THE 2023 BANKING CRISES: THE CAUSES AND THE ROLE PLAYED BY BANK MANAGEMENT, SUPERVISORS AND REGULATORS

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Abstract

The events of 2023 have served as a reminder of how quickly banking crises can occur. This article analyses the roots of the problems which, ultimately, against a backdrop of uncertainty and rapid contagion effects, affected banks whose business models, governance and risk management presented significant weaknesses. The article also reviews the main implications for the banking sector and authorities worldwide. These events are a fresh reminder that the banking business must be based on business models that are sustainable over time and on appropriate risk management. In addition, the events again highlight the importance of supervisory activity having available the tools needed to guarantee an early and effective response. Lastly, although the current regulations have helped to check the systemic reach of crises, thanks to the increased resilience of the banking sector, reinforcing again the need to implement the Basel III framework, there are certain areas where analysis of the operation of the prudential regulatory framework should continue.

Keywords: banking crises, contagion, risk management, liquidity risk, prudential regulation, solvency, supervision.

1 Introduction

Between March and May 2023,[1] the US banking sector saw successive banking crises at several banks – Silicon Valley Bank (SVB), Silvergate Bank, Signature Bank and First Republic Bank – that were facing liquidity problems as a result of having lost the trust of their depositors and of the markets. Meanwhile, in Switzerland, Credit Suisse was affected by the market distrust provoked by the crises among these US banks. The outcome was that they became non-viable and either self-liquidated (Silvergate Bank) or were resolved and/or sold (SVB, Signature Bank, Credit Suisse and First Republic Bank).

These events took place in a setting in which both banking and financial markets were already highly sensitive as a result of the worsening of the macroeconomic situation owing to the war in Ukraine, the existing inflationary tensions and the subsequent interest rate hikes stemming from the necessary monetary policy tightening. In consequence, in view of the first signs of crisis at some individual banks, the markets focused on other banks that were showing signs of weakness, prompting outflows of funds and liquidity problems. The authorities made available additional liquidity lines and adopted certain other measures designed to curb the

1 On 28 July, the Federal Deposit Insurance Corporation (FDIC) announced that the Kansas Office of the State Bank Commissioner had closed Heartland Tri-State Bank of Elkhart and that all deposit accounts had been transferred to Dream First Bank, National Association of Syracuse (Kansas). This was the result of a scam and had no relation to the crises analysed here.

contagion effects. But these actions failed to halt the strong and rapid outflows of funds at the banks concerned, and ultimately the supervisory and resolution authorities had to intervene to address the problems identified at these banks and thus safeguard the stability of the financial system.

The triggers of the loss of confidence and liquidity problems at the banks affected by the crisis included the tightening of monetary conditions and the worsening of the economic and financial conditions of a significant proportion of some of these banks' customers. These factors led to funds being withdrawn at a whirlwind pace and had a serious impact on the liquidity of the banks concerned, which in order to maintain their liquidity levels then had to resort to markets that were already highly sensitive, which prompted even more doubts about their position. They also brought to light serious shortcomings in their interest rate risk and liquidity risk management, which far from being the result of a temporary situation had been developing over time and became fully visible as interest rates rose.

Although the above-mentioned banks have certain different characteristics, to a greater or lesser extent they also share the underlying causes of the crises that affected them:

— A lack of sustainability in their business models and of a comprehensive business view. In most cases, they had recorded swift and significant growth in assets over a short period, linked to businesses in rapid expansion, and had high customer concentration in certain sectors (technology (SVB), digitalisation (Silvergate Bank), crypto-assets (Signature Bank), private banking and high net worth (Credit Suisse), and banking services to wealthy customers (First Republic)). Several of these banks had a high concentration of liabilities in large deposits that were not covered by deposit guarantee schemes and were potentially subject to high turnover.

— Weak liquidity management. Insufficient asset diversification; inadequate or no contingency plans relating to alternative liquidity lines for crisis situations, with inappropriate management of the collateral available.

— Weak interest rate risk management. Inappropriate management of the duration gap between assets and liabilities. Most of the banks affected had large held-to-maturity portfolios recorded at amortised cost, whose market price fell when the monetary policy stance shifted. This resulted in losses when, faced by liquidity stress, the banks tried to liquidate these assets.

— Inappropriate governance. A lack of monitoring and control by management bodies of the risks and problems or shortcomings (findings) identified by the supervisory authorities.

Compared with the great financial crisis of 2008-2012, the crises observed in 2023 are different, as they affected only a small number of banks and occurred in a very different regulatory and supervisory environment. In the recent cases, the financial authorities swiftly took control of

the situation, so that the contagion effects were limited and repercussions on global financial stability were avoided. The financial authorities also noted the importance of ensuring that supervisory activity had available the tools needed to guarantee an early and effective response. Moreover, these crises provided an opportunity for analysis as to whether the current regulatory framework needs further improvement.

The article first describes the events observed and their causes (Section 2). It then analyses the role of supervision (Section 3) and the applicable regulatory framework (Section 4), reflecting on how they worked.

2 Recent banking crises: general description, common causes and differences

The banking crises involving four US banks (SVB, Silvergate Bank, Signature Bank and First Republic Bank) and one Swiss bank (Credit Suisse) all originated, albeit with a different relative importance in each case, from weaknesses in their business models, poor governance and inadequate risk management. The crises in the United States were triggered by the change in the monetary policy stance, which led to interest rate hikes, revealing shortcomings in interest rate and liquidity risk management, and by the distrust and the extraordinarily fast contagion effects, in a setting of uncertainty and market sensitivity when the first problems began to emerge (Gruenberg, 2023a, 2023b).

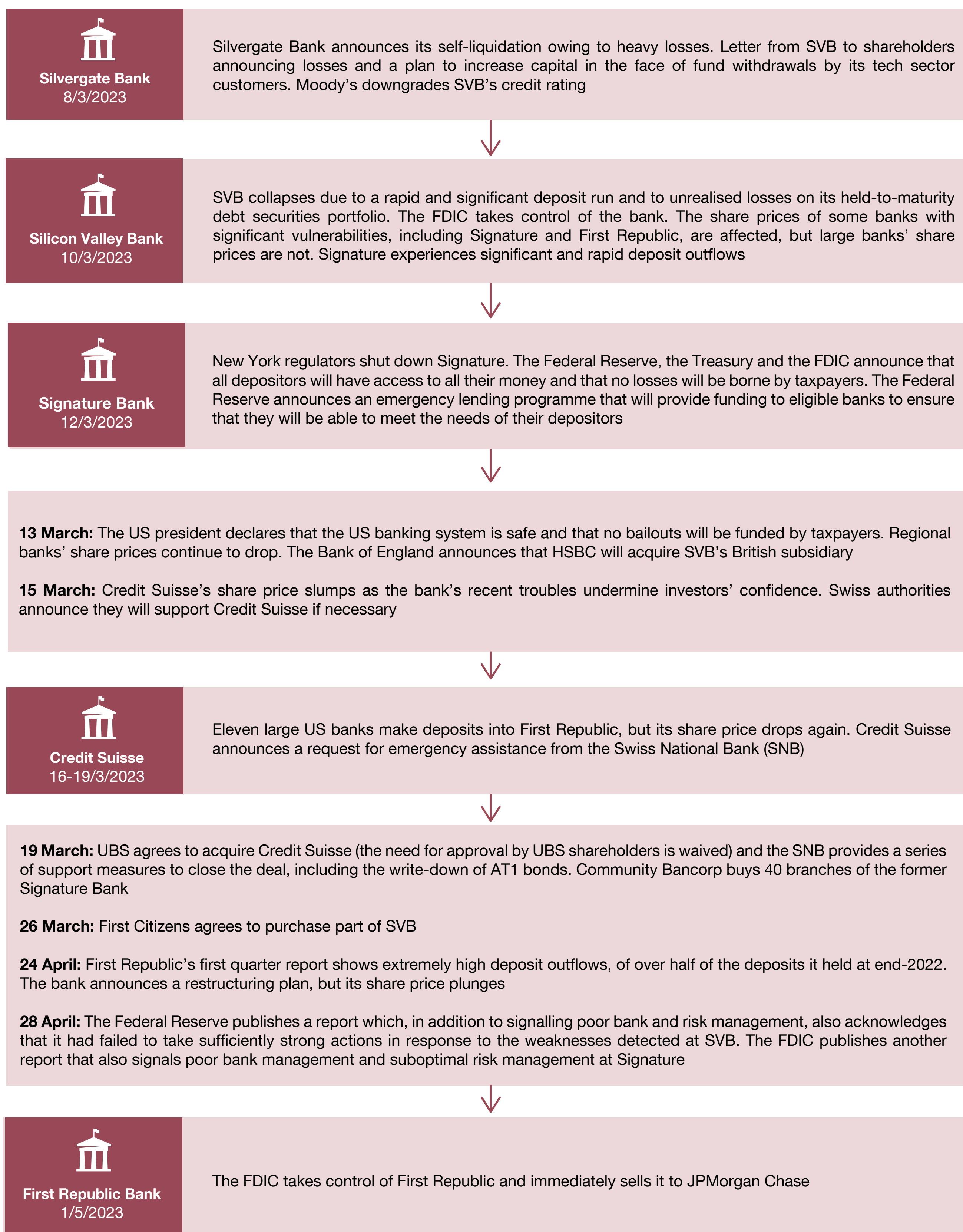
These events evidence the importance of distrust and contagion effects in the unfolding of crises, especially in today's world where information is communicated and disseminated faster than ever. Also, as usual in all crises, the banks that show the most weaknesses and shortcomings in internal control and risk management are the most vulnerable to these contagion effects and to the consequent withdrawal of funds. They are more prone to suffering self-propelling liquidity tensions that may ultimately render the institution non-viable (Enria, 2023; Federal Reserve Board (FRB), 2023a; Federal Deposit Insurance Corporation (FDIC), 2023).

Figure 1 shows a summarised timeline of the events that took place and Figure 2 presents some of the main characteristics of the banks affected by the crisis, their business models, their main problems and the crisis exit strategies implemented by the supervisory or resolution authorities.

Some of the main events affecting the banks are described below:

— The California-based Silvergate Bank was the first to be affected by the successive crises that started in March 2023. Its business was concentrated on providing services to digital sector firms (Gruenberg, 2023a), and it had been recording extraordinarily strong growth since 2019. The collapse of the FTX crypto-currency exchange platform in November 2022 affected around 10% of its deposits. Subsequently, in 2022 Q4 it experienced a significant outflow of deposits from digital sector customers and this, combined with the impact of the FTX case, resulted in a large-scale deposit flight (Silvergate Bank, 2023). This caused the bank to sell

Figure 1
A timeline of how the banking crises unfolded between March and May 2023



SOURCE: Devised by authors.

Figure 2
Main characteristics of the banks affected by the March to May 2023 crises

	Silvergate Bank	Silicon Valley Bank (SVB)	Signature Bank (SBNY)	Credit Suisse	First Republic Bank
Date of "non-viability"	8/3/2023	10/3/2023	12/3/2023	16-19/3/2023	1/5/2023
Event	Self-liquidation	FDIC resolution Bridge bank Acquisition by First Citizens Bank & Trust Company	FDIC resolution Bridge bank Flagstar Bank (a New York Community Bancorp subsidiary) assumes substantially all deposits and certain loan portfolios	16-19/3/2023 SNB and FINMA agree on sale to UBS	FDIC resolution JP Morgan Chase Bank assumes all deposits and substantially all assets
Business model in recent years	Focused on providing services to the digital assets sector	Focused on customers in the technology and venture capital sectors	Focused on deposits from the crypto-asset sector	Focused on high net worth clients and private banking	Focused on business with high net worth clients and private banking
Assets (*) ($bn) 2019 2022	2.1 11.3	69.9 209.0	50.6 110.4	827.9 574.6	116.3 212.6
Deposits not covered by deposit insurance funds (% of total). Average values 2022/2023 Q1 (**)	≈ 60	> 80	> 80	n. d.	> 50
Supervisor (***)	Federal Reserve - San Francisco Federal Reserve Bank and California Department of Financial Protection and Innovation	Federal Reserve - San Francisco Federal Reserve Bank	New York State Department of Financial Services (NYSDFS) and FDIC - New York Regional Office	FINMA	FDIC and California Department of Financial Protection and Innovation

(*) SNL (S&P Global). (**) BCBS (2023), Gruenberg (2023) and Standard and Poor's (2023). (***) The supervisory system in the United States is complex as there are state and federal charters and federal banks may choose to be supervised by a state or federal supervisor (see Section 3).

SOURCE: Devised by authors.

portfolio debt securities, resulting in a $1 billion loss. The bank's deteriorating situation led to the announcement on 1 March 2023 of a delay in the publication of its 2022 profit and loss account. The reaction was a sudden, steep drop in Silvergate Bank's share price. Finally, on 8 March, it announced that it would self-liquidate.

— SVB was a California-based bank whose business model focused on private banking customers linked to the technology and venture capital sectors. Its assets had grown rapidly, tripling between 2019 and 2021, linked to the growth of the sectors from which it drew most of its customers. The bank's assets were concentrated in medium and long-term US Treasury and other agency securities. It also engaged in cross-border activity with a subsidiary in the United Kingdom and branches in Germany, Canada and the Cayman Islands. SVB had been experiencing deposit outflows from the technology sector since 2022. On the same day that Silvergate announced its decision to self-liquidate, SVB announced a plan to restructure its balance sheet and sold off a substantial part of its held-to-maturity portfolio (recorded at amortised cost until then) at a significant loss. It also announced that it intended to issue capital and increase its medium-term indebtedness. A very swift deposit run-off ensued. According to some estimates, in two days SVB lost around 80% of its deposits (Basel Committee on Banking Supervision (BCBS), 2023c). SVB had a high percentage of deposits that were not covered by the deposit insurance fund. In an attempt to curb the contagion effects in the system and mitigate the loss of trust in banking markets, the FDIC granted all deposits access to the insurance fund, a measure that was also adopted in the case of Signature Bank (see Box 1). As SVB did not have adequate plans to deal with significant liquidity tensions, it was unable to make greater use of the existing liquidity facilities.

  The US Federal Reserve System, SVB's federal regulator, informed the FDIC – which engaged with the local regulatory authority, the California Department of Financial Protection and Innovation (CADFPI), i.e. the chartering authority – that it was unlikely that the bank would be able to continue to face the liquidity outflows. On 10 March 2023 SVB was closed by the CADFPI and the FDIC was appointed as receiver. This also entailed the resolution of its UK subsidiary (SVB UK), whose business model was similar to that of its parent. The FDIC initiated a process to search for a purchaser for the bank. Once the systemic risk determination was made, the FDIC created a bridge bank, which continued SVB's operations while it attempted to find an acquirer. Finally, on 26 March, the FDIC entered into an agreement with First Citizens Bank & Trust Company, Raleigh (North Carolina), whereby this institution would acquire all of SVB's deposits and loans. For its part, the Bank of England, as resolution authority, sold SVB UK's business to HSBC (Bank of England, 2023). SVB and First Republic Bank are the two largest US bank failures since the 2008 global financial crisis.

— Signature Bank, which was also affected by the March events, was originally focused on the commercial real estate sector and on financing for the industrial and wholesale and retail trade sectors. In 2018 it expanded its business model towards the private equity and digitalisation segments. Between 2019 and 2020 its assets grew by 64%.

Box 1

LIQUIDITY DURING THE RECENT BANKING CRISES AND SUPPORT PROVIDED BY THE AUTHORITIES

As explained in the main text, the crises observed materialised and were triggered by liquidity tensions. Agents' lack of confidence, resulting in very rapid deposit outflows, the difficulties the banks concerned encountered in securing market funding and the absence of appropriate contingency plans (in some cases they lacked collateral or the appropriate documentation to efficiently access the liquidity support available) triggered a sequence of bank failures. This contagion effect led to untenable situations with the mechanisms in place under the ordinary framework and ultimately the authorities had to step in with the following types of public support.[1]

United States

In addition to the ordinary liquidity lines, such as the Federal Reserve System's discount window and, as they were regional banks, the liquidity lines available through the Federal Home Loan Banks (FHLBs), the Federal Reserve launched its Bank Term Funding Program (BTFP) (Ostrander, 2023). In addition, on 12 March the Treasury, the FDIC and the Federal Reserve announced a systemic risk exception whereby the FDIC would guarantee all uninsured deposits in excess of $250,000 at SVB and Signature Bank to avoid further deposit runs at the banks concerned and adverse effects on financial stability (Congressional Research Service, 2023).

The liquidity provided by the Federal Reserve to depository institutions through the discount window[2] increased very significantly in March 2023 and the following months, and has since stabilised at significantly higher levels than in previous periods. According to the weekly data published by the Federal Reserve,[3] in the week of 29 December 2020 it granted loans amounting to $16.1 billion. After the SVB intervention, this amount soared to $295.3 billion in the week of 29 March 2023 and to $211.9 billion in the week of 24 May 2023. Since then, lending has remained at high levels with respect to previous periods ($141.1 billion in the week of 6 September 2023),[4] and all this without including the liquidity provided by the BTFP.

The BTFP was designed by the Federal Reserve over the weekend of 11-12 March 2023 to provide banks with a source of funding and to help protect the financial system's stability. The programme aimed to avoid sales of assets in some banks' held-to-maturity portfolios and it was therefore considered effective to avoid further contagion effects (Ostrander, 2023). It allowed the banks to use the holdings of securities issued by the Treasury and other US agencies held in their portfolios as of 12 March as collateral to obtain financing up to the par value, rather than market value, of such securities, with a one-year term and the possibility of early repayment without penalty. This programme was deemed appropriate, given that the Federal Reserve's discount window facility only provides loans with a haircut applied to the collateral's market value and with a maximum maturity of four months. In exchange, in the event of default, the loans granted under the BTFP would have other assets of the borrower as security, not only the collateral, as is the case with the discount window. Also, in the event of default and a lack of other guarantees, the Treasury granted a guarantee to the Federal Reserve of up to $25 billion. The outstanding amount of the loans granted under this programme stood at $62.6 billion in the week of 29 March and at $88.7 billion in the week of 24 May (the average balance of loans under the BTFP stood at $107.7 billion in the week of 6 September).[5]

The FHLBs also provided liquidity to banks. The FHLBs are regional government sponsored enterprises (GSEs) that are privately and independently capitalised. They are, therefore, not centrally managed and their securities are not backed by any state agency. In March 2023, FHLB members' demand for advances accelerated, partly in response to the situation created by the banks under stress.[6] The outstanding balance of these advances at December 2021 for the ten largest counterparties was $93.3 billion. This amount rose to $219.8 billion at

1 In addition to the support measures described in this box, the central banks of Canada, the United States, Japan, the United Kingdom and Switzerland and the European Central Bank took coordinated action to provide US dollar liquidity (the frequency of swap line operations used to provide dollar funding was increased from weekly to daily).

2 The Federal Reserve's discount window includes several types of credit (primary, secondary, seasonal and emergency credit).

3 The figures are averages for the weeks ending on the dates indicated.

4 Figures taken from the Federal Reserve's weekly H.4.1 release.

5 H.4.1 release.

6 The FHLBs provide funding to their members mainly through secured loans known as advances that are collateralised by mortgage loans or other types of eligible collateral held by the borrower banks.

Box 1

LIQUIDITY DURING THE RECENT BANKING CRISES AND SUPPORT PROVIDED BY THE AUTHORITIES (cont'd)

December 2022 (of which $14 billion related to SVB and $15 billion to First Republic),[7] and to $326 billion at March 2023 (FHLBs, 2023). Silvergate Bank, SVB and First Republic were members of FHLB San Francisco and Signature Bank was a member of FHLB New York.

In addition, as an ad hoc support measure, on 16 March a consortium of 11 large US banks deposited $30 billion in uninsured deposits into First Republic to stop the contagion effects. The measure only had a temporary effect on the withdrawal of deposits from the bank.

The contingency plans of the US banks affected by these recent crises were inadequate in a setting of rapid liquidity outflows and acute liquidity strains. In general, small and midsize banks were excessively reliant on a single liquidity source. For instance, Signature Bank concentrated its access to liquidity on the Federal Home Loan Bank of New York and lacked preparation for using the Federal Reserve's liquidity channels. A similar lack of preparation and procedures was observed at SVB. In 2022 it had not analysed its capacity to access the discount window and showed operational shortcomings (lack of appropriate collateral and agile procedures to obtain liquidity).

Switzerland

As a result of the developments at Credit Suisse, and the announcement of the bank's point of non-viability and its sale to UBS, the Swiss authorities offered various types of public assistance to facilitate the bank's sale and its access to liquidity facilities.

On 15 March, prior to the bank's demise, the Swiss monetary authority – the Swiss National Bank (SNB) – announced that it was prepared to grant emergency liquidity assistance (ELA) if necessary. Subsequently, the Swiss authorities[8] adopted certain emergency measures, which included:

— The introduction of an additional liquidity facility (ELA+) of up to CHF 100 billion, securing a hierarchy of privilege for this assistance in the event of insolvency.

— A public liquidity backstop was also activated that enabled the SNB to grant additional liquidity of up to CHF 100 billion to Credit Suisse with a state guarantee from the Swiss Confederation.

— A federal guarantee of CHF 9 billion was established to cover possible losses deriving from Credit Suisse's balance sheet during the takeover by UBS (provided such losses exceeded CHF 5 billion) (FINMA, 2023a).

On 11 August 2023 the authorities terminated the federal guarantees. No losses arose from these guarantees before they were terminated. The Swiss Confederation earned receipts of CHF 200 million as a result of the support measures launched.[9] The Swiss Federal Council has announced that it intends to submit a legislative proposal to Parliament to introduce a public liquidity backstop in Swiss law. In addition, work will continue on the revision of the regulatory and supervisory framework for banks deemed too big to fail.

7 Figures drawn from Federal Home Loan Banks (2022).

8 FINMA (2023a), the Swiss Federal Department of Finance (FDF) (2023b) and the SNB (2023c).

9 Swiss Federal Council (2023).

Like SVB, around 90% of Signature Bank's deposits were not insured by the FDIC. 20% of its deposits were from digital sector firms, although it did not grant loans to this sector. In the second half of 2022, the digital asset market shocks arising from the collapse of some important crypto-asset firms, such as FTX and Alameda Trading, and Signature Bank's announcement of a delay in publishing its financial statements, prompted rising concerns about its liquidity position, which led to significant deposit outflows. The situation became more critical with SVB's failure on 10 March. Signature Bank did not have adequate contingency plans to address the liquidity tensions (see Box 1); this prevented it from using the liquidity support

available and raised questions about its viability. Ultimately, on 12 March, the New York State Department of Financial Services (NYSDFS) closed the bank. Within 48 hours of SVB's failure, the FDIC took charge of the resolution of Signature Bank and a bridge bank was created. On 20 March Flagstar (a subsidiary of New York Community Bancorp) entered into an agreement with the FDIC to acquire most of the deposits and part of the loans of the failed Signature Bank (FDIC, 2023).

— In this setting, the uncertainties and problems Credit Suisse was already experiencing as a result of several scandals involving its managers and operations worsened in March. Over the course of 2021 and 2022 Credit Suisse incurred losses owing to its role in the Archegos and Greensill cases which triggered mistrust in the bank (Alonso Olmedo, Anguren Martín, Gamoneda Roca and Pérez Rodríguez, 2023; FINMA, 2023b). The actions taken by the Swiss Financial Market Supervisory Authority (FINMA) revealed weaknesses in the governance and risk management and control areas, although the capital and liquidity ratios remained sound, in part thanks to the issuance of mandatory convertible notes following the losses incurred due to its operations with Archegos. Since the shocks that affected the markets as a result of the emergence of COVID-19 in March 2020, FINMA had been requiring Credit Suisse to expand its liquidity buffers. After incurring net losses in three consecutive quarters, the bank issued a profit warning after 2022 Q2 which triggered a credit rating downgrade by rating agencies. This, together with a worsening of the macro-financial setting, led Credit Suisse to announce a revision of its strategy, which included a capital increase; however, this did not stop the significant liquidity outflows, amid intense rumours about its soundness. The bank's credit rating, credit default swaps (CDSs) and market capitalisation moved significantly apart from the average levels of its peer group of global systemically important banks (G-SIBs). Credit Suisse also delayed the publication of its annual report, which was scheduled for 9 March 2023, owing to last-minute technical comments by the United States Securities and Exchange Commission.

All the above, together with a public communication from one of the bank's major shareholders stating that it did not intend to participate in the capital increase announced, raised more uncertainties about Credit Suisse's situation, despite the Swiss authorities having announced that they would support the bank's liquidity (see Box 1). Accordingly, between 16 and 17 March, the Swiss authorities, led by the Swiss Federal Council (SFC), adopted emergency measures to safeguard Credit Suisse's viability and support its takeover by the Swiss bank UBS, with the aim of protecting financial stability and the Swiss economy. In addition to adopting emergency liquidity measures (see Box 1), the Swiss Confederation granted UBS a public guarantee for any losses that could materialise. Also, FINMA informed Credit Suisse that its additional Tier 1 (AT1) capital (contingent convertible bonds or CoCos) would be written down, meaning that bondholders would bear losses before shareholders (FINMA, 2023a). This sparked adverse reactions on the AT1 markets, with European supervisors issuing statements on the legal certainty of the use and write-down of AT1 instruments (see Box 3).

— First Republic Bank (First Republic), a California bank that mainly provided private banking and brokerage services, was the next and last case of this series. At end-2022 68% of the bank's deposits were not covered by the deposit insurance fund. Although it benefited initially from some of SVB's deposit outflows, it soon began to see fund withdrawals owing to contagion effects at regional banks with high percentages of uninsured deposits. The deposit runs intensified following the SVB crisis of 10 March. Despite the liquidity support provided by the Federal Reserve, the Federal Home Loan Banks (FHLBs) and a consortium of 11 major US banks (see Box 1), and the bank's plans to increase capital and restructure its business model, strong deposit outflows continued. Finally, on 1 May, the CADFPI closed First Republic and appointed the FDIC as receiver. The FDIC resolved that JPMorgan Chase Bank would acquire all of First Republic's deposits and substantially all of its assets. An agreement was entered into between the FDIC and the acquiring institution to share any potential losses arising in the loan portfolio.

Therefore, before the liquidity stress and the crises emerged, the banks concerned already had significant shortcomings and risk management and governance problems. In general, their business lacked diversification and was concentrated in certain sectors that had expanded rapidly in recent years (Enria, 2023).

The change in the US and European monetary policy stance was the catalyst that revealed the underlying problems in SVB's balance sheet and its business model and the trigger for contagion to other banks. This led to markets attaching particular importance to unrealised losses in their portfolios, even though they were ultimately not to materialise.

Although, as explained in Box 1, the crisis-stricken banks received significant liquidity support from the authorities, in the end, the authorities were unable to halt the spread of mistrust and contagion effects at the banks affected by management shortcomings.

3 The role of supervision

The events observed were the first major test for the global banking system since the great financial crisis of 2008. Accordingly, not only is it important to consider the events from the standpoint of individual banks' own management, but analysis is also required of the activity of supervisors and the joint functioning of regulatory reforms that were adopted in the wake of that crisis. In consequence, international bodies and regional and national authorities have embarked on analyses of the events that occurred and of their possible regulatory and supervisory implications.[2]

2 This article does not address the resolution perspective, which has been considered at the global level by the Financial Stability Board (FSB). To date it has found no operational weaknesses, but rather challenges for the implementation of the international resolution framework (FSB, 2023b).

Table 1
US supervisory structure

Charter type	Chartering authority		Deposit insurance
	Federal supervisor	State supervisor	
State	Federal Reserve Bank (e.g. FRB San Francisco) or the FDIC	State (e.g. California Department of Financial Protection and Innovation)	FDIC
Federal	OCC	—	FDIC

SOURCE: Banco de España.

When reviewing these cases, it is appropriate to analyse whether the supervisory and regulatory framework in place was appropriate to deal with these problems, and also the broad lessons learnt from the supervisory and regulatory standpoint (BCBS, 2023a and 2023b).

The supervisors of the banks concerned had already detected weaknesses. However, as is explicitly recognised in the reports of those supervisory authorities (FRB, 2023; FDIC, 2023), they failed to act sufficiently rapidly owing to the sluggishness, and in some cases the inefficiency, of the internal supervisory escalation processes, and also to the absence of sufficiently effective enforcement measures.

In the case of the US banks, the supervisory authorities have pointed out that, in some cases, they lacked sufficient human resources to carry out these tasks (FDIC, 2023). Also noteworthy is that the organisation and structure of supervision in the United States is somewhat complex and encompasses various state and federal supervisory authorities (for a summary of the US supervisory structure, see González Mota and Marqués Sevillano (2010) and Baker McKenzie (2023)). In some cases, this may have slowed the decision-making process, although this is not explicitly signalled in the reports of the US supervisory authorities. In the United States, banks may opt to obtain either a state or a federal charter, without this limiting their scope of activity. Under this system, in which the type of charter extended does not limit the geographical reach, banks with a federal charter will be supervised by the Office of the Comptroller of the Currency (OCC), the federal chartering authority, and those with a state charter by the state chartering authority and a federal supervisor, which may be a regional federal reserve bank (FRB) or the FDIC (see Table 1).

Also, in the United States, the intensity and application of supervision is based on size (see Box 2), which meant that supervision of the banks affected by the crisis was less stringent. As a result, overall supervisory vision was lacking and the supervised banks’ business models and risk management were subject to a more forward-looking approach.

In any event, the supervisors had, to some extent, already detected the vulnerabilities of these banks that subsequently rendered them sensitive to the crisis of trust and to contagion.

Nevertheless, the events that unfolded and the speed of contagion and of the market reaction brought to light certain areas for improvement in the supervisory structure and the supervisory approach as regards a global overview of banks' risks and business models, and in the speed with which decisions were made and measures adopted to address the problems identified. These areas for improvement are not equally applicable to all supervisors, as there are important differences between the United States and the European Union (see Enria (2023) and Box 2).

The main areas for supervisory improvement highlighted by the recent crises refer to aspects included in the Basel Core Principles for Effective Supervision (BCBS, 2012) and signalled by the International Monetary Fund (IMF) in its lessons learnt for supervision, drawn essentially from its Financial Sector Assessment Programs (IMF, 2023). The main areas for improvement include the following:

— Supervisory structure and resources. Supervision must be uniform, regardless of balance sheet size, although it must be adapted to each bank's business type, taking into account proportionality criteria and consistency criteria between banks. Benchmarking analysis assists in this respect. Supervision must also have sufficient supervisory resources, adapted to the complexities of the current framework in which new assets and businesses have emerged (for instance, fintech, crypto-assets and relations with non-bank financial intermediaries). Moreover, the resources available must allow in-depth analysis of specific risks (deep dives) and an appropriate balance between on-site and off-site supervision, given that supervision requires on-site verification of data management systems, procedures and infrastructure and banks' corporate culture.

— Supervision of business models. Focus must be placed on the degree of concentration of activities and operations in certain sectors and businesses, especially in areas of recent and rapid expansion. Forward-looking analysis of the sustainability of business models is required, along with the identification of outliers.

— The supervisory approach. Supervision must be based on risk assessment. This must take into account an overall view of banks, and must also consider and assess their governance and the planning of their capital and liquidity needs. Capital and liquidity requirements must be based more on a holistic view of banks.

— Supervision of liquidity management. There must be greater supervision of the liquidity lines available to banks in liquidity stress situations, including assessment of how banks use the guarantees and collateral available to them and the potential degree of rotation of their liabilities.

— Supervision of interest rate risk. More focus must be placed on interest rate risk, as a consequence of the significant duration gaps between assets and liabilities at banks.

Box 2

DIFFERENCES BETWEEN THE REGULATORY AND SUPERVISORY FRAMEWORKS IN THE UNITED STATES AND THE EUROPEAN UNION AND THEIR ROLE IN THE CRISIS

One of the key factors in the failure of the US banks was that they were not subject to the global standards set by the Basel Committee (BCBS) because they were not internationally active. In 2019, the deregulation introduced under the Trump presidency – the tailoring rule (FRB, 2019) – resulted in an approach whereby only the largest banks (with assets of $700 billion or more) or banks with significant cross-jurisdictional activity ($75 billion or more) were subject to all the requirements established in the Basel framework (for example, liquidity standards or stress test). This meant that of the thousands of banks operating in the United States, approximately only ten (including the eight global systemically important banks (G-SIBs) with a US parent) were required to meet all those standards. Moreover, only around 20 more banks (those with total assets of $100 billion or more) were required to comply with standards that are similar (albeit less stringent in several aspects) to those set by the BCBS. All other banks, including those affected by the crisis described here, operated under a less stringent regulatory and supervisory framework.

These criteria were based on the lower systemicity of these other banks and on the endeavour to simplify the requirements for smaller banks. However, as the Federal Reserve admitted in its review of the events (FRB, 2023a), the reduction in standards and the growing complexity of this approach impeded their effective supervision.[1] The framework applicable and the corresponding easing of supervision prevented a correct assessment of the magnitude of the vulnerabilities identified and the adoption of measures to address them. In addition, the events described cast doubt over the consideration of these banks as non-systemically important, as although they were not among the largest banks, they were larger than most banks in other jurisdictions and they had the capacity to trigger national and cross-border contagion. This was patent in the proposal to implement the final Basel III agreement, in which the scope of the Basel III standards is widened, published for consultation by the Federal Reserve (FRB, 2023b).

The US approach is contrary to that followed in the euro area, where the regulations apply to all banks irrespective of size. This means that smaller banks are also subject to all global requirements, including capital and liquidity standards. This homogeneity in the standards required means that small banks in the euro area are better prepared for possible periods of stress than small banks in the United States.

1 This prompted the Federal Reserve, in its proposal to implement the Basel framework, to review the tailoring rule, to make more banks subject to the requirements agreed worldwide.

— A flexible range of supervisory measures tailored to the severity of each case (enforcement) must be available, together with a precise and clear definition of the escalation processes in place, to enable faster and more flexible supervision and make available sufficient and appropriate supervisory measures to supplement the minimum regulatory standards, according to the severity or duration of the events of non-compliance or the severity of the deviations from supervisory expectations.

— The need to combine good and sound evidence with rapid supervisory action as soon as vulnerabilities appear and are detected, even if this entails a certain level of legal risk being assumed by the supervisor. Legal risk should be assessed considering not only the supervisor's risk tolerance framework, but also the severity of the supervisory findings and the possible repercussions of failure to take early action.

— Coordination between the different supervisory bodies must be improved.

Credit Suisse, owing to its size and complexity, was classified as a G-SIB and, as such, entailed greater supervisory complexity than medium-sized banks such as the US ones that were affected by the crisis. The very nature and complexity of the business of a G-SIB means that the supervisory challenges are greater. In consequence, an in-depth global analysis of their supervisory needs and of the supervisory resources and tools available may therefore be appropriate. In this respect, in March 2023 the SFC announced the launch of an overall review of the too-big-to-fail framework, together with the creation of an independent expert group to analyse this issue (Expert Group on Banking Stability, 2023). The group presented as a recommendation the need to provide FINMA with the necessary tools to ensure correct liquidity management (ensuring that sufficient collateral is deposited with the SNB to guarantee access to liquidity) and the capacity to intervene on a preventive basis before a bank reaches the point of non-viability.

4 The role of regulation

From a regulatory standpoint, the work of the BCBS is key. In March 2023 it announced its intention to take stock and share information on these banking crises so as to learn the necessary lessons (BCBS, 2023a). This resulted in the publication of a report on the conclusions drawn, and in continued analysis of how certain areas of the Basel framework (such as those addressing liquidity and interest rate risks) functioned during these episodes (BCBS, 2023b). The Basel Committee highlighted that the implementation of the globally agreed framework had protected the banking system from a more severe crisis. This is consistent with the design of the regulations, which aim to reduce the likelihood and consequences of such crises rather than to prevent bank failures. The BCBS has also emphasised the importance of continuing to prioritise the coherent, complete and swift implementation of the Basel III standards to safeguard global financial stability (Hernández de Cos, 2023).

Despite this generally positive assessment, reflections on certain global prudential standards may be appropriate. As per the prudential authorities, including those involved in these events (FRB, 2023a; FDIC, 2021; Swiss Federal Department of Finance, 2023), the following areas deserve greater global analysis:

— The scope of the regulatory framework and the application of proportionality. The US banks involved in the episodes described were not subject to some of the internationally agreed requirements (see Box 2). In consequence, the events observed could respond more to how the global prudential standards were implemented than to how they have worked.[3]

3 In the case of SVB, for example, the capital framework applicable allowed a prudential filter to be applied to losses on portfolios of assets held at fair value (thus avoiding the impact of unrealised losses on prudential capital). Such prudential filters were eliminated from the Basel framework following the 2008 financial crisis. The US authorities are considering eliminating them from their prudential framework.

The debate stems from the fact that the Basel framework applies to internationally active banks, but this concept is not defined, which means that national authorities have discretion when it comes to establishing the scope of application of the standards. Moreover, each jurisdiction may decide on the requirements to be set for all other banks, which in cases such as the United States are the majority (the European approach, whereby the Basel III framework applies to the entire banking sector, may also be adopted).

The events observed in the United States led to reflections on what authorities should take into account when determining the scope of application of the Basel III standards. SVB has shown that the failure of non-internationally active banks can have a systemic impact, both within their own jurisdiction and globally. Accordingly, it may be appropriate to consider assessing a bank's potential systemic impact, rather than its international activity, when deciding whether or not to apply international standards (which are designed to level the playing field and preserve global financial stability).

The Basel framework is based on the general principle that banks should be subject to supervision that matches their risk profile and systemic importance. Thus, if jurisdictions decide to create a proportional framework for non-internationally active banks, it is to reflect jurisdictions' circumstances and supervisory capacity and the nature of the banks' business models. This proportionality could result in simpler approaches, but it should not dilute the robustness of the standards. This means that any simpler proportionate approaches would be more conservative to compensate for their lower risk sensitivity (BCBS, 2022a). The banking crises of 2023 have shown that lower standards and a more complex framework (as a result of adjustments to standards and the creation of diverse requirements) can give rise to a less effective system.

— Liquidity standards. Liquidity distress episodes were present in all the cases described in Section 1. In consequence, the liquidity framework should be assessed to determine, in view of the latest events and the analytical evidence extracted, whether certain regulatory adjustments are needed. In this respect, both the design and the calibration of standards should continue to be analysed.

Considering first the design aspect, the case of Credit Suisse makes imperative a reflection on the usability of high-quality liquid assets (HQLAs). The Swiss bank used these assets, at a legal entity level, to cover its daily operational and intraday liquidity needs (which, in a crisis, were higher than estimated). This has prompted debate about whether the liquidity coverage ratio (LCR) should cover more risks, apart from the outflows in a 30-day stress scenario. Moreover, Credit Suisse's use of the liquidity buffer was also limited by the supervisory and market scrutiny over the bank, as the obligation to report any breach of liquidity requirements made it less willing to use this buffer (SNB, 2023b).

The calibration of these standards, especially the LCR, is another of the issues analysed. The speed and scale of the deposit outflows observed in these cases – facilitated, for example, by digitalisation and the rapid flow of information and contagion facilitated by internet and social media – call into question the definition of some of the parameters of the ratio. Most notably, the outflow rates defined by the LCR for assets such as deposits (especially those not covered by deposit guarantee schemes) or the period used to define the standard (30 days). Regarding these outflow rates, in view of the large-scale deposit withdrawals observed at the US banks, some analysts began to use alternative LCR calculations, applying higher outflow rates than those set for retail deposits. It should be recalled that the US banks in question were not subject to the liquidity requirements defined in the Basel framework (see Box 2).

A further issue that has been submitted to fresh debate and more in-depth analysis is the definition of HQLAs. The current prudential framework does not require that eligible assets be marked-to-market for accounting purposes in order to be classified as HQLAs. But it does require that they be measured at an amount no greater than their current market value to be eligible for inclusion as HQLAs in the liquidity ratios (meaning that changes in their market value will impact the regulatory ratio, but not the bank's financial statement). The direct effect of a change in this respect would be that unrealised losses would have a direct impact on capital. However, this would lead to greater volatility of prudential capital, which would not necessarily reflect the ultimate effect expected (to the extent that these assets will be held to maturity). Other channels could be considered, such as liquidity stress tests (and the interaction between liquidity and solvency) that could address situations in which unrealised losses become unmanageable, so as to ensure agents' confidence in banks' solvency (as in the case of SVB).

Other potential issues for analysis are: (i) the effectiveness of the net stable funding ratio (NSFR) as an indicator of banks' structural liquidity mismatch, and (ii) the possibility of developing additional Pillar 2 metrics (for example, on the capacity to meet liquidity positions in shorter time periods) and of demanding more frequent reporting to supervisors.

In any event, aside from assessing the workings of the liquidity framework in relation to recent events, it is important to bear in mind that liquidity buffers cannot prevent all liquidity runs. Lastly, a reflection may also be called for on the nature of standards such as the LCR which, as observed in the stress situations generated by the pandemic, could ultimately exacerbate downward pressures in times of turmoil when banks are endeavouring to maintain levels over 100% (BCBS, 2022b). Analyses conducted by the BCBS have shown that banks are reluctant to use the liquidity provided by these standards, which in practice means that they may function as minimum requirements rather than as liquidity buffers (BCBS, 2021).

Box 3

CREDIT SUISSE'S AT1 CONTRACTS AND THE INTERNATIONAL STANDARDS

When the Swiss authorities declared that Credit Suisse had reached the point of non-viability, all its AT1 instruments were written down in full. This was because the AT1 contractual clauses envisaged this option, should the bank reach the point of non-viability and become unable to continue to operate without public support (which it received, in effect, from the Swiss authorities) (see Box 1 for more details). The relevant clause also allowed all the AT1 instruments to be written down with no need to respect the hierarchy of claims in liquidation (i.e. without the bank's shareholders first losing all their investment). Also noteworthy is that the Swiss authorities approved an emergency ordinance authorising FINMA to instruct Credit Suisse to write down its AT1 instruments.

The contractual clauses of the AT1 instruments issued by Credit Suisse, the prudential treatment under the Basel framework and the response of some authorities are described below.

Write-down of Credit Suisse's AT1 instruments

The design of Credit Suisse's AT1 instruments provided for their full write-down or conversion with no need for higher quality capital (CET1) to be first exhausted. On account of their risk profile and large volume, the instruments issued by Credit Suisse were held by institutional investors.

The AT1 instruments concerned offered high returns (in some cases, up to 7.5% or even 9.75%). This rate of return also took into account the clauses that permitted write-down in the event of non-viability. The investors were aware of these clauses.[1]

The total write-down amounted to CHF 16 billion and entailed an increase in the same amount of the resultant bank's CET1. Credit Suisse's shareholders received one share in the new bank for every 22.48 shares held (a conversion ratio that recognised capital of just CHF 3 billion at Credit Suisse, compared with its capital of CHF 54 billion at the time of the merger, resulting in the generation of badwill amounting to CHF 51 billion for the consolidated bank). In consequence, the shareholders did not lose all their investment and received partial consideration from the write-down of the AT1 instruments.

Basel treatment

The Basel framework includes a specific criterion on the declaration of the point of non-viability, to make it possible to recognise instruments such as AT1 for the purposes of meeting minimum prudential solvency requirements. This criterion was introduced in 2011, by virtue of a resolution adopted by the Group of Central Bank Governors and Heads of Supervision, and affected both AT1 and Tier 2 instruments (although this box concentrates only on the former).

AT1 instruments issued by internationally active banks (or their subsidiaries) must envisage the possibility of write-down or conversion into CET1 in the event of non-viability. The point of non-viability is deemed to be reached if the relevant authority determines that (i) without a write-off, the bank would become non-viable, or (ii) a public sector injection of capital, or equivalent support, be granted, without which the bank would become non-viable.

In connection with the hierarchy of claims, the Basel framework establishes which instruments should be the first to assume losses. However, whether this hierarchy is prescriptive in the case of public support being received may need to be analysed. Moreover, it is important to note that the Basel framework is not prescriptive in the specific design of AT1 instruments, so their characteristics may

1 For instance, the first issue, which dates back to 2013, included the necessary references for the write-down made when the Credit Suisse Group (CSG) was acquired by UBS: "Viability Event. As used in these conditions, a "Viability Event" means that either: (A) the Regulator has notified CSG that it has determined that a write-down of the Notes, together with the conversion or write down/off of holders' claims in respect of any and all other Progressive Component Capital Instruments, Buffer Capital Instruments, Tier 1 Instruments and Tier 2 Instruments that, pursuant to their terms or by operation of law, are capable of being converted into equity or written down/off at that time is, because customary measures to improve CSG's capital adequacy are at the time inadequate or unfeasible, an essential requirement to prevent CSG from becoming insolvent, bankrupt or unable to pay a material part of its debts as they fall due, or from ceasing to carry on its business; or (B) customary measures to improve CSG's capital adequacy being at the time inadequate or unfeasible, CSG has received an irrevocable commitment of extraordinary support from the Public Sector (beyond customary transactions and arrangements in the ordinary course) that has, or imminently will have, the effect of improving CSG's capital adequacy and without which, in the determination of the Regulator, CSG would have become insolvent, bankrupt, unable to pay a material part of its debts as they fall due or unable to carry on its business".

vary across jurisdictions (even while respecting consistency with the Basel framework).

Response of authorities globally

The case of Credit Suisse drove up uncertainty on the AT1 markets. Some interpretations suggest that this increased uncertainty arose from the heterogeneity of AT1 instruments across jurisdictions and the endeavours made by investors to understand the implications of their investments. It should be noted, in this respect, that the Basel framework requires that instruments eligible as AT1 comply with market transparency rules and that their contractual clauses reflect the options available in each case.

In response to these developments, some authorities issued statements on the hierarchy of claims between AT1 and CET1 instruments. Specifically, the Bank of England, the Office of the Superintendent of Financial Institutions of Canada and the European authorities (the European Central Bank, the European Banking Authority and the Single Resolution Board) clarified that in situations similar to that of Credit Suisse, in their jurisdictions the order of priority would be that applicable in the event of insolvency.

— Treatment of interest rate risk in the banking book (IRRBB). This is one of the areas that has been subject to most analysis in the case of the US banks described above. The key question – beyond other more technical considerations – is whether the current treatment based on a Pillar 2 (supervisory) and Pillar 3 (market disclosure) approach addresses interest rate risk adequately.

  On the one hand, it can be argued that the correct implementation of the standard agreed in the wake of the global financial crisis (through Pillars 2 and 3) would be sufficient to mitigate this risk, including in the cases observed where the US banks were not subject to the full range of requirements. From this standpoint, this approach captures future impacts of interest rate developments, including risks from unrealised losses due to rate changes. In addition, the public disclosure requirements exert the necessary market discipline to ensure that banks manage their interest rate risk prudently.

  On the other hand, it can also be argued that the development of a Pillar 1 framework would ensure consistent global treatment of interest rate risk. These arguments are based on the idea that the information obtained on interest rate risk and on how banks identify, measure and back-test this risk would not be sufficient to ensure uniform global treatment or to address these risks.

— Treatment of portfolios held to maturity. As is explained in Section 2, unrealised losses resulting from interest rate hikes were determinant in the problems experienced.

  This debate was already ongoing before the crises unfolded. Given that, in times of stress, banks may need to sell such securities, if they were marked-to-market banks could be certain of having sufficient capital to absorb the associated losses. However, such a drastic measure would lead to an increase in the volatility and

procyclicality of prudential capital. In addition, the regulatory framework already has other tools (such as the liquidity and IRRBB standards and the Pillar 2 supervisory actions) to assess and address the problems associated with these unrealised losses irrespective of their accounting classification.

— The role of Additional Tier 1 (AT1) capital. The case of Credit Suisse, where AT1 instruments (contingent convertible bonds (CoCos)) were written down at a loss before CET1 instruments, triggered a debate on the hierarchy of AT1 (see Box 3). In this case, as it reached the point of non-viability, Credit Suisse continued to pay coupons and to record losses before the threshold of automatic conversion into shares was reached (7% of CET1 in Switzerland, compared with 5.125% of CET1 under the Basel framework). This has cast fresh doubts over the capacity of these instruments to absorb losses on a going concern basis. In the past, the BCBS has analysed how these instruments have functioned and has shown that investors would react negatively to the suspension of coupon payments, which they would expect only in exceptional circumstances, as it would send a message to the market on the non-viability of the issuing bank (BCBS, 2022b). Coelho, Taneja and Vrbaski (2023) argue that the case of Credit Suisse shows that transfer of value from investors in AT1 instruments to shareholders is possible, and that it is difficult for these instruments to be written down on a going concern basis, all of which poses the need to reconsider their design and improve their market transparency.

5 Conclusions

The banking crises that occurred between March and May 2023 were the sector’s main test since the global financial crisis. Despite the differences of each case, a series of conclusions can be drawn for the authorities:

— Banks’ risk management, their ability to develop their business model in a sustainable manner and their governance are key to prevent these types of episodes.

— The importance of supervision, to ensure that banks conduct their business in a secure manner, and of supervisors’ ability to identify problematic practices and weaknesses and take and enforce prompt corrective action.

— The need to fully and consistently implement the globally agreed regulatory standards, which have manifestly already made the banking sector more resilient. In parallel, it is advisable to continue analysing the functioning of specific elements of the regulatory framework identified in these cases.

This has led international bodies such as the BCBS or the IMF to focus on the need to strengthen the effectiveness of supervision to ensure that problems of this kind can be identified and corrected on a timely basis. To this end, projects are currently under way globally

(and at a national scale, as in the United States and Switzerland). Although these cases have once again brought the regulatory framework to the fore, it will be necessary to continue analysing and assessing its functioning, on the basis of robust empirical evidence, before drawing conclusions on the need to adjust the framework.

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