevcuttur. Bu nedenle bankacılıkta likidite riski yakından takip edilen riskler arasındadır. Yakın zamanda yaşanan Silikon Vadisi Bankası çöküşü, likidite risklerinin analizi açısından önemli dersler sunmaktadır. Bu çalışmada Silikon Vadisi Bankası başarısızlığı bir vaka analizi olarak ele alınmıştır. Makroekonomik politikalardaki değişiklikler piyasaların likiditesi üzerinde etki sahibi oldukça likidite risklerinin takibi önem kazanmaktadır. Genel olarak bankacılık sisteminde likidite riskleri senaryolar üzerinden hesaplanan oranlarla takip edilirken Silikon Vadisi Bankası vakası A.B.D. düzenleyici kuruluşlarının belirli bir büyüklüğün altındaki bankalar için bu takip mekanizmasını kullanmadığını göstermiştir. Diğer taraftan, aktif kalitesinin raporlanmasında finansal raporlama standartlarından kaynaklanan zafiyetler bu takip eksikliği ile birleşince finansal tablo kullanıcıları için likidite risklerinin takibinde güçlüklere sebep olmuştur. Neticede bankacılık sektöründe mevduat sahiplerinin yaratmış olduğu nakit talebi Silikon Vadisi Bankası'nın batışına neden olmuştur. Bu vakadan elde edilen dersler likidite risklerinin aktif bir şekilde yönetimi için yol gösterici olabilir.

Anahtar kelimeler: Kurumsal Çöküşler, Likidite Riski, Likidite Riski Yönetimi, Silikon Vadisi Bankası
JEL Kodu: G34, M42, M41

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1. Introduction

Among the causes of corporate failures, the most prominent one is the failure to manage liquidity properly, in other words, default due to the inability to meet obligations on time. Especially in periods of weakening economic activity, when companies have difficulty generating cash and their cash cycles are adversely affected, corporate collapses spread throughout the sector due to the contagion effect.

When it comes to a financial company, the issue of liquidity becomes even more important. This is due to the weight of liquid assets and liabilities of financial companies in their balance sheets. In the case of a bank, since deposits are the most important funding sources, liquidity risk has the possibility of turning into a problem of confidence in the financial system, including individual and institutional investors. Banks can support economic development to the extent that they transfer the collected deposits on trust from individual and institutional investors to value-creating areas of the economy. However, if there are problems in this funding-liability balance, the overall economic activity may also be adversely affected.

Potential liquidity problems that banks may experience also have social implications. Within the framework of the principle of protecting small investors, the so-called individual investors, insuring deposits and taking them under state guarantee is a common practice. It is natural that the inability to repay depositors their savings as a result of the deterioration in the liquidity of the banking system has social, economic and political consequences for countries.

When considered from these perspectives, liquidity risk in banks is a reputational issue with a high contagion effect that should be emphasized clearly by all stakeholders in the sector, and which may cause a loss of confidence not only in one or a few companies but also in the entire financial system in the event of a loss of confidence among depositors. Based on this fact, regulatory authorities try to maintain confidence in the system by introducing certain safeguards for deposits as well as regulations on banks' liquidity positions. The management of liquidity risk depends not only on preventing maturity mismatches but also on maintaining asset quality and ensuring the ability to access additional funding sources.

From all these points of view, the recent Silicon Valley Bank (SVB) bankruptcy is an important case that points to fundamental weaknesses in managing liquidity risk in banking institutions. In this case, it is useful to take a closer look at both how the economic conjuncture creates liquidity risks and what choices the bank made that led to its vulnerability to liquidity risk.

This study aims to explain the root causes and risk management weaknesses that led to the SVB collapse in 2023 through balance sheet risks. Accordingly, in the first section, the definitions of risks that are important in the SVB case and the generally accepted methods applied in managing these risks are presented. In the following section, interest rate risks, more broadly defined as market risks, are addressed by revealing asset quality problems that exacerbate liquidity risks. In addressing this issue, we also explain how asset quality has become less clear by applying current GAAP. The last section, in which the results of the study are shared, analyzes the case of SVB in light of this information and based on real data.

2. Conceptual Framework

In this part of the study, the conceptual framework on the liquidity risks of bank failure, which is the main reason for the research, is presented.

2.1. Liquidity Risk

Liquidity risk, which has become increasingly important due to the negative effects of the financial crisis in 2007-2008 and the emergence of the necessity of managing it effectively, is an extremely important concept in the banking sector (Jean-Loup, 2017; Zaghdoudi & Hâkimi, 2017). It is the risk that arises when banks are not able to cash out their existing assets at the price they predict. In other words, liquidity risk is the failure of banks to fulfill their obligations when requested. It is the concept of risk that occurs as a result of the inability of banks to convert these assets into cash at the time of need, even

if they have enough assets to fulfill the obligation at the time of demand (Diamond and Rajan, 2001, 288). There are many factors that expose banks to liquidity risk. These are (Zengin & Yüksel, 2016, 84):

Maturity Mismatch Between Assets and Liabilities: Maturity mismatch in the assets and liabilities of banks can be considered one of the main reasons for liquidity risk (Diamond, 1991, 710). The fact that the maturities of the passive side items in the balance sheet are shorter than those of the assets causes a liquidity deficit. In this case, the fact that there is a cash outflow means that there is no source to meet it. Because of this, the maturities of the collected deposits and the maturities of the loans do not coincide with the maturities of other transactions requiring funding, such as non-compatibility; this is also defined as a maturity mismatch (Babuşçu, 2005, 50).

To control the liquidity gap caused by maturity mismatch, a balance must be struck between loan maturities and maturities of foreign resources. Banks can provide control in line with their balance sheet size either through on or off-balance sheet methods. On-balance sheet methods are expressed as changes in the maturities of active and passive items or long-term changes in balance sheet sizes. The changes that can be made in active and passive are realized in two ways (Yenigün, 2016, 30):

1. Changes can be realized by recalling some of the receivables that are not due in the assets and creating new assets with shorter terms.

2. An increase in resources can be achieved by persuading the deposit customers in the source and converting them into longer-term transactions.

Off-balance sheet methods, on the other hand, aim to obtain new resources in the long term and to ensure continuity with these resources on the active side. This continuity can be ensured by buying and selling contracts made on the futures exchange. Through futures and options contracts, they try to eliminate or control the liquid deficits in their balance sheets with the positions they take (Babuşçu, 2005, 51).

Deterioration in Asset Quality: Non-repayment of loans given by banks is defined as deterioration of asset quality and is among the important reasons for liquidity risk (Diamond & Dybvig, 1983, 417). The lack of repayment of the items in the assets of the banks or the increases in delays in receivables may disrupt the liquid balance of the bank. If the refunds of these loans or similar receivables extended to the customers such as principal and interest are not realized on time, cash outflow occurs in the liability up to the amount not paid. This situation means that the bank necessarily creates liquid resources. As the non-performing receivables in banks increase, the banks' need for cash gradually increases and liquidity risk occurs (Şakar, 2002, 245).

Increases in Frozen Assets: Accounts from which banks do not expect income, such as subsidiary investments made to increase the company's value, fixed asset investments made to continue their activities or subsidiaries that are necessarily acquired due to the existence of non-performing receivables, are included in the frozen assets. The increase in the aforementioned non-performing assets adversely affects the liquidity position of the bank as well as the receivables. This situation causes liquidity risk to be carried (Babuşçu, 2005, 55).

Unexpected Resource Outflows: The fact that extraordinary economic or political events occurring in a country create mistrust in the financial markets and cause panic among the public also adversely affects trust in banks. This mistrust reveals the sudden cash outflows that are likely to be experienced by banks. The fact that banks that cannot foresee such situations and do not have enough cash in their reserves may cause liquidity risk in banks. Unexpected resource outflows occur in two ways (Uçar and Köksal, 2019,76). The first of these is the transfer of overnight or longer-term repos to other banks with the start of withdrawal of current and commercial deposits. This indicates a situation that reduces cash assets in short-term cash movements. The second is that due to the non-renewal of long-term resources such as term deposits and syndicated loans at the end of their maturities, the obligation to pay arises and accordingly liquidity crunch occurs (Yenigün, 2016, 33).

National and International Financial Crises: Financial crises, whether national or international, prepare the ground for negative expectations if they arise suddenly. This situation causes sudden cash outflows**.** The sectors most affected in this process are banks. In times of sudden crisis that adversely affect the economies of all countries, it is possible that the cash in the hands of banks passes into the hands of final consumers or investors and shifts to other financial assets (Şakar, 2002, 245). In addition, the ability of banks to borrow from both national and international sources is becoming more difficult. These events cause liquidity crunch and increase distrust in the banking system. Although this is not a situation that can be easily controlled, the fact that banks have a strong financial structure can help them overcome these crises more easily (Yenigün, 2016, 34).

Decreases in Profitability and Interest Collections: Decreases in profitability and interest collections are realized in two ways: recorded and cash. Registered decreases, although deserved, represent a decrease in periodic returns that have not yet been inflowed in cash. Cash decreases are the shortfalls in cash items (Şakar, 2002, 245). The deterioration of the maturity structure between assets and liabilities and changes in market conditions directly affects profitability and interest income (BDDK, 2014). While the maturity of assets is extended, the shortening of the maturity of liabilities causes interest payments to be made in cash and liquidity crunch. In case of an increase in uncollectible loans, risk occurs in the cash cycle. Rapid declines in interest rates determined in the market, in particular, reduce the profits of banks that borrow at long-term, fixed and high-interest rates and cannot reduce the cost of resources. Likewise, sudden and sharp movements in exchange rates have a reducing effect on profitability in banks that take adverse positions in foreign currencies and cause liquidity risk (Yenigün, 2016, 34-35). To protect against this risk caused by declines in profitability and interest collections, the maturity balance between assets and liabilities should be maintained and delayed receivables should be collected in a short time. If this risk cannot be prevented, banks are required to create new resources by increasing their paid-up capital or to provide capital-like loans. However, their liquidity increases with this situation (BDDK, 2014).

With the emergence of these reasons that pose liquidity risk for banks, it is inevitable that bad situations will arise for both banks and customers. An example of such a situation is the “bank run.” The bank run is the process by which a significant part of the customers of a bank or a financial institution withdraw their deposits simultaneously due to fears regarding the solvency of the bank or financial institution. When large numbers of customers withdraw their deposits, the probability of default rises and this may lead to more customers withdrawing their money. If this is excessive, banks may face with liquidity problems because their reserves may not be sufficient to manage these withdrawals. A bank run due to customers’ fear may actually drive a bank into bankruptcy. To minimize the risks associated with bank runs, banks maintain a minimum amount of cash reserves in bank vaults or in a central bank account (www.investopedia.com).

2.2. Measurement of Liquidity Risk and Measurement Techniques Used

Failure to effectively manage and monitor liquidity risk, which is very important for the stability of banks, causes banks to fail in a short time (Cihangir, 2005, 108). In 2007, Basel II regulations had an impact on the financial crisis. However, the recent crises show that Basel II criteria are not effective enough for liquidity risk.

The impact of the recent financial crises on global liquidity has been largely influenced by two main developments. The first of these is the increasing orientation of capital markets towards funding, and the second is the increasing dependence on short-term funding instruments. In addition, the use of off-balance sheet transactions that increase contingent liquidity obligations and the increase in the number of derivative transactions that create rating-based collateral coverage requirements are also among the important factors. It is inevitable that banks without effective liquidity practices will experience a rapid collapse in the event of a liquidity crunch. In such a situation, the Basel II criteria has little effect in preventing a liquidity crisis (Castagna & Fede, 2013: 15).

Recently, with the increase in financial crises, many regulatory authorities, such as Systemically Important Financial Institutions (SIFIs), have worked on liquidity risk internationally to eliminate or mitigate the adverse effects of liquidity shocks on banks and to increase the resilience of banks. Another objective of these efforts to manage, measure and effectively

assess liquidity risk was to increase market confidence in banks' liquidity positions. The most well-known of these are the studies conducted within the framework of Basel III (Castagna and Fede, 2013:17). Following the principles published by the Basel Committee on Banking Supervision (BCBS) regarding managing and monitoring liquidity risk in September 2008, the Basel Committee published the "International Framework for the Measurement, Standards and Control of Liquidity Risk" in December 2010 (BCBS, 2010). As in the crisis that started in 2007, this document aims to create a resilient banking sector where liquidity-related shocks are more easily absorbed in order to mitigate the impact of risks in the financial sector on the real economy. This document, which was insufficient for the liquidity risk of banks, was further developed and published in January 2013 as "Basel III: Liquidity Coverage Ratio and Liquidity Risk Control Tools" (Türküner, 2016, 72). The objectives of Basel III are as follows (Yenigün, 2016, 76):

- Making banks resilient to financial and economic shocks,
- Contribution by further improving risk management and governance processes,
- Emphasizing transparency in the banking system, and
- Further enhancing banks' ability to disclose information to the public.

The studies within the scope of Basel III aimed to regulate both liquidity risk measurement and standards and rules for their monitoring, and the objectives of creating a banking system that is resilient to financial shocks and decreasing the risk spreading from the financial system to other sectors were prioritized. In the global crisis that started with the 2007 financial crisis, which had significant negative effects on the banking sector, the results of poor liquidity management were quite severe; banks could go bankrupt due to the crisis. Liquidity management is of vital importance, especially for commercial banks. Liquidity management has become one of the issues that needs to be controlled and monitored in order to ensure the continuity of banks' ordinary activities and to create a reliable structure against adverse economic conditions (BDDK, 2011, 7-8).

Two important measurement techniques are explained in Basel III, which is organized by the Basel Committee and established to ensure effective measurement and control of liquidity risk. These are the Net Stable Funding Ratio (NSFR) and the Liquidity Coverage Ratio (LCR).

2.2.1. Net Stable Funding Ratio (NSFR)

NFRS was established within the framework of Basel III implementation to support banks' liquidity coverage ratio and limit structural liquidity deficits (TCMB, 2010, 59). The acceptance value of this ratio is expected to be at least 100%, similar to the liquidity coverage ratio (Türküner, 2016, 74). This ratio is mathematically expressed as follows (BIS, 2014):

$$NSFR = \frac{\text{Available Stable Funding Amount}}{\text{Funding Amount Needed}} \times \%100$$

The "current stable funding amount" is determined according to the maturity and quality of the items in the bank's liability, including first- and second-generation capital. The "amount of stable funding needed" is calculated by taking into account the varying rates according to the maturities and quality of the items in the assets of the banks. The objective of making this calculation is to fund all assets based on investment banking, off-balance sheet and securitization transactions and other activities with liabilities (passive items) that are as stable as possible. In addition, limiting the tendency towards short-term wholesale funding when the markets are functioning healthily is another goal. The objective of this ratio is to reduce maturity conversions that pose risks to banks and to ensure maturity compliance with funding as much as possible (TCMB, 2010, 60).

It is expected that the use of this rate may have some effects on the real economy. A review of liquidity pricing policies is essential because of the NSFR, which operates according to funding criteria based on maturity alignment, because there is a possibility of increasing both corporate and individual loan costs. In addition, deterrent policies will be pursued to prevent securitization activities that contribute to the transformation of banks' existing and small amounts of liquid assets into more liquid assets, because ABSs with a weighted average maturity exceeding 1 year will be subject to 100% stable funding and medium/long-term funding follow-up. For this reason, since all activities of banks based on treasury transactions will not have a return, medium/long-term lending may lose its attractiveness. Regarding this situation, BCBS postponed the implementation of the NSFR in order to avoid possible negative consequences and set this date as 1 January 2018 (Türküner, 2016, 74).

2.2.2. Liquidity Coverage Ratio (LCR)

LCR is the holding of high-quality liquid assets equal to the expected net cash outflow within stress scenarios. This ratio started to be used in Turkey in 2014. However, the Banking Regulation and Supervision Agency (BRSA) gave banks until May 2015 to achieve this ratio (TCMB, 2010, 59). The LCR can generally be defined as a measure that will enable banks to stand against short-term liquidity shortages (Türküner, 2016, 73). The ratio is expressed as follows (Bech & Keister, 2012):

$$LCR = \frac{\text{Stock of High Quality Liquid Assets}}{\text{Net Cash Outflows within 30 Days}} \geq \%100$$

The funding strategy envisaged by banks should be formulated in such a way as to ensure effective diversification in terms of resources and maturities owned. Banks should identify and closely monitor the key factors affecting their fundraising capacity. Daily liquidity positions, active management of payment and clearing obligations in normal times and during periods of stress are another important aspect (Terim, 2013, 79). Liquidity risk reporting, which provides detailed information to senior management about the timeliness of the current liquid situation, guides the Bank among the strategies and alternatives that the Bank should follow in the face of possible risks that may arise. The effectiveness of reporting depends on accurate measurement of liquidity and reliable liquidity. Reporting, which helps banks in terms of risk coverage capacity and the emergence of appropriate funding alternatives, plays an important role in the healthier structuring of balance sheets. In addition, reports that provide support for how the bank reacts to the negative conditions in the market or how to identify the insufficient items more easily and thus produce appropriate solutions in times of crisis also help to make quick decisions. Reporting, which offers many advantages for banks, also includes trend analyses that contribute to the assessment of total liquidity risk (Tekeli & İlkin, 1997, 180-181).

In December 2006, the BCBS established a Working Group to investigate the liquidity oversight process in member countries and started to conduct continuous studies. In mid-2007, the crisis that started to have an impact on the markets revealed the importance of market liquidity for the banking sector and paved the way for banks to work harder on measuring and monitoring liquidity risk. In addition to the liquidity squeeze in interbank markets, the possibility of off-balance sheet liabilities shifting further into the balance sheet has led to serious funding difficulties for banks and significant central bank intervention. These challenges have highlighted the link between funding and market liquidity risk and highlighted the importance of liquidity as a key indicator of the soundness of the banks. In line with these developments, the Working Group on Liquidity (WGL), which is important for the establishment of the central bank, was established and aimed to investigate the liquidity surveillance process in member countries and to monitor the strengths and weaknesses of liquidity risk management in times of crisis (BCBS, 2008). In this framework, a certain monitoring period was realized in order to eliminate undesirable results regarding the LCR and the NSFR. Banks are obliged to meet the LCR standard by 2015 and the NSFR standard by 2018, including any adjustments that may be made by the central bank during this monitoring period. If the minimum threshold for both ratios is below 100%, banks are obliged to either extend funding maturities or restructure their business models (Türküner, 2016, 54).

2.3. Interest Rate and Interest Rate Risk

Interest rate risk is the exposure of banks' current and future income and capital to adverse interest rate changes and is an important fact of the economic and financial structure (Yalçınkaya & Ekinci, 2007, 3). The interest rate risk arising from the average maturity resources and loans and securities investments is the change in interest rates (Güzel, 2022, 594). According to another definition, interest rate risk is the probability of loss that banks may face depending on their position due to fluctuations in interest rates (Vuillemey, 2017). One of the most important threats of interest rate risk is changes in interest rates. This is because reduced revenues and losses all reduce capital adequacy, weaken liquidity and threaten the financial stability of banks, undermining confidence in banks and markets.

Factors that cause interest rate risk are as follows:

Repricing Risk: In order to determine the effects of maturity mismatches on revenues, a gap analysis can be performed according to repricing. In the gap analysis, fixed-rate investment instruments in the portfolio are placed in maturity brackets according to their maturity date, while floating-rate investment instruments are placed in maturity brackets according to the date of interest rate change. In these ways, the effects of rises or declines in banks' interest rates on net interest income can be monitored on the basis of maturity brackets.

Yield Curve Risk: According to this risk, all changes in the yield curve that allow the pricing, costing or valuation of a portfolio or position are monitored by tracking the change in both interest income/expenses and the economic value of the portfolio or position.

Base rate (base) risk: If this risk arises, derivative transactions, in which a variable interest rate and a fixed interest rate or two interest rates with different bases are exchanged off the balance sheet, are monitored and correlation measurement is made (Yavuz, 2002, 23).

Option risk: All portfolio risks that offer opportunities, such as early closing, restructuring and postponement, are monitored and the development of interest rate risk is identified by obtaining the historical early closing, restructuring and postponement rate for fixed-rate loans by regression. In managing this risk, interest risk can be seen more clearly by subtracting the core deposits from the term deposits (Toves, 1983, 28; Haslem, 1982).

The most frequently used methods to manage interest rate risk are mentioned below (Güzel, 2022, 594):

*Gap Analysis: "*Gap analysis" is the analysis that describes the sensitivity of banks' assets and resources to interest rates according to their maturities and is defined as a "risky position or value exposed to risk" (Güzel, 2022, 595).

GAP= (Interest-Sensitive Assets (FDV) - Interest-Sensitive Resources (FDK))

Average Income-Generating Assets.

According to this formula, if the FDV is greater than the FDK, the net interest margin will also increase when the interest rate increases; if the FDV is smaller than the FDK, the net interest margin will decrease when the interest rate increases. If the FDV is equal to the FDK, there will be no change in the net interest margin when the interest rate increases or decreases. However, although gap analysis is used in simple balance sheet structures with limited assets and liabilities, it is not considered reliable enough due to the high number of derivative instruments and off-balance sheet items today (Haslem, 1982).

Duration Analysis: This is an analysis mostly used to measure the risk of securities portfolios. It is known as the analysis that measures the change in the value of the securities portfolio upon the changes in interest rates of the securities. While inversely proportional to the size of interest payments, the value of the portfolio is directly proportional to the fluctuations in the value of the bond. The fact that the duration analysis is effective only in very small rate changes and does not give precise results in large rate changes has caused the application to remain weak (İslamoğlu, 2002, 24; Güzel, 2022, 595).

Value at Risk (VaR Analysis): This is expressed as the maximum loss of value of a portfolio that may occur within a certain probability due to fluctuations in risk factors such as interest rate and exchange rates of a portfolio that a bank may have in its hands over a certain period of time. This analysis covers risks that can only be quantified numerically under normal market conditions and in a given confidence interval. Interest rate and exchange rate risk are examples of this (İslamoğlu, 2002, 28).

Simulation Methods: This generally refers to the analysis of the effect of interest rates on the bank's total assets and total liabilities, including off-balance sheet items, and the assessment of the risks and consequences of possible scenarios. The methods generaly used in simulations are "Historical simulation" and "Monte Carlo simulation." In the historical method, actual market data and the facts of the banks over a period of at least the past year are usually used. Accordingly, it is estimated how much profit/loss can be generated. This model sometimes does not yield meaningful results for portfolios that change frequently. Another method is Monte Carlo simulation. This method is based on actual historical distributions and data. The volatility and correlation estimates in the data to be selected from these data are used and the prices of financial assets or the return of the portfolio are estimated by statistical methods (Güzel, 2022, 595).

2.4 International Financial Reporting Standards (IFRS) - 9

IFRS 9 - Financial Instruments is relevant for all entities, particularly financial institutions, that report in accordance with IFRS. It includes new provisions to classify and measure financial assets and liabilities, hedging accounting, and a new impairment method based on expected credit losses.

IFRS implementers will apply the impairment provisions in IFRS 9 instead of *International Accounting Standard* (IAS) - 39 in their financial tables as of December 31, 2018. With this Standard, classification and measurement criteria of financial instruments have significantly changed. One of the most important points is that credit risk provision will be allocated through the financial instrument in case there is objective evidence that impairment occurred according to IAS 39, while the expected loss provisions will be allocated by creating an expected loss model for the future in accordance with IFRS 9. The standard (IFRS 9) was prepared at different stages after the financial crisis in 2008 based on the fact that the standards of financial instruments did not fully respond to the needs.

IFRS 9 classifies securities in three ways, as in IAS 39. These classifications are as follows (TFRS 9, Paragraph: 4.1.1):

- *"Financial Assets at Fair Value Through Profit or Loss*
- *Financial Assets at Fair Value Through Other Comprehensive Income*
- *Financial Assets Measured at Amortized Cost"*

These classifications are made by taking into account the management model applied by the entities for the management of the related securities, in other words, the management model of the financial assets and the contractual cash flows of these financial assets (TFRS 9, Paragraph: 4.1).

Although the purpose of this management model is to hold financial assets for collecting contractual cash flows, there is no obligation to hold all of these instruments to maturity. In other words, where there is a sale of financial assets, the management model may be a model that aims to hold financial assets to collect contractual cash flows. Although the management model aims to hold a financial asset to maturity, financial assets may be sold if some certain conditions are fulfilled. These situations are as follows (TFRS 9, Paragraph: B4.1.3):

- The financial asset does not comply with the investment policy of the company,
- The insurer has adjusted the investment portfolio to reflect a change in the duration estimate,
- Funds are needed for investment expenditures.

Securities are recognized and reported in a financial position statement only when the Group is a party to the contractual provisions of the financial asset. Securities classified in accordance with IFRS 9 are measured at fair value on initial recognition. Transaction costs for the acquisition of financial assets measured at fair value are not recognized in the fair value of the security. Transaction costs are recognized as an expense for the period and recognized in profit or loss. They are directly attributable to the acquisition of financial assets measured at amortized cost and are added to the fair value of the security (TFRS 9, Paragraphs 3.1.1-5.1.1).

Non-derivative financial assets that the Group has the positive intent and ability to hold to maturity, which have fixed or determinable payments and fixed maturity dates that are not included in other financial asset classifications, are categorized as held-to-maturity. Financial assets such as treasury bills and government bonds can be evaluated in this group. Intention and possibility, including a financial asset in the "held-to-maturity securities" group, require that these assets be taken into account at initial recognition and at each balance sheet date (İşseveroğlu, 2014, 89). According to the standard, if the entity does not have the ability to finance a financial asset that has a fixed maturity until its maturity and there are legal or other restrictions that would prevent this financial investment from being included in the held-to-maturity securities group, the asset in question loses its status as a held-to-maturity security. Investments in equities and other equity instruments cannot be classified as held-to-maturity investments since they do not have fixed maturity dates (Mirza et al, 2006, 206).

A financial asset categorized as held-to-maturity investments may be reclassified as available-for-sale. In this case, the available-for-sale financial asset should be measured at fair value. The difference should be recognized in equity, except in the case of impairment (Demir, 2015, 68). When a financial asset is reclassified out of 'at fair value through profit or loss' or 'available-for-sale' financial assets, it is measured at fair value at the reclassification date and recorded in the new group. In such a case, gains or losses previously recognized in profit or loss in respect of that financial asset are not reversed (İşseveroğlu, 2014, 93).

Financial assets that may be sold to meet liquidity requirements or due to interest rate changes and that are held for an indefinite period but not for speculative purposes are classified as available-for-sale financial assets. Subsidiaries, associates and affiliated securities that are not within the scope of consolidation and cannot be valued according to the equity method because they do not have significant influence or there are limitations on the transfer of funds should be considered within the scope of available-for-sale securities (İşseveroğlu, 2014, 90). For example, an entity may classify debt or equity investments as available-for-sale. Financial assets held for trading should not be categorized as available-for-sale (Mirza et al, 2006, 207).

Any change in the intent and ability to hold held-to-maturity investments to maturity results in the reclassification of these financial assets as available-for-sale is measured at fair value. The resulting measurement differences are recognized in other comprehensive income (TMS 39, Paragraph 51). Total comprehensive income (Paragraph 7 of Presentation of Financial Statements (IAS) - 1 Presentation of Financial Statements) is defined as "the change in equity arising from transactions and other events during a period, except for changes arising from transactions with the entity's partners and from transactions in which the partners are parties as partners." This includes all items of profit or loss and other comprehensive income (TMS 1, Paragraph 7).

Many different evaluation techniques are used in the measurement of financial instruments. These different techniques and changes related to fluctuations in financial markets can expose businesses to some risks. IAS 39 regulates hedging accounting in order to minimize these risks and leaves the application of this accounting technique optional. Hedging financial risk can be defined as the accounting technique used to clarify changes in the fair value or cash flows of assets, liabilities or future transactions using one or more derivatives or other hedging instruments (Mirza et al., 2006, 236). According to the financial hedging relationship, the item that is protected from financial risk, that is, the item that is traded on for the purpose of hedging the risk that will affect the value of the item, and the financial hedging instrument, that is, the instrument used to protect against financial risk, are seen as the two main parties related to protection.

In a fair value hedge of a portfolio of financial assets or financial liabilities against interest rate changes, the hedged item may be designated in a foreign currency (for example, dollars, euros, pounds or rand) rather than as an individual asset (or liability). For risk management purposes, even if the portfolio contains assets and liabilities, the amount defined is an amount of assets or liabilities. It is not permitted to define a netted amount that includes assets and liabilities. The entity may hedge a portion of the interest rate risk associated with this identified amount. If the hedged item is based on estimated repricing dates, the effect of changes in the hedged interest rate on those estimated repricing dates is taken into account in determining changes in the fair value of the hedged item. Consequently, if a portfolio of prepayable items is hedged with a non-prepayable derivative, an ineffective transaction (ineffectiveness) occurs if the estimated prepayment dates of the items in the hedged portfolio are changed, or the actual prepayment dates differ from the estimated prepayment dates (TMS 39, Paragraph 81A).

Any adjustment to the carrying amount of the hedged financial instrument determined using the effective interest method in accordance with Paragraph 89(b) (or, in the case of a portfolio interest rate hedge, the adjustment to the separate statement of financial position (balance sheet) item in Paragraph 89A) is amortized through profit or loss. Amortization may be initiated as soon as the adjustment occurs and no later than the hedged item ceases to be adjusted for changes in the fair value of the hedged item attributable to the hedged financial risk. The adjustment is based on the effective interest rate recalculated as of the amortization date. But, if it is not possible to use a recalculated effective interest rate in a fair value hedge of a portfolio of financial assets or financial liabilities against interest rate changes (and only in such a hedge), the adjustment is amortized using a pro rata method. The adjustment is fully amortized at the maturity of the financial instrument or, in the case of transactions to hedge a portfolio's interest rate risk, at the end of the relevant repricing period (TMS 39, Paragraph 92).

3. Academic Studies on the Bankruptcy of Silicon Valley Bank

SVB, a bank operating in the USA, went bankrupt in the first quarter of 2023 and this bankruptcy case attracted the attention of the whole world. The bank's bankruptcy also attracted the attention of academics, and different academic studies were carried out on the factors affecting the bankruptcy. In the literature review on studies of the bankruptcy, it was determined that there was no study in the national literature. On the other hand, there are studies in the international literature that analyze the bankruptcy from different perspectives. A summary of some studies from the international literature is given below.

Yadav et al. (2023) used the case study method to determine the impact of SVB's decline on the top nine global stock indices for the period September 6, 2022 - March 22, 2023. The results of this study reveal that each market realized negative event returns. Moreover, the cumulative abnormal return indicated that there was panic regarding the market pre-event as both the stakeholders and the investors reacted negatively to the market relative to the post-event period, as the market correction occurred post-event except for a few days. Azmi et al. (2023) investigated the implications of the SVB bankruptcy on prominent global asset classes. As a result of the study, US bonds were perceived as a risky asset over the entire period, leading to a decline in returns. However, the study does not provide sufficient evidence of reputational contamination or spillovers to other asset classes from the failure of SVB. Meyer & Olert (2023) conclude that when the bankruptcy of SVB dominated the headlines and reverberated throughout the banking sector, the event led to the conclusion that the company's board of directors failed to manage risk and ultimately precipitated the imminent crisis. Hence, it was concluded that boards of directors failed to proactively manage risk exposures from recent events. This conclusion also emphasizes the need for effective governance in banks.

Dutta et al. (2023) investigated the reasons for the collapse of SVB. The study mentioned the differences between the stock price changes of the bank and the permitted ranges. The use of Benford's Law during the analysis of the collapse of the bank revealed some possible factors that caused to the bankruptcy. The study also emphasized the importance of statistical analysis techniques, like Benford's Law, incorporating into monitoring processes of financial institutions going forward. It also suggests that financial institutions improve their risk management mechanisms, to increase accountability and

transparency and to collaborate with the regulators ensuring that they fully comply with rules and standards. Vo et al. (2023) examined the factors causing to the decline of SVB. The study mentioned heavy investment of the bank in debt securities during a low interest rates period. After that, the increase in the interest rates in 2022 caused important unrealized losses for SVB. In addition, largely concentrated deposits of the bank increased the risk of runs on SVB. Moreover, having relatively less equity capital in comparison to its peers increased the impact of the risk. The overall results of the study mention the mismanagement of assets and liabilities as the most significant cause of this bankruptcy case. In Heider et al. (2023), it is stated that the SVB case is perceived as an effort to rescue banks in distress for various reasons by reducing the role of loss absorbing capital. The study concludes that excessive duration risk weakens bank management and increases bank losses. In addition, the presence of the risk of collusion is also stated to cause inefficient liquidations.

Vuillemey (2023) showed that the savings glut encourages financial instability in banks. As a result of the study, banks in the US, which are locally exposed to the root causes - the increase in household wealth inequality and intangible intensive firms - have increased higher savings. This result was found to have led to a large increase in uninsured deposits. Kim (2023) argues that unlike SVB, financial institutions apply discretionary protection for both interest rate and funding risks. Accordingly, it is stated that the failures of SVB are not systematic but personalized. Zhaohua (2023) argues that the bankruptcy of SVB should be seen as a shocking and regrettable financial disaster as well as a financial lesson worth reflecting on and learning from. The study concludes that the bankruptcy of SVB should be used to inform the diversification and stabilization of banking activities, asset and liability matching and management, and the government's strong economic policies to prevent a similar financial crisis and promote the sound and stable progress of the financial sector. In addition, banks, as an important part of the financial sector, should continuously strengthen risk management in response to market changes to reduce the likelihood of insolvency. They should not ignore their own management in the excessive pursuit of profit. Risk management should be continuously improved to keep pace with the ever-evolving market and economic landscape. Hauf & Posth (2023) aimed to examine the main reasons for the collapse of SVB in March 2023 from risk management and legal regulations perspectives. The study revealed that the economic value of equity indicated excessive interest rate risks on the bank's balance sheet a year before the decline of SVB. It also found that there were significant weaknesses in SVB's risk management practices, which resulted in insufficient monitoring of ratios. Besides, risk management and accounting practices of the bank were not aligned with each other, and this situation hindered the effective oversight within the bank.

4. Silicon Valley Bank Case

SVB was founded in 1983. The market segmentation on which SVB had been focused was primarily technology companies. SVB was operating internationally through its branches and joint ventures. In this study, SVB's collapse is analyzed as a case study on a bank run and liquidity problems. In order to do that, SVB financial statements are examined, and global economic developments after the Covid-19 pandemic are explained. SVB is the most current example of a bank run and can be used to analyze how maturity mismatch in the balance sheet can result in bankruptcy in the financial sector within a short period of time.

SVB, the sixteenth bank in the United States by asset size, went bankrupt on March 10, 2023, just 3 days after the bank's first liquidity problems arose. The failure of SVB is a case study in which the root causes can only be understood if the Covid-19 pandemic and post-pandemic economic conditions are analyzed. The decline in economic activity due to Covid-19 prompted central governments to manage monetary expansion tools, but inflation began to appear as Covid-19 cases and deaths began to decline. This time, central banks began to implement monetary tightening policies to manage aggregate demand, and interest rates began to rise. Figure 1 summarizes the conditions that led to the failure of SVB.

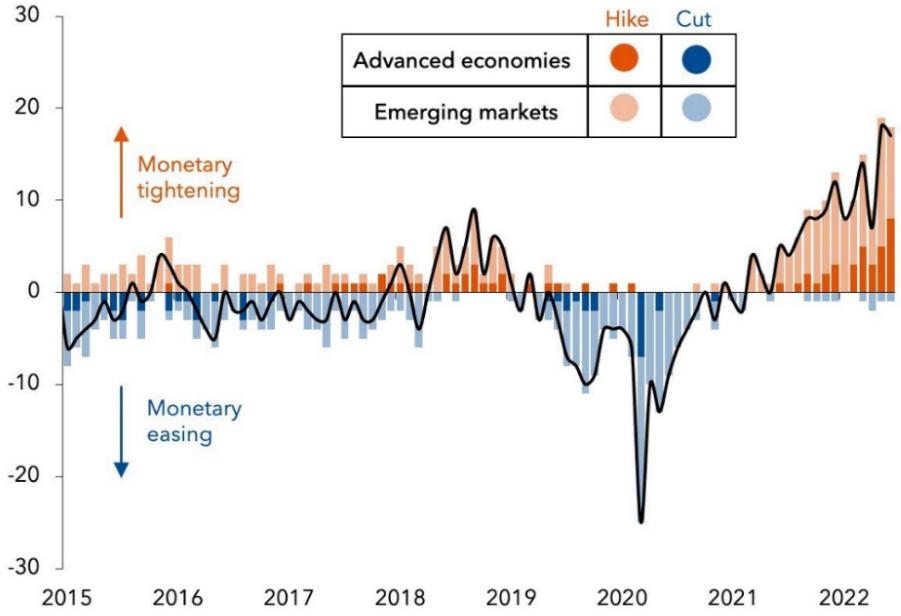

Figure 1: Monetary Policies of Central Banks (Source: Adrian & Natalucci, 2022)

The figure shows that under Covid-19 conditions, with slower economic activity, central banks followed monetary easing policies to support aggregate demand and economic growth. Monetary easing was followed by a period in which monetary tightening policies were implemented. At the beginning of this second period, inflation started to hit economies and central banks started to increase interest rates and implemented other monetary tightening precautions, considering growth and unemployment figures simultaneously. Figure 2 represents the inflationary environment in the global economy following the monetary easing of the pandemic.

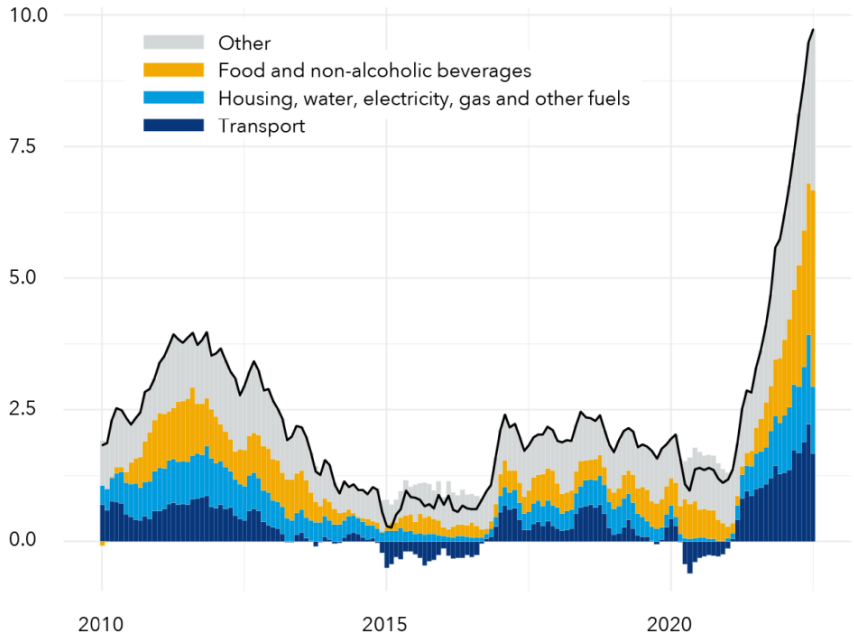

Figure 2: Global Inflation (Source: Barrett, 2022)

Theoretically, the money supply increases when central banks buy long-term securities. Similarly, when central banks lower interest rates, borrowing becomes easier for economic agents. As Covid-19 conditions began to change, that is, the number of Covid-19 cases and deaths began to decrease, economic activity began to rise. Figure 3 shows that from the second quarter of 2022, Covid-19 conditions began to improve, with fewer cases and deaths.

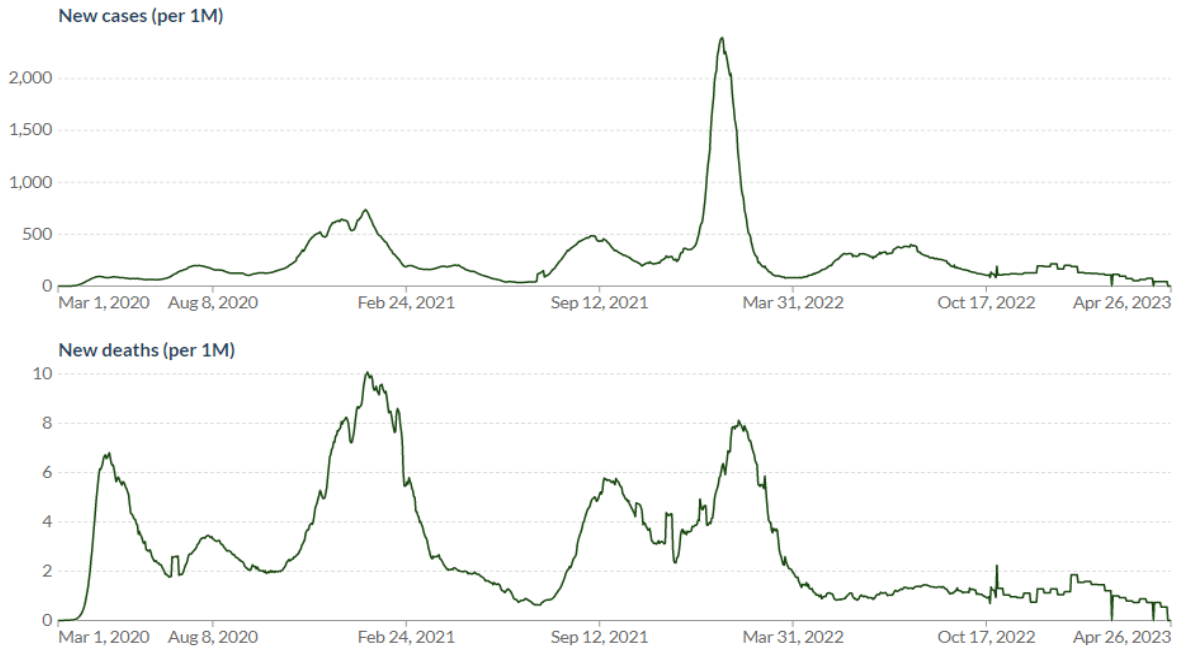

Figure 3: Number of Covid-19 Cases and Deaths (Source: Our World in Data)

With the recovery in economic activity and the monetary easing policies of the central banks, an inflationary environment began to be seen. This situation brought about a change in central bank policies and the Federal Reserve (Fed) began to increase policy rates. Figure 4 shows the Fed's rate hikes.

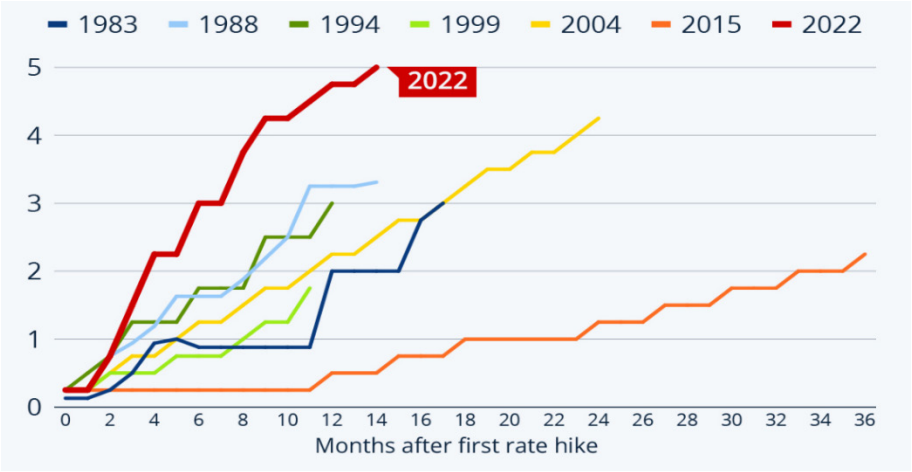

Figure 4: Fed's Interest Rate Increases (Source: Richter, 2023)

The slope of the curve in Figure 4 shows how sustained and rapid Fed rate hikes were compared to other monetary tightening periods. The Fed's dilemma during this period was the trade-off between the inflationary environment and the fear of recession. As we will examine later, starting with the SVB example, weaknesses in the financial system became the third parameter in the Fed's interest rate decisions.

Interest rate hikes caused problems in bank balance sheets. Since the weight of the securities in the assets was high, the market value (MtM) of these assets started to decrease when the interest rates increased. According to the discussions, the unrealized loss of the banking sector from the securities portfolio was about USD 600 billion (Litan, Lowy & White, 2023). Under normal circumstances, these assets can be booked at fair value through other comprehensive income or amortized cost. When a liquidity problem occurs, the market values of the portfolio, which is followed up at its amortized cost, cannot be easily seen. Figure 5 summarizes how unrealized losses accumulated in the banking sector in 2022.

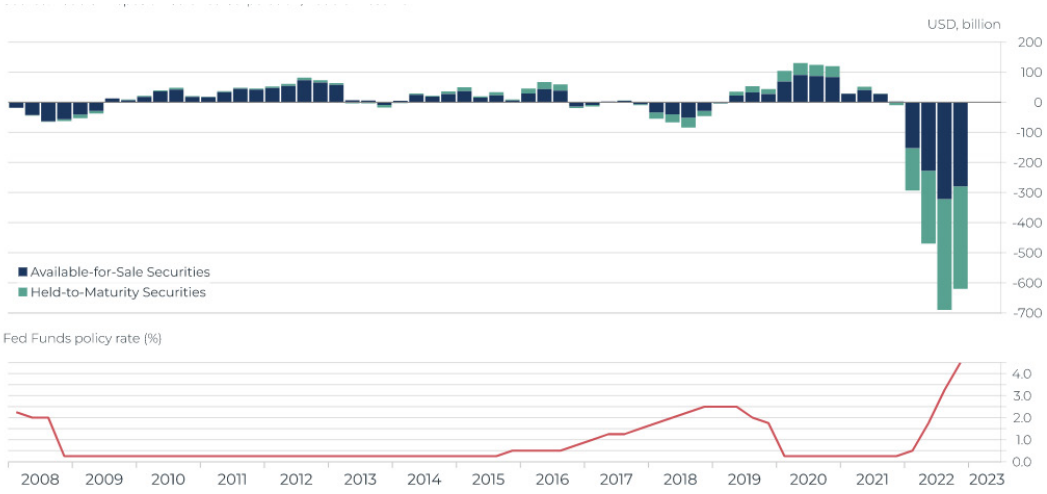

Figure 5: Unrealized Losses in the Banking Sector (Source: Lieugaut, 2023)

Another important change in the markets began to be seen with the increase in interest rates. Figure 6 shows how deposit rates responded to policy rates. According to this graph, since the right tails of the curves diverge, it can be said that the response of the deposit rates to the interest rate hikes by the Fed was weak and this created an environment where time deposits became disadvantageous, especially compared to money market rates during the inflation period. It should be noted that this had caused the money market product to become an alternative to bank deposits.

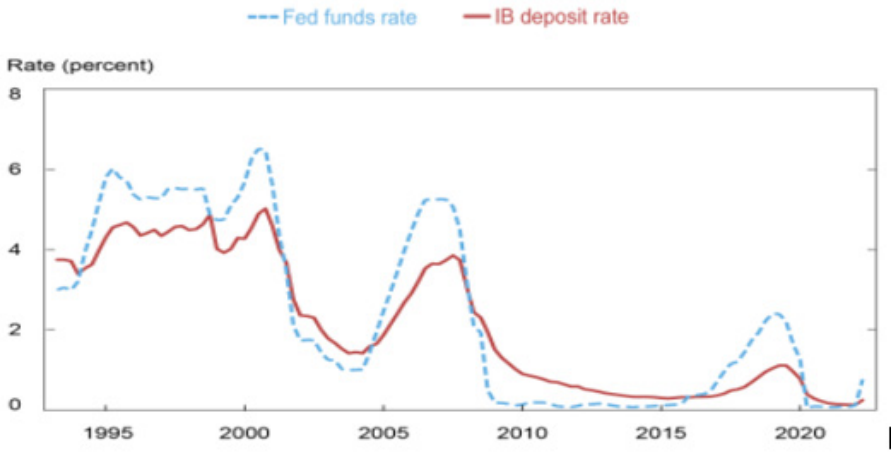

Figure 6: Policy Rates vs. Deposit Rates (Source: Kang-Landsberg & Plosser, 2022)

The individual position of SVB under these macroeconomic conditions should also be analyzed. SVB was a commercial and private bank based in the United States. The Bank had mainly served clients in technology-oriented industries, and the services were divided into three subcategories: (a) services provided to clients in the early stages of their lifecycle with annual revenues below 5,000,000 USD; (b) services provided to clients in the middle stages of lifecycle with an annual revenue of between 5,000,000 USD and 75,000,000 USD; (c) services provided to clients with an annual revenue more than 75,000,000 USD (SVB, 2023-1: 8). The first category in customer segmentation, clients in the early stages of their lifecycle with annual revenues of less than 5,000,000 USD, can be considered the riskiest part of the client base as they are the most vulnerable to liquidity problems.

Figure 7 shows the M2 Money Supply in the US economy during the Covid-19 pandemic and post-pandemic period. Note that the M2 Money Supply represents the total money in circulation, savings deposits and checking accounts. This figure summarizes the decline in the M2 Money Supply, which was one of the representations of liquidity in the market. In such a situation, technology-focused start-ups with weak cash flow were the most affected customer segment, and these customers wanted to withdraw their deposits earlier than other customer groups.

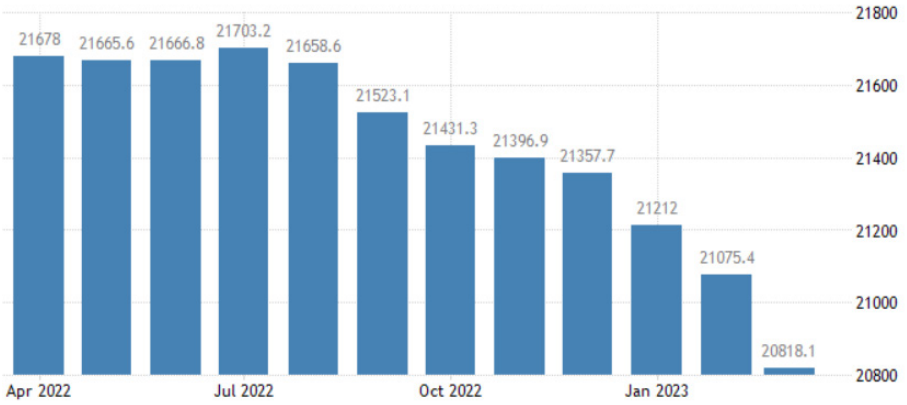

Figure 7: M2 Money Supply (trillion US$) (Source: Trading Economics)

While Forward-Looking Statements cannot be seen as assurances of future performance, this text may provide some insight into the projections of future events and conditions. As part of Management's Discussion and Analysis of Financial Condition and Results of Operations, SVB management believed that high levels of inflation in the market and associated interest rates could persist longer than expected and this could have an impact on total client funds and the valuation of investments. It was also stated that the capital and liquidity adequacy of SVB and changes in deposit levels were other issues to be considered. Reputation risks arising from interaction with stakeholders were also listed as the factors that could lead to the bank's financial performance and/or situation deviating from expectations. The effectiveness of risk management was another topic of discussion (SVB, 2023-1: 4). Although these statements can be considered generic texts covering all possible situations, the forecasts written in the statement were successful and the liquidity problem of the bank did not come as a surprise to the managers. The share sales of SVB executives just before the SVB collapse (Dukakis, 2023) support the idea that they were aware of SVB's financial condition. The balance sheet of SVB as of December 31, 2022 and December 31, 2021 is given in Table 1.

Table 1: SVB Balance Sheet		
	December 31,	
(Dollars in millions, except par value and share data)	**2022**	**2021**
Assets		
Cash and cash equivalents	13.803	14.586
Available-for-sale securities, at fair value (cost of $28,602 and $27,370, respectively, including $530 and $61 pledged as collateral, respectively)	26.069	27.221
Held-to-maturity securities, at amortized cost and net of allowance for credit losses of $6 and $7 (fair value of $76,169 and $97,227, respectively)	91.321	98.195
Non-marketable and other equity securities	2.664	2.543
Total investment securities	120.054	127.959
Loans, amortized cost	74.250	66.276
Allowance for credit losses: loans	-636	-422
Net loans	73.614	65.854
Premises and equipment, net of accumulated depreciation and amortization	394	270
Goodwill	375	375
Other intangible assets, net	136	160
Lease right-of-use assets	335	313
Accrued interest receivable and other assets	3.082	1.791
Total assets	211.793	211.308
Liabilities and total equity		
Liabilities:		
Noninterest-bearing demand deposits	80.753	125.851
Interest-bearing deposits	92.356	63.352
Total deposits	173.109	189.203
Short-term borrowings	13.565	71
Lease liabilities	413	388

Other liabilities	3.041	2.467
Long-term debt	5.370	2.570
Total liabilities	195.498	194.699
Commitments and contingencies (Note 21 and Note 26)		
SVBFG stockholders' equity:		
Preferred stock, $0.001 par value, 20,000,000 shares authorized; 383,500 and 383,500 shares issued and outstanding, respectively	3.646	3.646
Common stock, $0.001 par value, 150,000,000 shares authorized; 59,171,883 and 58,748,469 shares issued and outstanding, respectively		
Additional paid-in capital	5.318	5.157
Retained earnings	8.951	7.442
Accumulated other comprehensive income (loss)	-1.911	-9
Total SVBFG stockholders' equity	16.004	16.236
Noncontrolling interests	291	373
Total equity	16.295	16.609
Total liabilities and total equity	211.793	211.308
Source: SVB (2023-1)		

Table 1 shows that as of 31.12.2022, 120 billion USD (57%) of total assets, which is a high figure, were held as investment securities. The share of deposits in liabilities is also remarkable. The fact that the uninsured portion of the deposit is 94% of the total deposits (Alois, 2023) has made the deposits more fragile in case of liquidity concerns. Deposits without deposit insurance tend to be more easily withdrawn by customers.

On March 8, 2023, SVB announced that its Available for Sale (AFS) portfolio of $21 billion was sold with a realization of after-tax loss of $1.8 billion (SVB, 2023-2). On March 9, SVB customers tried to withdraw their USD 42 billion deposits (Son, 2023). This was the first attack on SVB's liquidity. On March 10, the bank declared bankruptcy. It is possible that the bank run was triggered by the statements of the bank managers and the panic caused the bank to collapse in just two days.

Compared to the European banking sector, the most surprising aspect of the risk management system in the US banking sector is the supervision of liquidity risks. Under US legislation, SVB was rated in Category IV, where central bank monitoring of the LCR and Net Stable NSFR is not required (SVB, 2023-1: 87). Defining the bank's liquidity position can be problematic for inexperienced users of financial statements in the absence of liquidity-related supervision by the authority. The Fed accepted that as a supervisory body, it failed to realize SVB's risks and when it realized, it could respond quickly enough (Board of Governors of the Federal Reserve System, 2023).

While LCR and NFSR were not applicable for SVB, the financial statement footnotes show the actual status of securities in both available-for-sale (AFS) and held-to-maturity (HTM) portfolios. Table 2, taken from the footnotes of the SVB financial statements, shows the status of the AFS and HTM portfolios over the years.

Table 2: AFS and HTM Portfolios in SVB Financial Statement Footnotes

	December 31, 2022					
	Less than 12 months		months or longer 12		Total	
(Dollars in millions)	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses
AFS securities, at fair :value						
U.S. Treasury securities	11.946	-717	4.189	-354	16.135	-1.071
U.S. agency debentures			101	-19	101	-19
Foreign government debt securities	1.088	-121			1.088	-121
:Residential MBS						
Agency-issued MBS	1.744	-203	4.859	-895	6.603	-1.098
Agency-issued CMO —fixed rate	136	-11	542	-73	678	-84
Agency-issued CMBS	810	-57	653	-83	1.463	-140

Total AFS securities	15.724	-1.109	10.344	-1.424	26.068	-2.533
December 31, 2021						
	Less than 12 months		months or longer 12		Total	
(Dollars in millions)	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses	Fair Value of Investments	Unrealized Losses
AFS securities, at fair :value						
U.S. Treasury securities	7.777	-70			7.777	-70
U.S. agency debentures	196	-4			196	-4
:Residential MBS						
Agency-issued MBS	8.280	-210			8.280	-210
Agency-issued CMO —fixed rate	740	-9			740	-9
Agency-issued CMBS	603	-11	163	-9	766	-20
Total AFS securities	17.596	-304	163	-9	17.759	-313

December 31, 2022						
(Dollars in millions)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	ACL	Net Carry Value
:HTM securities, at cost						
U.S. agency debentures	486		-52	434		486
:Residential MBS						
Agency-issued MBS	57.705		-9.349	48.356		57.705
Agency-issued CMO —fixed rate	10.461	-11	542	-73	678	-84
Agency-issued CMO —variable rate	79		-2	77		79
Agency-issued CMBS	14.471		-2.494	11.977		14.471
Municipal bonds and notes	7.417	2	-1.269	6.150	1	7.416
Corporate bonds	708		-109	599	5	703
Total AFS securities	91.327	2	-15.160	76.169	6	91.321
December 31, 2021						
(Dollars in millions)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	ACL	Net Carry Value
:HTM securities, at cost						
U.S. agency debentures	609	8	-2	615		609
:Residential MBS						
Agency-issued MBS	64.439	124	-887	63.676		64.439
Agency-issued CMO —fixed rate	10.226	9	-145	10.090		10.226
Agency-issued CMO —variable rate	100	1		101		100
Agency-issued CMBS	14.959	39	-277	14.721		14.959
Municipal bonds and notes	7.157	185	-27	7.315	1	7.156
Corporate bonds	712	2	-5	709	6	706
Total AFS securities	98.202	368	-1.343	97.227	7	98.195
(**Source:** SVB (2023-1						

Table 2 shows SVB's AFS and HTM portfolios for the end of 2021 and 2022. According to the data given in the table, unrealized losses increased by 1.4 billion USD and 15.5 billion USD, respectively, in just one year, although there was no significant increase in the AFS and HTM portfolios. Since unrealized losses in the HTM portfolio are reported at amortized cost and their market value can only be seen in the footnotes, they did not have any impact on the financial statements.

In the footnotes, SVB declared that interest rate swap contracts were used for managing interest rate risk. In the footnotes to the financial statements, it is reported that hedged assets in the AFS portfolio decreased from 15.26 billion USD to 563 million USD in one year.

Table 3: Hedged Assets	
(Dollars in millions)	Amortized Cost Basis of the Hedged Assets
December 31, 2022	
AFS securities	563
December 31, 2021	
AFS securities	15.260
(**Source:** SVB (2023-1	

After its collapse, a report presenting the results of the SVB case was released by the San Francisco Federal Reserve and the California Department of Financial Conservation and Innovation. The main finding of this review was ineffective internal audit function in performing risk assessment, defining the audit universe, performing continuous monitoring, and conducting audits (California Department of Financial Protection and Innovation & Federal Reserve Bank of San Francisco, 2022). However, the internal audit is expected to provide significant support to stakeholders in making an assessment of how effective the systems and methodologies used in identifying and managing bank risks are. While the report results were not seen as the main driver of the collapse, the ineffectiveness of the SVB's third line coupled with weak regulatory monitoring on liquidity issues was another source of the weak control environment.

The above-mentioned information can be used to analyze the SVB case. When the information given in the previous section is combined, the situation can be analyzed as shown in Figure 8.

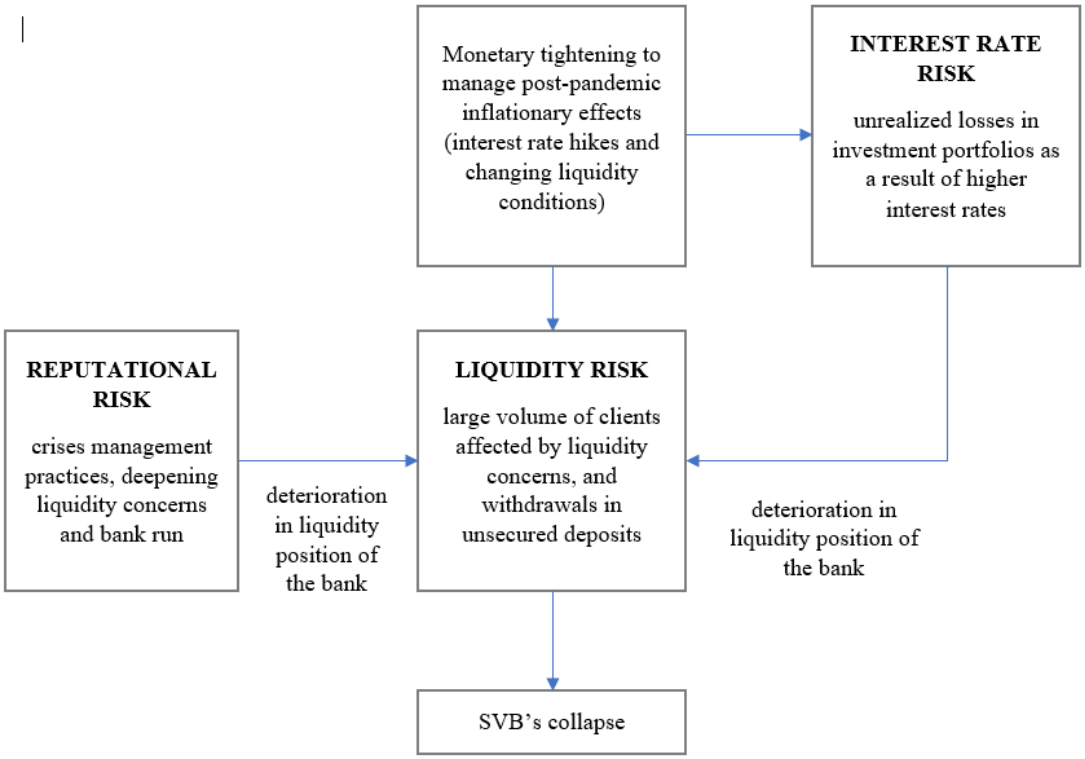

Figure 8: Analysis of SVB Case (Source: Prepared by the authors)

Figure 8 summarizes the case using three types of risk: (i) liquidity risk, which was the main driver of the collapse of SVB, (ii) interest rate risk, which was the factor that worsened liquidity risks, and (iii) reputational risk, which arose from unsuccessful crisis management, deepening liquidity risks.

While managing liquidity risks of the financial system, regulators excluded SVB, like other banks of a similar size. In the absence of liquidity risk monitoring, unrealized losses, or, in other words, negative changes in asset quality, made the bank's liquidity position more fragile. Based on this discussion, two main conclusions can be drawn regarding the SVB case:

- IFRS 9 rules, which stipulate that securities can be booked in the HTM portfolio under the company's portfolio strategy, cannot help financial statement users to understand the liquid values of these securities under extraordinary circumstances. Thus, IFRS 9, the financial reporting standard that requires booking the HTM portfolio at amortized cost, instead of their market values, makes liquidity issues less clear, especially when the LCR or another ratio is not used to understand the liquidity position of financial institutions. The portfolio strategy may require some assets to be booked in the HTM portfolio, as these assets can be assumed to be held to maturity, but certain changes in market conditions that raise liquidity concerns may require these assets to be liquidated before maturity. For this reason, the market values of these assets will be important, although they are kept in the financial statements with their historical values.
- The LCR can be a good indicator for understanding liquidity issues, because the ratio includes securities at their market value in the calculation regardless of the portfolios where they are booked. However, LCR, as a stress test, measures possible expected liquidity changes within next 30 days, but its use under different scenarios, such as the SVB example, is problematic. In other words, the LCR assumptions do not fit the SVB case where the bank went to a bankruptcy just in two days. Thus, the LCR needs to be repeated with different assumptions to meet different market conditions.

SVB's collapse is not the end of the story, because liquidity concerns in depositors can be contagious. Thus, deposits began to shift from small banks to larger banks that could be seen as more reliable in the eyes of depositors. With growing concerns about the financial system after SVB's bankruptcy, in deciding interest rates, the Fed needs to consider financial system stability, not just inflation and growth data.

5. Conclusion

The SVB case is a recent case that demonstrates how liquidity problems threaten business continuity. The lessons to be learned from this case play an important role in the detection and management of liquidity problems, which are considered to be one of the most important causes of business failures and collapses.

In our study, liquidity risks are analyzed on the example of SVB. For this purpose, macroeconomic developments that trigger the balance sheet risks of SVB are examined and it is discussed how macroeconomic developments and monetary policies of central banks can reveal the liquidity problems of economic actors. In the SVB case, the monetary tightening that came with the increase in interest rates was effective.

Resilience in exposure to liquidity risk on a sectoral basis differs according to balance sheet structures. While asset quality and ability to convert assets into cash are effective in liquidity, the funding structure is important on the liabilities side of the balance sheet. When it is experienced in the banking sector, liquidity problems have economic, sociological and psychological effects at the social level, since the funding structure is predominantly made up of deposits. Moreover, these problems carry the risk of spreading to other banks and the entire financial system with the panic environment that it may create. For this reason, especially in the banking sector, liquidity risk management is taken seriously. Although banking regulations require monitoring of this risk in certain ratios, the SVB case shows that these monitoring activities in the United States are limited by the size of the banks. In addition, it is seen that existence of deposit guarantees can be a determinant in the behavior of depositors.

Asset quality, which is the second element of liquidity risk, is managed in the banking sector by setting appropriate provisions and reporting them. In this context, situations that may lead to impairment in loans and securities are taken into consideration and reports are made within this framework. However, the SVB case has shown that current financial reporting standards can cause weaknesses in providing adequate information outside of normal times, when there are liquidity problems. It is important to know the market values of financial assets when they need to be converted into cash

due to liquidity problems. It becomes very difficult for third parties to monitor liquidity risks when both the ratios regarding the liquidity risks are not used, and the financial tables do not present the marketable values of the assets.

Since the SVB case occurred shortly before this article was written, our study is one of the limited numbers of case studies on SVB aiming to analyze liquidity risk management practices. Our findings are similar to previous studies in the literature. As concluded in Meyer and Olert (2023), lack of effective risk monitoring and proactive risk responding from the board of directors was a key point in the case. Also, as mentioned in Dutta et al. (2023), our findings show that financial companies' risk management practices need to be improved. Regulatory monitoring, as emphasized in Hauf and Posth (2023), is a vital aspect of financial system stability. Our findings, similar to Vo et al. (2023) and Zhaohua (2023), refer to the problems experienced in managing balance sheets.

While the SVB case is the biggest recent bank failure in the United States, the lessons learned from this case offer important implications for the management of liquidity risks. In future studies, the case of SVB can be used in comparison with the banking sector by examining different company examples.

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