FIRM

Frankfurt Institute for
Risk Management and Regulation

Table of Contents

Executive Summary 1

Understanding the context: Quantitative easing, low interest rates, and underestimated risks for the banking sector 1-3

The State of Global Banking: Analyzing the Collapse of Credit Suisse and SVB 4-5

Immediate impact: loss of trust in the global banking sector due to the default of single banks 6

Prepared but not Immune: Quick Interventions stabilized the Situation but also highlighted the Need for Improvements 7-8

Bracing for Impact: Analysis of the Current State of the Banking Industry

EXECUTIVE SUMMARY

The recent failures of Silicon Valley Bank, Signature Bank, and Credit Suisse, combined with the ongoing uncertainty in the US regional banking space, have shaken the banking sector's stock performance in the capital markets. To understand the recent series of bank collapses, we have taken a look at the financial situation over the past two decades, with a focus on the current macroeconomic conditions caused by a series of global crises. The resulting impact of the unprecedented speed of interest rate increases, supply chain disruptions, and elevated energy prices is fanning concerns about a possible banking crisis. However, the sector is better prepared than it was during the 2007/08 financial crisis, with higher capital levels, improved liquidity standards, and more comprehensive risk management practices. Nevertheless, the risk of a banking crisis cannot be ignored, and bank leaders should prioritize efforts to create transparency on risk exposure, build capabilities to measure and report risk, and institute strong risk governance. Immediate attention should be paid to analyzing potential vulnerabilities arising from unhedged risk positions, undiversified funding, counterparty risk, and further disruptions in the corporate real estate sector or the financing of emerging markets in general.

UNDERSTANDING THE CONTEXT: QUANTITATIVE EASING, LOW INTEREST RATES, AND UNDERESTIMATED RISKS FOR THE BANKING SECTOR

→ **In this chapter, we analyze how quantitative easing and low interest rates since the financial crisis contributed to the development of structural risks in the banking sector, and why the increase in inflation, followed by a steep and rapid rise of interest rates, put significant stress on the risk and liquidity management of some banks.**

Over the past 15 years, the banking industry has seen unprecedented amounts of money in the system, accompanied by low interest rates for an extended period, quantitative easing measures, and COVID-19 relief measures. However, this favorable environment has recently been upended by a series of surprising bank failures, including the sudden collapse of Silicon Valley Bank (SVB) and Signature Bank (SB) in the United States, swiftly followed by Credit Suisse's emergency rescue by UBS in Europe earlier this March. These events have shaken investors and customers alike, leading many to question the stability of their own banks and raising concerns about the possibility of a new banking crisis. To understand the root causes of these bank collapses and how they relate to the prolonged period of low interest rates, it is essential to analyze the situation in more detail.

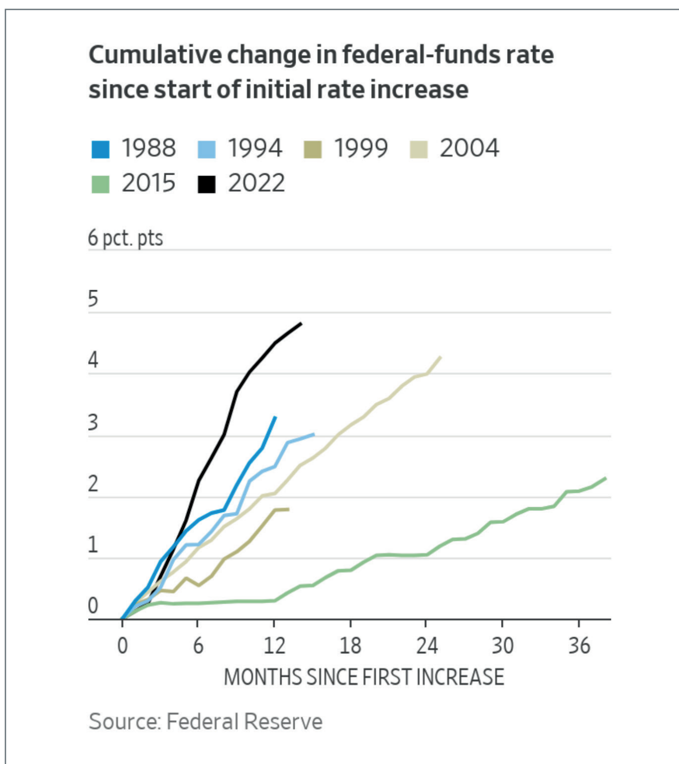

Figure 1: CUMULATIVE CHANGE IN FEDERAL FUNDS RATE SINCE START OF INITIAL RATE INCREASE

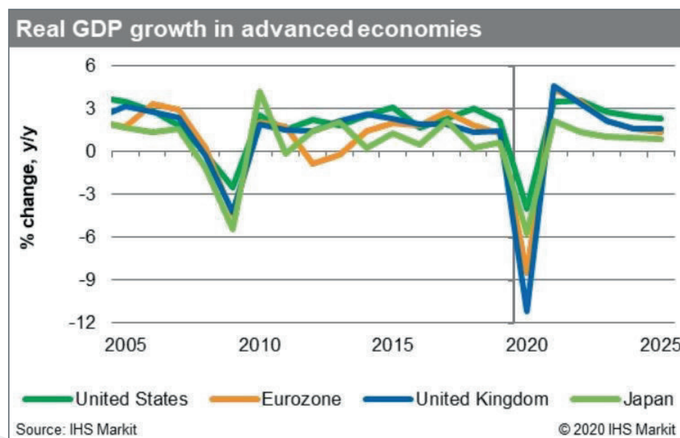

FIGURE 2: GROWTH HAS DECLINED MUCH MORE SHARPLY THAN DURING THE 2008 FINANCIAL CRISIS

QUANTITATIVE EASING AND GOVERNMENT SUPPORT PROGRAMS DURING THE PANDEMIC SUBSTANTIALLY INCREASED THE AMOUNT OF MONEY IN THE MARKET

The last period of such low interest rates, hovering around 1%, started around 2001, following the dot-com crash of 2000–2002, as a government effort to stimulate economic growth and employment. This period came to an end in 2004, when the Federal Reserve began to gradually raise interest rates over the next years (as illustrated in figure 1), reaching 5.25% in June 2006. Similar to the current situation, this tightening of monetary policy was a reaction of the Federal Reserve to prevent a potential inflationary spiral. However, this quantitative tightening had a significant impact on the US economy and financial system and contributed to the buildup of imbalances and vulnerabilities that ultimately led to the global financial crisis of 2008. Following that crisis, the US Federal Reserve took action in several ways to support the economy and stabilize the financial system. This included again lowering interest rates to near-zero levels in December 2008, where they remained for several years, as well as additional quantitative easing, leading to the growth of the balance sheet of FED and ECB from around EUR/USD 1 trillion in 2007 to about EUR/USD 8 trillion in 2022. The interest rates were still low when the global COVID-19 pandemic hit the world in 2020.

Governments and central banks worldwide responded to the pandemic by implementing measures ranging from large-scale fiscal stimulus packages to regulatory relief for banks. Alongside these measures, central banks also implemented monetary policy measures such as interest rate cuts and quantitative easing to mitigate the economic damage caused by the pandemic and to provide a buffer against the severe economic shocks of the crisis. Despite these measures, global GDP dropped by 3.3% in 2020. However, the negative impact was primarily focused on a few industries such as tourism and aviation, and the volume of government support was substantial, mitigating the worst of the crisis. As a result, the global economy has since recovered to prepandemic levels, as seen in figure 2.

The massive infusion of money into the economy (typically 25–35% of annual GDP, depending on the country) and the low interest rates during the pandemic years in return exacerbated inflationary pressure (as shown in figure 3). As people received their stimulus checks, many chose to deposit the money into

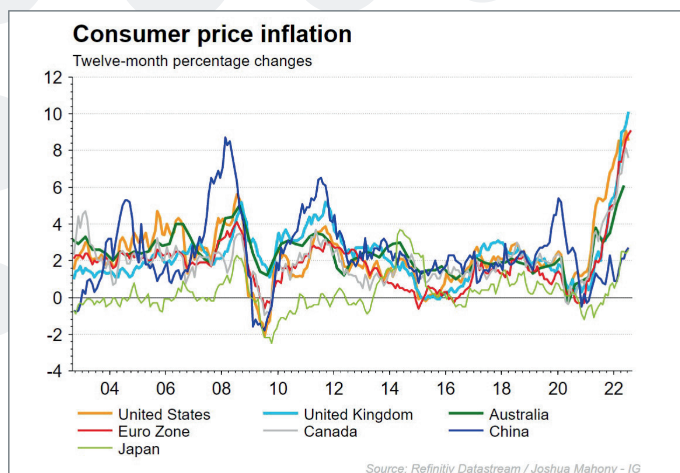

FIGURE 3: ANNUAL CHANGE IN TOTAL CONSUMER PRICE INDEX THROUGH AUGUST 2022

their bank accounts, which led to a surge in deposits. In fact, according to the Federal Reserve, the personal savings rate in the United States increased to a historic high of 33.7% in April 2020. Furthermore, the number of high-net-worth individuals increased during the pandemic. This surge in deposits put pressure on banks to find ways to deploy the excess cash, as they faced a limited set of investment opportunities due to the low interest rates. Some banks chose to invest in securities and bonds. Additionally, the combination of limited productive activity and supply shortages caused by the pandemic made goods scarcer, and a recent surge in spending on goods due to accumulated savings caused inflation to rise even more.

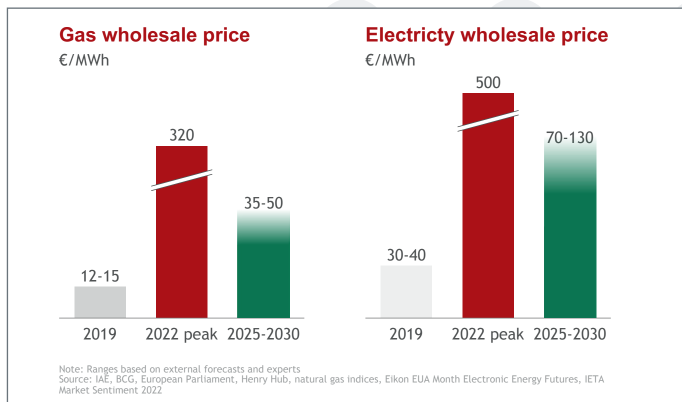

FIGURE 4: DEVELOPMENT OF GAS AND ENERGY WHOLESALE PRICES IN EUROPE

AMPLIFICATION OF THE SITUATION BY THE UKRAINE CONFLICT AND THE RISE OF ENERGY COSTS

This situation has been exacerbated by the ongoing conflict in Ukraine, which had a significant impact on global supply chains, resulting in higher prices and disruptions in supply. This issue has been particularly pronounced in Europe, where the conflict in Ukraine and related sanctions, as well as the depreciation of the euro against the US dollar, have led to rising energy and natural gas prices, as illustrated in figure 4.[1] As a result of these supply chain disruptions and increasing energy costs, inflation rose to as much as 10% in Europe by mid-2022 (figure 3) after years of price stability. To address the rising inflation, central banks in Europe and the US have raised their benchmark interest rates after years of low-interest policies.

The US Federal Reserve, for example, started to increase interest rates at a rapid pace in 2022 (figure 1), marking the biggest interest rate hike in 28 years, as the government battled to regain control over rising consumer prices. This approach starkly contrasts the slow and gradual increase of interest rates from about 1% to 6% during the 2003–2007 period. In 2022 alone, the US central bank raised its benchmark interest rate several times by three-quarters of a percentage point, marking the largest hike since 1994 and causing the steepest interest rate rises in nearly forty years. In Europe and Germany, the interest rate hikes were less dramatic but still pronounced, going from 0 to 3.75%.

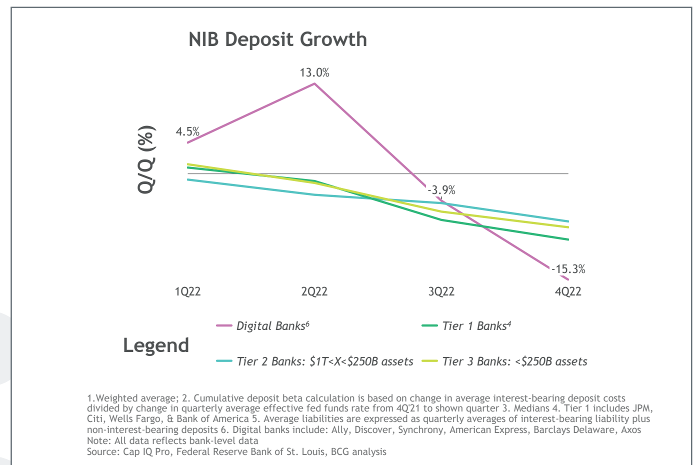

FIGURE 5: DECLINING NIB DEPOSITS IN 2022

RAPID AND STEEP INCREASE OF INTEREST RATES THREATENED THE STABILITY OF SOME BANKS

While these measures by the Fed aimed to curb inflation, they also resulted in higher financing expenditures for private individuals, companies, and governments, leading to a slowdown in economic growth. Furthermore, the potential disruption of Europe's natural gas supply due to the ongoing conflict in Ukraine adds another layer of uncertainty to the situation. Faced with this recent series of crises, the banking sector has focused heavily on mitigating various types of risk, such as sanctions/AML, credit, cyber, market, and liquidity risks. While these risks were quickly addressed, the impact of second-order effects proved to be more significant than initially anticipated. Liquidity risks in particular cause major problems for banks. For instance, in response to the uncertain situation, many individuals and businesses withdrew their deposits from regional banks or switched to other investment opportunities with higher interest rates as a precautionary measure (as seen in figure 5). Both sentiments ultimately reduced the amount of cash banks had on hand to meet payment obligations, which was one of the key factors in the series of recent bank failures..

Thus, as interest rates continued their steep rise, several banks' balance sheets came under immense pressure, leading to significant depreciations in mark-to-market bond and credit portfolios, and initially unrealized losses for hold-to-maturity bond and credit portfolios. In addition, due to the higher competition for deposits, deposit rates increased faster than contracted lending rates, putting a squeeze on the net interest income of banks. Together, these factors ultimately caused multiple bank failures in March of this year.
→ CONTINUE PAGE 6

[1] Ranges based on external forecasts and experts. Source: IAE; European Parliament; Henry Hub; natural gas indices; Eikon EUA Month Electronic Energy Futures; IETA Market Sentiment 2022; BCG

The State of Global Banking: Analyzing the Collapse of Credit Suisse and SVB

The first to fail was Silicon Valley Bank, which collapsed within 36 hours when multiple risks jointly materialized. These risks stemmed mainly from SVB's overreliance on uninsured deposits, its high concentration in tech industry clients, and its heavy investment of excess funds in unhedged long-duration investments (see figure 6), which are less regulated.

The first to fail was Silicon Valley Bank, which collapsed within 36 hours when multiple risks jointly materialized. These risks stemmed mainly from SVB's overreliance on uninsured deposits, its high concentration in tech industry clients, and its heavy investment of excess funds in unhedged long-duration investments (see figure 6), which are less regulated. In addition, the absence of a chief risk officer for 12 months following the resignation of the former CRO in April 2022 left Silicon Valley Bank exposed to the risks that arose from the increasingly unreliable bond market and the tech industry's decline, which caused tech stocks to fall more than 30% in 2022. This strategy left the bank vulnerable, as the concentration of risk piled up in a large treasury position. Paired with the rapidly rising interest rates, this caused the value of its securities portfolio to plummet, resulting in over $17 billion in unrealized losses by the end of the year. The failure to properly manage interest rate risk thus eventually caused the bank's default.

As deposit growth slowed and reversed, the bank's maturity transformation became unsustainable. Thus, SVB was forced to sell securities at a loss of approximately $2 billion to raise money to pay →

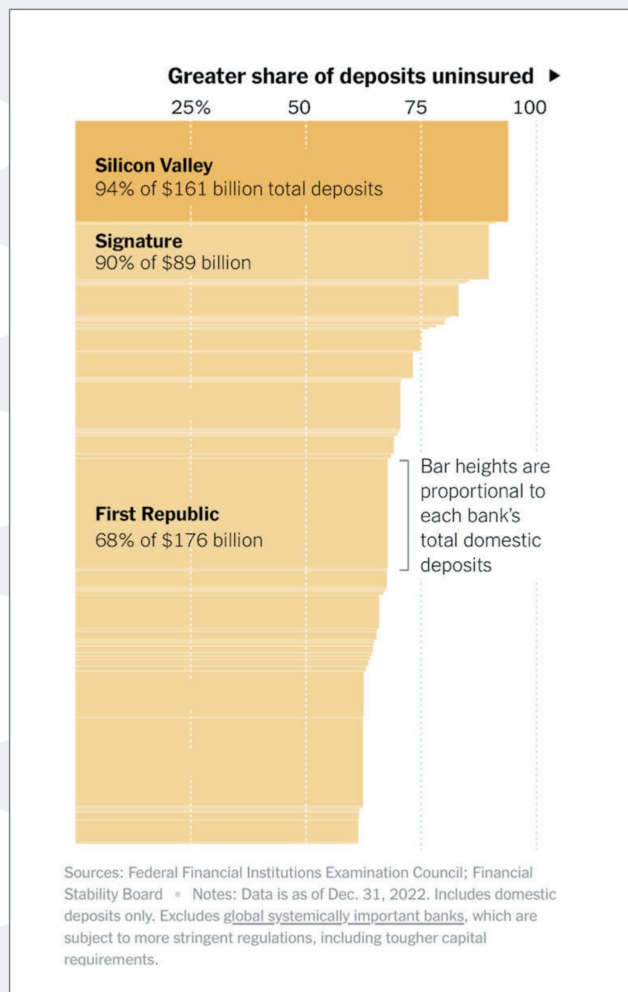

FIGURE 6: TOP 50 BANKS BY SHARE OF DEPOSITS NOT INSURED BY THE FDIC (EXCLUDING BANKING GIANTS CONSIDERED SYSTEMICALLY IMPORTANT)

The State of Global Banking: Analyzing the Collapse of Credit Suisse and SVB

depositors in early March 2023. However, the attempt to raise equity failed. The speedy proliferation of information about the bank's financial difficulties through social media spread panic among depositors. That in turn led to them withdrawing over $40 billion in a single day, ultimately rendering the bank insolvent. On March 10, the Federal Deposit Insurance Corporation (FDIC) had to step in and seize SVB's assets.

The unexpected and abrupt collapse of Silicon Valley Bank, coupled with the rapid spread of information, also gave rise to fears about the health of other banks, creating a contagion risk for local banks in particular. Consequently, two days later, Signature Bank was forced by the FDIC to shut down due to a run on its deposits by customers who were spooked by SVB's failure. Due to the similarity of both banks' heavy reliance on uninsured deposits to fund their operations (see figure 6), depositors rapidly withdrew their funds, leading to liquidity risks that ultimately resulted in the failure of Signature Bank.

In March 2023, Credit Suisse (CS) faced a crisis that ultimately led to its rescue by UBS in an emergency deal. Unlike the failures of Signature Bank and SVB, CS's downfall was not due to the revelation of hidden losses or a "black hole" in the bank's accounts. Instead, it was caused by the erosion of its reputation in the eyes of its customers following a decade of scandals and compliance failures, resulting in multi-billion-dollar losses. In 2014, CS pleaded guilty to federal charges related to tax evasion by some of its US clients, resulting in a $2.6 billion settlement with the federal government and New York financial regulators. The bank's reputation was further damaged by its involvement as an underwriter for Luckin Coffee, which was later delisted from the Nasdaq exchange due to fraudulent accounting practices. In 2019, the bank was further involved in a spying scandal that led to the resignation of its CEO and the departure of its wealth manager. In 2021, in the midst of the pandemic, the collapse of US family investment fund Archegos Capital Management and British finance firm Greensill Capital resulted in a pretax loss of about $1 billion and key executives being let go. What's more, in late 2022, an unsubstantiated rumor that Credit Suisse was facing an impending failure caused clients to withdraw $119 billion, leading to a 75% drop in the bank's stock value. Facing a stock price that lost about three quarters of its value in a year, Credit Suisse announced plans to borrow up to $54 billion to boost liquidity and investor confidence. However, in mid-March its main backer, Saudi National Bank, declined to provide further funding, likely due to regulatory barriers set by Saudi Arabia's Capital Market Authority, limiting the maximum ownership stake a company or individual can hold in a publicly traded company to 10% of its total share capital. Exceeding this limit would trigger additional disclosure requirements and regulatory oversight from both Saudi and European regulators. This series of scandals and stock fluctuations over the past decade led to an exodus of clients who pulled their cash from the bank, and contributed to losses that grew to $7.9 billion in 2022. The situation was only deescalated after UBS stepped in on March 19 and agreed to buy its ailing rival Credit Suisse in an emergency rescue deal aimed at stemming financial market panic. As part of a forced rescue merger with UBS, CS wrote down CHF 16 billion ($17.5 billion) in additional tier 1 or AT1 debt to zero. That means holders of Credit Suisse AT1 bonds will receive nothing, while shareholders will get $3.23 billion, even though they usually rank below bondholders in terms of who gets paid when a bank or company collapses. From a risk management perspective, the failure to properly manage strategic and business risks was one of the main contributors to the collapse of the bank..

IMMEDIATE IMPACT: LOSS OF TRUST IN THE GLOBAL BANKING SECTOR DUE TO THE DEFAULT OF SINGLE BANKS

→ **In this chapter, we analyze how recent defaults of single banks led to a loss of trust in the banking sector as a whole, especially regional ones, and the concerns that more banks might fall. In addition, we look at the major role that social media played in the recent events.**

REGIONAL BANKS IN THE US ARE PARTICULARLY AT RISK DUE TO THE LACK OF STRICT REGULATIONS

The contagion risk was particular high for regional US banks since a lack of regulations—such as the requirement to always meet liquidity ratios (LCR, NSFR)—made them vulnerable to similar risks as those that led to the default of SVP.

Examining the contagion risk, a recent risk analysis of several banks (see figure 7) indicates that banks with a loan–deposit ratio higher than 80% and an over 70% uninsured deposit base are considered to be in the high-risk zone. However, large US banks are currently seen as a safe haven, as they have been experiencing large deposit inflows.

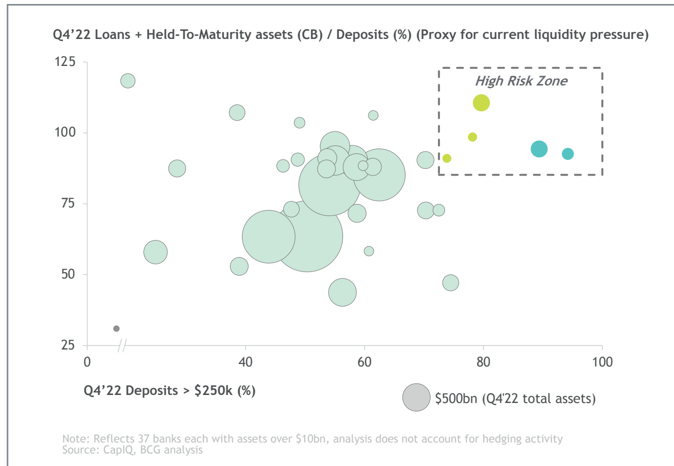

FIGURE 7: RISK ANALYSIS OF 37 BANKS EACH WITH ASSETS OVER $10B (EXCLUDING HEDGING ACTIVITY)

SOCIAL MEDIA FURTHER ACCELERATED THE BANK RUN

While there's nothing new about a financial emergency, the current situation is unique in that it has been hastened by the power of social media to disseminate information quickly. This has led to a frenzy of chatter that has fueled panic, opening old mental scars from the events of 2008, and causing swift movements in share prices. Additionally, customers can now pull out their deposits quickly, making it more of a bank sprint than a bank run. As such, it is imperative that banks prepare for the impact of social media on their operations and develop strategies to mitigate potential crises.

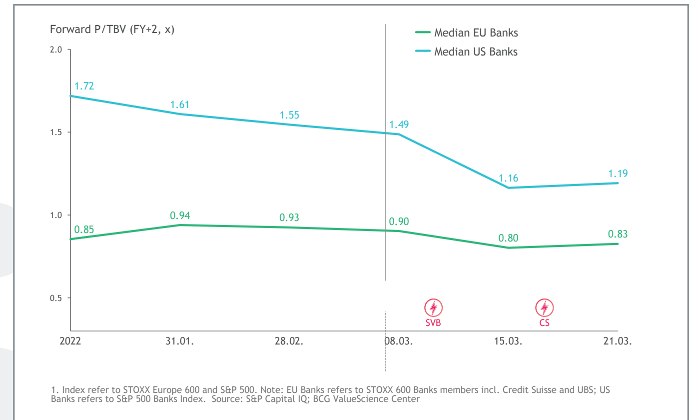

FIGURE 8: RECENT DEVELOPMENT IN MARKET VALUATIONS IN US AND EUROPE

The US financial sector in particular has recently experienced a significant decline in valuations, dropping over 20% following the failure of SVB and inching closer to European levels for the first time (see figure 8). In contrast, Europe's banking sector has been more resilient, with only a slight decrease in valuation despite the forced takeover of Credit Suisse. This stems partially from Europe's more stringent requirements for banks (such as the 2014 CRDIV/CRR requirements of CET1, leverage ratio, LCR, NSFR, etc.) that discourage holding a large amount of uninsured, chunky deposits.

These recent events, which are widely seen as idiosyncratic, raise questions about a possible unfolding of another banking crisis similar to the financial crisis of 2008. However, although there are some similarities to the 2007/08 financial crisis, the banking sector is now better prepared. This is due to several improvements in banking regulations and practices, including higher equity ratios, with European banks now holding around 15% CET capital ratios compared to 10% in 2008 under Basel III regulations. Banks also have higher liquidity coverage with the introduction and monitoring of LCR/NSFR[2] liquidity and funding ratios, holding 15–20% cash and equivalents to total assets, compared to 8–12% in 2008 in Europe. Banks have also improved their portfolio steering and stress testing methods, and regulators have increased monitoring and transparency of banks' risks. However, despite these improvements that have equipped the banking sector to better handle financial crises, there is still room for improvement.

[2] Liquidity coverage ratio / net stable funding ratio

PREPARED BUT NOT IMMUNE: QUICK INTERVENTIONS STABILIZED THE SITUATION BUT ALSO HIGHLIGHTED THE NEED FOR IMPROVEMENTS

→ **In this chapter we list the measures that banks should take to better prepare for potential risks. These include ALM strategies, a better compliance culture and systems, and the implementation of stress tests covering a wider range of scenarios. Furthermore, we outline the expectations towards the regulator.**

FURTHER MEASURES NEEDED BY BANKS TO IMPROVE LIQUIDITY AND RISK MANAGEMENT AND TO ESTABLISH A SUITABLE COMPLIANCE CULTURE

In light of recent bank failures, financial institutions should take steps to position themselves for long-term success and better protect themselves against potential risks. These steps may include developing an improved ALM strategy, establishing a robust compliance structure, and conducting a thorough assessment of fully allocated risk in traded assets.

One key lesson learned is the importance of effective asset and liability management for banks and the need for funding diversification. The rapid rise in interest rates not only increased the risk of an outflow of deposits on the liability side but also significantly reduced the value of bond portfolios on the asset side of the balance sheet. Banks should therefore avoid relying too heavily on single funding sources, as this can leave them vulnerable in case of a sudden market shift, as seen for SVP, especially when these funding sources include a high ratio of uninsured deposits. That is why it's important to adopt a funding strategy based on diversified sources and establish mechanisms including scenario-based stress tests that will highlight the vulnerabilities in the balance sheet and ensure the transparency to act in time. In addition, given the risk of negative information spreading rapidly in today's digital age and the increased risk of sudden bank runs, a careful communication strategy is crucial. To address these issues, it is also important that central banks continue to proactively stress test the banking sector and prepare potential liquidity support mechanisms.

The failure of compliance structures within banks, as seen in the case of Credit Suisse, has led to bank failures from a variety of factors. One key issue was a lack of proper oversight and regulations, which allowed banks to engage in risky and unethical behavior without consequences. This resulted in a culture of disregarding compliance and risk management, prioritizing short-term gains over long-term stability, and ultimately undermining the stability and integrity of the banking system as a whole. To prevent these issues and maintain the trust of their stakeholders, it is crucial for banks to prioritize compliance and risk management by instituting strong governance mechanisms. This includes, first, establishing clear lines of responsibility and accountability for risk management, setting up effective risk committees, and regularly reporting on risk management activities to the board and other stakeholders, and second, having all the right tools in place to identify risks in time.

Another challenge facing banks is the adequacy of risk approaches, which are generally developed and improved based on past crises. To understand potential risks and drive transparency, business leaders must ensure that they have a comprehensive understanding of their risk landscape, which requires a thorough risk assessment and analysis process that considers both internal and external factors. For example, banks need to consider further inflation and interest rate increases that could have an impact on their equity and liquidity, along with the potential concentration risks in their balance sheets that magnify existing risks. Additionally, monitoring and predicting deposit (out)flows is essential for banks to ensure adequate liquidity management. Risk approaches are also often too siloed and not sufficiently scenario- or sensitivity-based, which can leave banks vulnerable to concentration risks. The downside of this siloed approach is that it can obscure the interconnectedness of risks, leaving banks susceptible to systemic risks that can have far-reaching impacts on the broader financial system. This has been seen in past crises, such as the 2008 financial crisis, where the interconnectedness of risks in the housing market led to widespread defaults and a collapse of the financial system. As seen in the collapse of SVB, the emergence of new risks in the digital age, such as the speed at which events can unfold through accessibility and social media, adds to the complexity of risk management for banks. In today's fast-paced business environment, banks need to adopt a proactive and agile risk posture to stay ahead of potential risks and maintain their competitiveness. They need to focus on developing the right capabilities and risk measurement frameworks tailored to the specific risks faced by the different players in the market. Instituting effective scenario- and sensitivity-based stress tests is the key to effective risk management.

REGULATORS NEED TO STRICTLY ENFORCE EXISTING REGULATIONS AND MAKE FURTHER IMPROVEMENTS

Besides banks' responsibilities to avoid and mitigate risks effectively, regulators should also focus on enforcing existing regulations and improving oversight. The collapse of SVP was directly correlated to the reduced intensity of the regulation for US banks with total assets less than $250 billion. Until

these regulations are improved, a structural risk exists in the market of regional US banks, as recently seen again in the case of First Republic Bank. In general, regulatory improvements should include the full implementation of Basel III in developed countries. They should rigorously implement FRTB for market risks, applying the LCR ratio to all banks, including regional US banks. Other advisable precautions include evaluating and improving current resolution plans, enforcing thorough adoption of the BCBS 239 principle for data transparency, and increasing the oversight of the market-based finance sector, which could be the source of a future crisis in the financial industry due to the current lack of transparency.

MULTIPLE RISKS STILL EXIST THAT COULD DESTABILIZE THE GLOBAL ECONOMY—STRESS TESTS WITH A WIDER RANGE OF SCENARIOS THEREFORE NEED TO BE IMPLEMENTED

Apart from the contingency risk to local banks, additional concerns about the health of the commercial real estate market are on the rise, with some investors questioning whether it could be the next sector to implode following last month's banking crisis. The European Central Bank has warned of "clear signs of vulnerability" in the property sector, citing "declining market liquidity and price corrections" as reasons for the uncertainty and calling for new curbs on commercial property funds to reduce the risk of an illiquidity crisis. The office segment in particular has emerged as central to potential downturn fears given the wider shift towards remote or hybrid working patterns following the COVID pandemic. Recently, BlackRock also closed one of its real estate funds, which might have been due to liquidity issues and could indicate a general uncertainty in the market about real estate investments.

Finally, the impact of rising interest rates in the USA and their implications on emerging markets present another challenge for banks worldwide. While the climbing interest rates can benefit the US economy, it can also lead to significant capital outflows from emerging markets, creating issues such as increased volatility and potential market instability. This is particularly concerning given the increasing interconnectedness of global financial systems. Many emerging market economies are heavily reliant on external funding, which can be disrupted by changes in interest rates. In addition to the impact of rising interest rates, other factors can worsen the situation. One of these is the level of debt held by many emerging market economies, which can leave them vulnerable to external shocks. Another is the exposure of Western banks to these economies, which can result in contagion effects that spread across global financial systems. Moreover, many emerging market economies are highly dependent on commodity exports, which can make them susceptible to fluctuations in global commodity prices. For example, China is a major consumer of commodities and a significant player in emerging markets. As a result, a slowdown in China's economy can have ripple effects on other emerging markets.

To address the variety of potential risk, regulators and banks should redesign current stress tests to include a broader range of scenarios since, for example, the existing regulatory stress tests only include an interest rate increase of 2% compared to the approximately 5% that we are actually seeing. These tests should account for the following eventualities:

- Ongoing local conflicts such as the expansion of conflicts beyond Ukraine or prolonged military conflict
- Global developments such as an economic downturn in emerging countries
- Increase in trading restrictions with China following a general conflict between East and West
- Recurrence of the euro crisis due to unsustainable government debts or the occurrence of similar problems in the USA
- Crisis in the corporate real estate market in the USA and Europe or in market-based financing
- General increase in counterparty risks as a result of the described macroeconomic effects

This evaluation should then consider the potential impact of such scenarios on the valuation of existing bank assets and equity ratios, deposit volatility in a banking crisis, and lower lending volumes affecting business plans of corporates. Using such scenario playbooks, banks (regardless of their size) and regulators alike can then enforce proactive holistic risk management to identify potential future risks in time. By defining a wide variety of scenarios, banks can be better equipped to mitigate risks and respond quickly and effectively.

Despite all the challenges described above, there are still several reasons for optimism in the global economy and banking industry. First, China has reopened its economy, which is expected to drive GDP growth. Additionally, banks have strengthened their capital positions, making them more resilient to potential economic shocks. Regulators have also become more sophisticated in overseeing the industry, and there is a greater level of political and central bank intent to manage risks. With the pandemic now under control, there is still a lot of money in the market and a strong demand for investments, creating a positive environment for banks and their customers alike.

LEAD AUTHORS:

GEROLD GRASSHOFF, TIL BÜNDER

Supported by the Global Risk Team
of The Boston Consulting Group