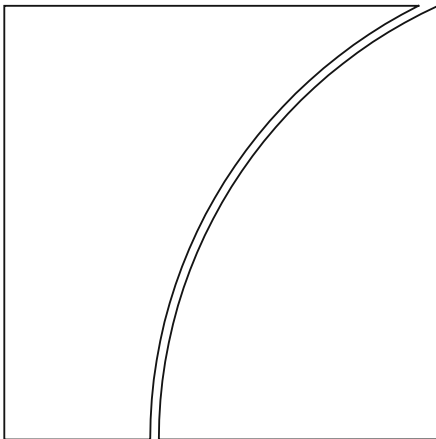


# Basel Committee on Banking Supervision



## Report on the 2023 banking turmoil

October 2023



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ISBN 978-92-9259-697-2 (online)

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## Executive summary

The banking turmoil that started in March 2023 is the most significant system-wide banking stress since the Great Financial Crisis (GFC) in terms of scale and scope. The bank failures, while having largely distinct causes, triggered a broader crisis of confidence in the resilience of banks, banking systems and financial markets across multiple jurisdictions. In response, wide-scale public support measures were deployed by some jurisdictions to mitigate the impact of the stress.

Against that backdrop, the Committee undertook a stocktake of the regulatory and supervisory implications of the turmoil in a timely and thorough manner, with a view to learning lessons.

This report provides an assessment of the causes of the banking turmoil, the regulatory and supervisory responses, and the initial lessons learnt. The discussion is not an indication of planned revisions to the Basel Framework. The report was endorsed by the Group of Governors and Heads of Supervision (GHOS), the oversight body of the Basel Committee.<sup>1</sup>

There are a number of additional issues from the banking turmoil that, while of relevance to central banks and supervisory authorities, are outside the scope of this report. These include the role and design of deposit guarantee schemes, the effectiveness of resolution arrangements, the use and design of central bank lending facilities and FX swap lines, and public support measures in banking crises. Some of these issues are currently being discussed in other global forums and standard setting bodies.

This report is structured around three sections.

Section 1 starts with a brief review of the macrofinancial backdrop. It then describes the failures of Silicon Valley Bank (SVB), Signature Bank of New York (SBNY) and First Republic Bank (FRC), the rescue of Credit Suisse (CS), and the actions taken by authorities. While the distress of each of these banks reflected idiosyncratic factors, recurring themes can be grouped into three broad categories.

### Bank risk management practices and governance arrangements

The first and most important source of financial and operational resilience comes from banks' own risk management practices and governance arrangements. The banking turmoil highlighted the following fault-lines in this area:

- fundamental shortcomings in basic risk management of traditional banking risks (such as interest rate risk and liquidity risk; and various forms of concentration risk);
- a failure to appreciate how the build-up of various individual risks were interrelated and could compound one another;
- inadequate and unsustainable business models, including an excessive focus on growth and short-term profitability (fuelled by remuneration policies), at the expense of appropriate risk management;
- a poor risk culture, as well as ineffective senior management and board oversight; and
- a failure to adequately respond to supervisory feedback and recommendations.

### Strong and effective supervision

The banking turmoil also highlighted the importance of strong and effective supervision across various dimensions. This includes:

<sup>1</sup> BCBS (2023b).

- the ability and willingness of supervisors not just to actively identify weaknesses in banks but also to take and enforce prompt actions;
- the need to ensure supervisory teams have the appropriate quantity and quality of resources;
- the need to continuously monitor exogenous and structural changes to the banking system and adapt supervisory approaches to overseeing risks, especially for banks that are rapidly growing in size or adopting novel business models; and
- maintaining effective and timely cross-border supervisory cooperation across a wide network.

### Robust regulatory standards

The Basel III reforms that have been implemented to date helped shield the global banking system from a more severe banking crisis. The regulatory framework is not calibrated to produce “zero failures”, but seeks to reduce the likelihood and impact of a banking stress, while facilitating financial intermediation and economic growth. Nevertheless, the recent turmoil has again highlighted the importance of prudent regulatory standards. In particular, it has underlined the following initial lessons:

- the importance of a full and consistent implementation of Basel standards;
- the importance of a robust design and calibration of global standards for internationally active banks. Despite the enhanced levels of resilience provided by Basel III, the recent turmoil highlighted that banks can be vulnerable to rapid changes in market sentiment. The combination of high leverage and long-term opaque assets that are funded with short-term runnable deposits makes banks especially vulnerable to a loss of trust in their long-term solvency.
- the need for a balanced approach between Pillar 1 regulation and Pillar 2 supervision, with robust and rigorous Pillar 2 approaches pursued as complements, and not substitutes, to Pillar 1 requirements;
- the potential for banks that are deemed to be not internationally active in a jurisdiction to pose cross-border financial stability risks, including through indirect contagion channels;
- the need for proportionate regulatory frameworks to reflect the Committee’s expectations – as set out in the Basel Core Principles (BCPs) – that any proportionate approaches are commensurate with a bank’s risk profile and systemic importance.

Based on these observations, Section 2 discusses the initial lessons learnt and supervisory takeaways stemming from the turmoil (Table 1). These include the importance of supervisors analysing banks’ business models and identifying outlier banks, the need to robustly assess banks’ governance and risk management, the merit in reviewing the way in which to oversee liquidity risk in light of the recent turmoil, the importance of exercising supervisory judgment and reviewing the existing supervisory toolkit, and the need to continue to promote effective cross-border supervisory cooperation.

In a similar vein, Section 3 outlines some of the initial lessons learnt and regulatory takeaways from the turmoil (Table 1). These include the Basel III liquidity standards, the regulatory treatment of interest rate risk in the banking book, the treatment of held-to-maturity (HTM) assets and role of Additional Tier 1 instruments, and various reflections related to the scope and implementation of the Basel Framework. The discussion in this section seeks to capture a range of perspectives on these issues, and is not an indication of planned revisions to the existing Basel Framework.

**Table 1:** Overview of initial supervisory and regulatory takeaways from recent banking turmoil

| Issue                                | Relevance for distressed banks |      |    |     |
|--------------------------------------|--------------------------------|------|----|-----|
|                                      | SVB                            | SBNY | CS | FRC |
| <b>Supervision</b>                   |                                |      |    |     |
| Governance and risk management       | ✓                              | ✓    | ✓  | ✓   |
| Business models                      | ✓                              | ✓    | ✓  | ✓   |
| Liquidity supervision                | ✓                              | ✓    | ✓  | ✓   |
| Supervisory judgment                 | ✓                              | ✓    | ✗  | ✓   |
| Supervisory toolkit                  | ✓                              | ✓    | ✓  | ✓   |
| Cross-border supervisory cooperation | ✓                              | ✗    | ✓  | ✗   |
| <b>Regulation</b>                    |                                |      |    |     |
| Liquidity standards                  | ✓                              | ✓    | ✓  | ✓   |
| IRRBB                                | ✓                              | ✓    | ✗  | ✓   |
| HTM securities                       | ✓                              | ✓    | ✗  | ✓   |
| AT1 capital instruments              | ✗                              | ✗    | ✓  | ✗   |
| Scope of Basel framework             | ✓                              | ✗    | ✗  | ✗   |
| Proportionality                      | ✓                              | ✓    | ✗  | ✓   |
| Level of consolidation               | ✗                              | ✗    | ✓  | ✗   |

Source: Basel Committee.

## Follow-up initiatives

Drawing on the findings of this report, the Committee is pursuing a series of follow-up initiatives related to the turmoil, including:

- prioritising work to strengthen supervisory effectiveness and identify issues that could merit additional guidance at a global level; and
- pursuing additional follow-up analytical work based on empirical evidence to assess whether specific features of the Basel Framework performed as intended during the turmoil, such as liquidity risk and interest rate risk in the banking book, and assessing the need to explore policy options over the medium-term.

This follow-up work is fully in line with the imperative of implementing the Basel III standards in a full and consistent manner, and as soon as possible, as recently reaffirmed by the GHOS.<sup>2</sup>

<sup>2</sup> BCBS (2023b).

## Introduction

The banking turmoil that started in March 2023 is the most significant system-wide banking stress since the Great Financial Crisis (GFC) in terms of scale and scope. Over the span of 11 days – from 8 to 19 March 2023 – four banks with total assets of about \$900 billion were shut down, put into receivership or rescued. Subsequently, a bank with roughly \$230 billion of assets was closed on 1 May 2023. The bank failures, while having largely distinct causes, triggered a broader crisis of confidence in the resilience of banks and banking systems across multiple jurisdictions. In response, wide-scale public support measures were deployed by some jurisdictions to mitigate the impact of the stress, including significant central bank liquidity provision to banks, the activation of FX swap lines, government backstops / guarantees, and, in certain cases, an extension of deposit guarantee schemes.

The distress of these banks triggered a crisis of confidence in some jurisdictions, with an impact on some banks and financial markets. The contagion from the distressed banks to the banking system in several jurisdictions was reflected in asset prices, including sharp falls in some banks' equity prices and a surge in the cost of insuring against bank default (Graphs 8.B and 8.C). There was also a general repricing of banks' Additional Tier 1 (AT1) instruments, which prompted authorities in some jurisdictions to issue public statements reiterating their approach to imposing losses on shareholders and creditors in a resolution or insolvency scenario.<sup>3</sup> The effects of the banking turmoil also spilled over to the financial system in several jurisdictions more generally, with volatility reaching an all-time historic high since the GFC (Graph 8.A), and investors reassessing their outlook for growth and interest rates (Graph 9.A). Access to capital markets for funding was impaired, with a redistribution of liquidity within the financial system (Graph 9.B).<sup>4</sup>

Against that backdrop, the Committee undertook a review of the developments and conducted a stocktake of the regulatory and supervisory implications, with a view to learning lessons. The Financial Stability Board (FSB) is also reviewing elements of its post-GFC initiatives, including resolution-related reforms.<sup>5</sup>

This report provides an assessment of the causes of the banking turmoil, the regulatory and supervisory responses, and the initial lessons learnt. It is structured around three questions:

- (i) What happened? What actions were taken? Section 1 starts with a brief review of the macrofinancial backdrop. It then describes the failures of SVB, SBNY and FRC, and the rescue of CS and the actions taken by authorities, and subsequent market impact.
- (ii) What are the initial lessons learnt and takeaways for supervision? Section 2 discusses the initial lessons learnt and supervisory implications stemming from the turmoil.
- (iii) What are the initial lessons learnt and takeaways for regulation? Section 3 outlines the initial lessons learnt and reflections on the regulatory implications stemming from the turmoil.

<sup>3</sup> Bank of England (2023a), SRB, EBA and ECB (2023) and OSFI (2023).

<sup>4</sup> See Annex 1 for a set of graphs that illustrate these dynamics in more detail.

<sup>5</sup> FSB (2023).



## Section 1: What happened and what actions were taken?

### Macrofinancial backdrop

It is helpful to start with a very brief review of the key macrofinancial developments in the run up to the banking turmoil. Annex 1 includes a set of accompanying graphs and supporting data.

The "low for long" period of relatively easy financial conditions for more than a decade led to the build-up of public and private sector debt (Graph 7.B), a compression in bank net interest margins (NIMs) and a general search for yield. Following the outbreak of the Covid-19 pandemic, many jurisdictions implemented highly stimulative fiscal policies to mitigate the impact of the pandemic, and many central banks undertook large-scale asset purchase programs, in some cases for the first time or in other cases resuming asset purchases that began following the GFC.<sup>6</sup>

Following this period of highly accommodative monetary policy in many jurisdictions, 2022 saw the start of the most synchronised and intense monetary policy tightening on recent record (Graphs 7.A and 7.C) in an effort to curb high inflation. The latter was driven by various factors, including supply-side disruptions following the Covid-19 pandemic, and energy and food price rises due to geopolitical development (eg the war in Ukraine).

Against this backdrop, the increase in interest rates and quantitative tightening by some central banks resulted in a worsening of financial conditions, particularly in high-risk segments of credit markets. While most banks' NIMs improved as a result of rising rates, and credit risk losses have not materialised to date, the rising rate environment also saw a sharp reduction in the value of long-duration fixed interest assets.

Three structural trends also affected the global banking system during the period following the GFC and shaped the backdrop to the turmoil. These factors may have not played a direct role in triggering the banking turmoil but may have indirectly contributed to some of the fragilities discussed in this section. First, non-bank financial intermediation (NBFIs) grew significantly and now accounts for around 50% of total global financial assets, a 20% increase since 2008.<sup>7</sup> This growth saw a range of complex and opaque channels of bank interconnections with NBFIs. Second, a cryptoasset ecosystem quickly emerged; cryptoassets' market valuation grew from about \$16 billion six years ago to nearly \$3 trillion in 2021 before falling back to a valuation of just over \$1 trillion at the beginning of March 2023.<sup>8</sup> While the global banking system's direct exposures to cryptoassets are limited – amounting to just under €4 billion, or 0.004% of total exposures as of end-June 2022 – they are concentrated in a small number of banks.<sup>9</sup> Third, and more generally, the ongoing digitalisation of finance saw advances in faster payment / settlement services and on-demand access to banking services through mobile apps, thereby facilitating the ability of depositors to move their funds.

<sup>6</sup> CGFS (2023).

<sup>7</sup> FSB (2022).

<sup>8</sup> CoinMarketCap.com.

<sup>9</sup> BCBS (2023b).

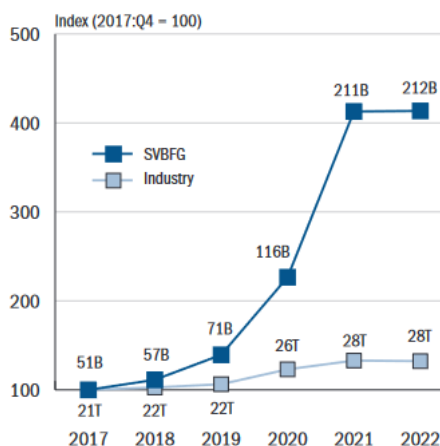
## Silicon Valley Bank<sup>10</sup>

On 10 March 2023, SVB, a subsidiary of Silicon Valley Bank Financial Group (SVBFG), was closed by the California Department of Financial Protection and Innovation (CADFPI). This sub-section summarises the main events and causes of SVB's failure. A fuller assessment is provided in reports published by the Federal Reserve Board (FRB, 2023), the US Government Accountability Office (GAO, 2023), CADFPI (CADFPI, 2023) and, for SVB UK, a letter published by the Bank of England (Bank of England, 2023b).

SVBFG was a large bank holding company with approximately \$212 billion in total assets when it failed in March 2023. SVBFG provided financial services predominantly to companies in the technology and life sciences sectors. Between 2019 and 2021, SVBFG tripled in size as it benefited from rapid deposit inflows during rapid venture capital (VC) and technology sector growth in a period of exceptionally low interest rates (Graph 1). These deposits were largely uninsured, and SVBFG invested them primarily in securities with longer-term maturities. In 2022, as interest rates began to rise, SVBFG saw deposit outflows and a rapid increase in unrealised losses on those securities (Graph 2).

As the risks to the firm's balance sheet mounted, SVBFG took steps to address the issues and announced a plan on 8 March 2023, to restructure its balance sheet. SVBFG had sold \$21 billion in available-for-sale (AFS) securities, was booking a \$1.8 billion after-tax loss, was planning to increase term borrowings by \$15 billion to \$30 billion and was seeking to raise \$2.25 billion in capital. The next day, SVB experienced a bank run as withdrawals of uninsured deposits rapidly accelerated. These deposit outflows reflected fundamental concerns about the bank and appear to have been sparked by a number of interrelated factors: heightened uncertainty and changing sentiment around the technology sector; potential negative action from credit rating agencies; and highly correlated withdrawals from SVBFG's concentrated network of VC investors and technology firms who, fuelled by social media, withdrew uninsured deposits in a coordinated manner at an unprecedented rate.

**Graph 1:** SVBG and banking industry total assets<sup>(a)</sup>

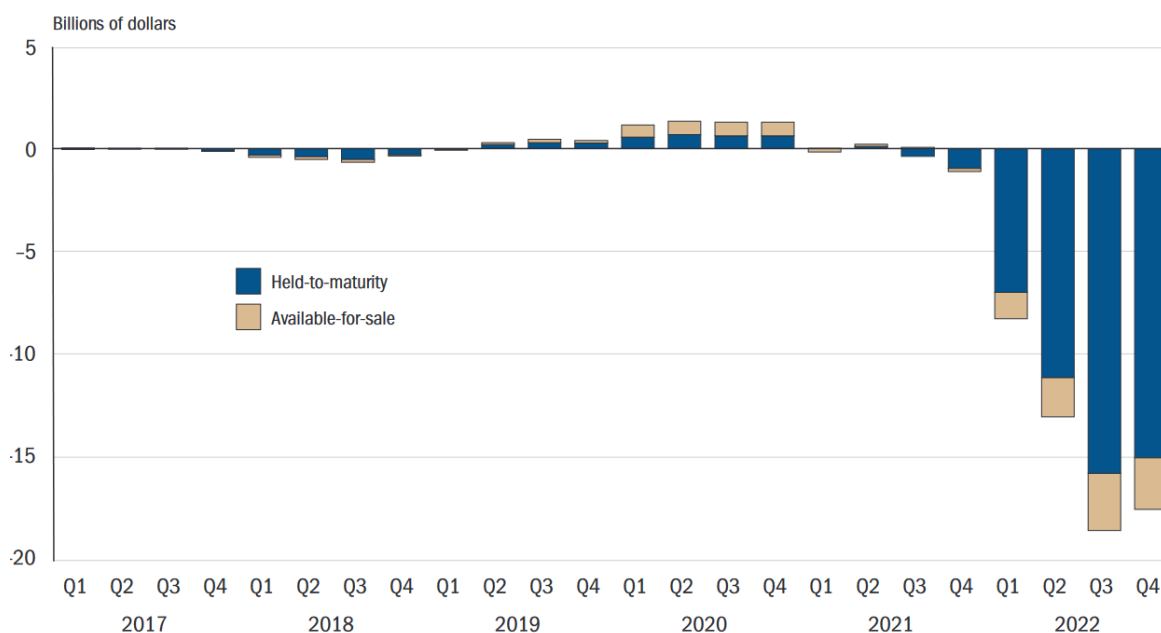


Source: FRB (2023)

(a) All values indexed to 100 at year-end 2017. Values are as of year-end. Values are in billions of dollars for SVBFG and in trillions of dollars for the industry. Industry aggregate includes all top-holder firms.

<sup>10</sup> This section draws heavily on FRB (2023), GAO (2023), CADFPI (2023) and Bank of England (2023b).

**Graph 2:** Estimated unrealised gains/losses on SVBFG’s investment portfolio securities<sup>(a)</sup>



Source: FRB (2023).

(a) Estimated unrealised losses on securities calculated as: (held-to-maturity fair value less held-to-maturity amortized cost) + (available-for-sale fair value less available-for-sale amortized cost). Estimates do not reflect losses related to available-for-sale securities that were transferred to held-to-maturity and do not reflect hedging impacts or tax consequences.

On 9 March, SVB lost over \$40 billion in deposits, and SVBFG management expected to lose over \$100 billion more on March 10. This deposit outflow was remarkable in terms of scale and scope when compared with other episodes of banking stress (see Box A). In response to these actual and expected deposit outflows, SVB failed on 10 March, which in turn led to the later bankruptcy of SVBFG.

During the final days before its failure, SVB’s operational weaknesses became apparent as it struggled to execute on its contingency funding plans. For example, SVB did not test its capacity to borrow at the Federal Reserve Discount Window in 2022 and did not have appropriate collateral and operational arrangements in place to obtain liquidity. While stronger operational capacity to obtain contingency funding in March 2023 would likely not have prevented SVB’s failure, it could have facilitated a more orderly resolution.

Two shortcomings at SVB set the stage for its failure. First, its core risk-management capacity failed to keep up with rapid asset growth, which led to steady deterioration of its financial condition in 2022 and into March 2023. This reflected a long build-up of weakness, as SVBFG could not effectively manage through a changing economic and financial environment in 2022 and 2023. Second, SVBFG failed to develop sufficient contingent funding capacity. This contributed to a disorderly failure when SVBFG tried to manage the acute situation after its 8 March balance sheet restructuring announcement.

SVBFG’s failure can be tied directly to the failure of the board of directors and senior management. The board and management failed to effectively oversee the risks inherent in SVBFG’s business model and balance sheet strategies. The full board of directors did not receive adequate information from management about risks at SVBFG and did not hold management accountable. For example, information updates that management sent to the board did not appropriately highlight SVBFG’s liquidity issues until November 2022 despite deteriorating conditions. Moreover, the board put short-run profits above effective risk management and often treated resolution of supervisory issues as a compliance exercise rather than a critical risk-management issue. For example, SVBFG removed interest rate hedges

that would have protected against rising interest rates. Compensation packages of senior management through 2022 were tied to short-term earnings and equity returns and did not include risk metrics. As such, managers had a financial incentive to focus on short-term profit over sound risk management. An SVBFG director, for example, told supervisors in 2022 that controls always lag growth.

The Federal Reserve's review of the supervision and regulation of SVBFG found significant gaps for the well-documented and significant vulnerabilities and managerial weaknesses at SVBFG. The record shows that supervisors identified some of the material issues, but also underappreciated important ones, particularly during the period of SVBFG's rapid growth. SVB's foundational problems were widespread and well-known, yet core issues were not resolved, and stronger oversight was not put in place. As is often the case with complex problems, this outcome reflects a combination of many interconnected factors and not a single point of failure. This includes delays in applying more stringent standards as SVBFG grew rapidly, the resources devoted to SVBFG supervision, an approach that emphasised consensus and the continued accumulation of evidence even as SVBFG deteriorated, and a shift in the stance of supervision policy that was amplified by the Covid-19 pandemic.

SVBFG had 31 open supervisory findings when it failed in March 2023, about triple the number observed at peer firms. The supervisory findings at SVBFG included core areas, such as governance and risk management, liquidity, interest rate risk management, and technology. Despite widespread evidence of foundational governance and risk-management issues, supervisors were slow to downgrade supervisory ratings or to ensure that SVBFG's board and senior management took sufficient and immediate steps to compensate for those widespread weaknesses.

During the second half of 2022 and into 2023, as SVBFG's liquidity steadily weakened, unrealised losses accumulated on its securities portfolios, and its performance outlook deteriorated, supervisors continued to accumulate evidence of widespread weaknesses and delayed escalating supervisory action. For example, it took more than seven months to develop an informal enforcement action, known as a memorandum of understanding (MOU), for SVBFG and SVB to address the underlying risks related to "oversight by their respective boards of directors and senior management and the Firm's risk-management program, information technology program, liquidity risk management program, third-party risk-management program, and internal audit program." SVBFG failed before the MOU was delivered.

The failure of SVB also resulted in the resolution of its subsidiary in the UK, SVB UK. SVB UK was focused on commercial banking in the innovation sector – primarily technology, life sciences and healthcare. Its clients included start-ups, large corporates, and VC and private equity funds, as well as the companies in which they have invested. SVB UK had operated in the UK since 2012, first as a UK PRA-FCA dual-regulated branch, and then since July 2022 as a subsidiary.

The UK PRA understood that SVB UK was exposed to concentration risk, as it provided loans to and took deposits from the same relatively concentrated client base in the innovation sector. Over the last 18-24 months, concentration risk, and overlap of clients on the asset and liability side of the balance sheet, had been areas of focus for supervision. The UK PRA discussed these with both the firm and the Federal Reserve. The concentration in assets and the interest rate risk in the banking book (IRRBB) was recognised in SVB UK's Pillar 2 capital requirements.

## Box A: Liquidity outflows of distressed banks – a historical comparison

Table A.1 summarises the outflow rates and associated time period of selected banks during the recent turmoil and the GFC based on public / readily-available data. A.1 compares these outflows with some of the outflow rates in the Liquidity Coverage Ratio (LCR).

**Table A.1:** Deposit outflow of distressed banks

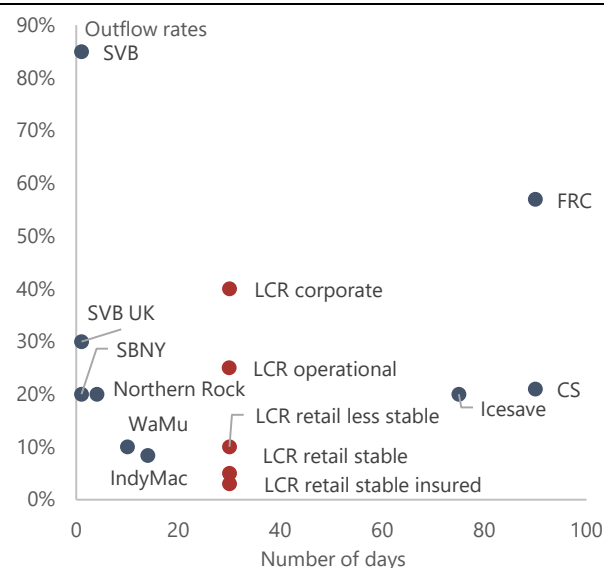
| Bank                      | Deposit outflow | Number of days |
|---------------------------|-----------------|----------------|
| SVB (2023) <sup>(a)</sup> | 85%             | 2              |
| FRC (2023) <sup>(a)</sup> | 57%             | 90             |
| SVB UK (2023)             | 30%             | 1              |
| CS (2023)                 | 21%             | 90             |
| SBNY (2023)               | 20%             | 1              |
| Icesave (2008)            | 20%             | 75             |
| Northern Rock (2007)      | 20%             | 4              |
| WaMu (2008)               | 10%             | 10             |
| IndyMac (2008)            | 8%              | 14             |
| LCR <sup>(b)</sup>        | 3% - 40%        | 30             |

Sources: FRB (2023), NAO (2009), Rose (2015), Zeissler et al (2019), published accounts and Secretariat calculations.

(a) FRC deposit outflows excludes \$30bn of deposits placed by banks during Q1 23. SVB outflows include expected outflows by management for 10 March.

(b) LCR outflow rates are the range for retail, SME, operational and corporate deposits.

**Graph A.1:** Distressed banks and LCR outflows<sup>(a)</sup>



Sources: FRB (2023), NAO (2009), Rose (2015), Zeissler et al (2019), published accounts and Secretariat calculations.

(a) FRC deposit outflows excludes \$30bn of deposits placed by banks during Q1 23. SVB outflows include expected outflows by management for 10 March.

A comparison among outflow rates of distressed banks based on publicly-available information is subject to a number of caveats. First, each bank's liquidity distress reflected idiosyncratic factors. In some instances, banks failed or were put into resolution, while other banks were rescued or acquired by other banks, before a 30-day period, making a direct comparison with LCR outflow rates difficult. Second, readily-available data on banks' liquidity outflows differ with regards to the time period covered; longer time ranges may not reflect the magnitude of outflows during the most acute phase of a stress and therefore some of the outflow rates above understate the magnitude of outflow rates during the most "acute" phase of some of the banks' distress. For example, FRC faced outflows of about 37% of its (end-2022) deposits over two business days in March. In a similar vein, the scaled outflow rate for CS during the days ahead of its rescue would be significantly higher than the 90-day outflow rate included above based on publicly available data; in mid-March 2023, at a legal entity level, the deposit outflows equalled the HQLA needed to meet the LCR requirement within a mere 10 business days around the time of the takeover of CS by UBS. Third, publicly available data on these banks' deposit outflows is subject to definitional differences and may therefore not be directly comparable. And while retail/SME deposits are likely to have constituted an important share of liquidity outflows for these banks, in some instances other funding sources (eg corporate funding) may have also contributed to their liquidity distress. So banks' actual outflow rates (eg the blue dots in Graph A.1) would need to be compared with a weighted average of the relevant outflow rates of the LCR (eg the red dots) based on each bank's funding sources. Fourth, all of the banks discussed in this box, with the exception of CS, were not subject to the LCR. A counterfactual analysis would be needed to gauge whether these banks' liquidity risk profile would have differed in a world where they were subjected to the LCR.

SVB UK's failure was caused by the failure of its parent in the US. Despite the UK subsidiary being able to meet all demands for outflows on Friday 10 March, it was not clear that the firm would be able to continue meeting liquidity outflows if the run continued. More significantly, it is unlikely that any banking subsidiary could withstand the failure of its parent without a sale. In SVB UK's case, the bank would not

have been a viable standalone entity because of its reliance on its US parent for technology and systems, including payment infrastructure.

During 2022, SVB UK's balance sheet was stable at just over £12bn, with deposits of just over £10bn throughout the year. Deposits dropped to just under £10bn in February and were again stable through to 9 March. On 10 March SVB UK experienced a deposit run. That day, the firm saw £2.9bn in deposit outflows – approximately 30% of the firm's total deposit base. These outflows were in addition to the manageable outflows that the firm had experienced in the first two months of 2023, which had been driven by the increased cash needs of its client base in response to tighter funding conditions and the firm's desire not to top deposit 'best buy' tables (ie not to offer the highest deposit rates).

The Bank of England, as the UK's Resolution Authority, has a number of different tools and powers under the Banking Act 2009 to achieve its special resolution objectives. On Friday 10 March, following consultation with HM Treasury, the UK PRA and the UK FCA, the Bank of England's judgement was that the use of a bank insolvency procedure would not cause a loss of public confidence in the stability of the UK financial system. Therefore, on the Friday evening, the Bank of England announced its intention to place SVB UK into administration at the end of the weekend, unless there was any material development in the meantime.

Following the Bank of England's public statement on the evening of Friday 10 March, it became aware of a number of parties with a potential interest in purchasing all or part of the failed bank. HSBC emerged to be the only credible bidder who would be able to implement the sale in time before SVB UK's opening on Monday 13 March. Given this, in the early hours of Monday 13 March, the Bank of England determined (following consultation with the FCA, PRA and HM Treasury, as required by statute) that the statutory conditions for exercising stabilisation powers were met, such that the shares in SVB UK should be transferred to HSBC. The sale of SVBUK ensured continuity of business including continuity to all depositors. That said, it is likely that the bank would have had enough assets to pay out all depositors (insured and uninsured), given the size of its overall capital and their alignment with the risks the bank was taking, especially due to Pillar 2 add-ons for concentration risk and IRRBB.

## Signature Bank<sup>11</sup>

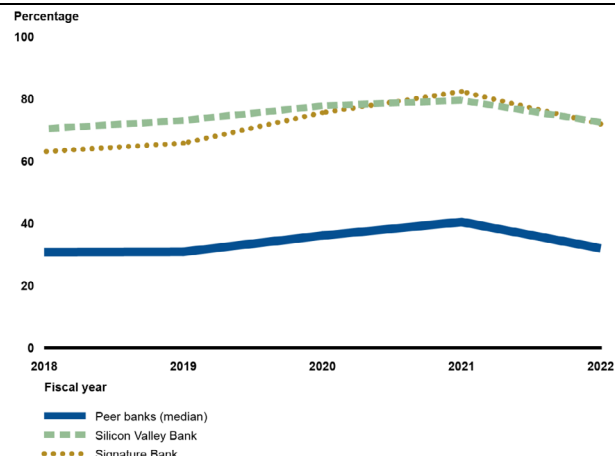
On 12 March 2023, the New York State Department of Financial Services (NYSDFS) closed SBNY and appointed the Federal Deposit Insurance Corporation (FDIC) as receiver of the bank. With total assets of \$110.4 billion at the end of 2022, SBNY was the 29<sup>th</sup> largest bank in the country, and its failure constituted the third largest bank failure in United States history. This sub-section summarises the main events and causes of SBNY's failure. A fuller assessment is provided in reports published by the FDIC (FDIC, 2023), the US GAO (GAO, 2023) and NYSDFS (NYSDFS, 2023), respectively.

SBNY was a full-service, commercial bank founded in 2001 as a *de novo* bank. Its main lines of business were commercial real estate and commercial and industrial lending, which were principally funded through uninsured deposits gathered from mid-sized commercial companies. Starting in 2018, SBNY began to expand its business model by launching other lending and deposit gathering initiatives, including a Fund Banking Division dedicated to providing financing and banking services to the private equity industry and a Digital Assets Banking Group to collect cash deposits and maintain operating accounts for various digital asset-related businesses.

SBNY experienced tremendous deposit growth and, like SVB, relied heavily on uninsured deposits relative to peer banks (Graph 3). During 2020 and 2021, the bank's size more than doubled, resulting in total deposits of \$88.6 billion at the end of 2022.

<sup>11</sup> This section draws heavily on FDIC (2023a), GAO (2023) and NYSDFS (2023).

**Graph 3:** Uninsured deposits to total assets for SVB, SBNY and peer group median<sup>(a)</sup>



Source: GAO (2023).

(a) Peer group comprises 19 banking institutions with reported deposit balances that each had total assets between \$100 and \$250 billion at year-end 2022.

The primary cause of SBNY’s failure was illiquidity precipitated by contagion effects in the wake of the announced self-liquidation of Silvergate Bank, on 8 March 2023, and the failure of SVB on 10 March 2023 (see previous subsection), after both banks experienced deposit runs.

However, the root cause of SBNY’s failure was poor management. SBNY’s board of directors and management pursued rapid, unrestrained growth with total assets increasing by 175 percent from the end of 2017 (\$43.1 billion) to the end of 2021 (\$118.4 billion), before declining to \$110.4 billion at the end of 2022. It did so without developing and maintaining adequate risk management practices and controls appropriate for the size, complexity and risk profile of the institution. SBNY management did not prioritise good

corporate governance practices, did not always heed FDIC examiner concerns, and was not always responsive or timely in addressing FDIC supervisory recommendations (SRs). SBNY funded its rapid growth through an overreliance on uninsured deposits without implementing fundamental liquidity risk management practices and controls.

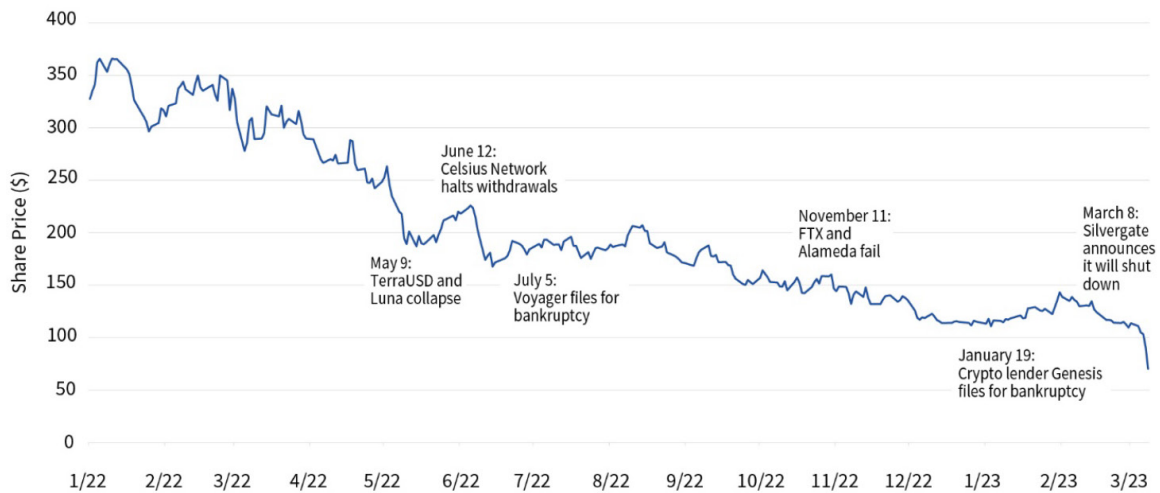
Additionally, SBNY failed to understand the risk of its association with and reliance on crypto industry deposits or its vulnerability to contagion from crypto industry turmoil that occurred in late 2022 and into 2023. SBNY’s significant client concentration of digital asset companies put it in a precarious position when the “crypto winter” hit in 2022. News articles scrutinised SBNY’s involvement in the industry. SBNY experienced depositor run-off from both crypto customers as well as traditional depositors. However, management did not acknowledge that its exposure to the crypto industry might entice other customers to pull or reduce their own deposits. Due to its reputation as a banker to many in the crypto industry, SBNY’s stock price closely tracked events in the crypto industry (Graph 4).

SBNY’s poor governance and inadequate risk management practices put the bank in a position where it could not effectively manage its liquidity in a time of stress, such as that resulting from the fallout of the liquidation of Silvergate and unprecedentedly rapid unfolding of SVB’s failure, making it unable to meet very large withdrawal requests.

As in the case of SVB, SBNY had operational weaknesses with regards to its contingency funding plan. For example, during 2021 and 2022, SBNY increased lending in the form of capital call/subsorption loans. SBNY intended to pledge these loans to the Federal Reserve Bank of New York (FRBNY) as collateral for Discount Window lending. However, the FRBNY would not accept the loans as collateral because they were not eligible. SBNY pursued efforts to pledge these loans for months, hiring law firms to make the case for the FRBNY to accept them. During the weekend that SBNY failed, management tried unsuccessfully, to pledge this portfolio to the FRBNY. Even though SBNY management knew they did not have a formally confirmed avenue to obtain liquidity from this portfolio, they continued to try to include these loans in collateral calculations just hours before the institution failed.

The FDIC conducted a number of targeted reviews and ongoing monitoring, issued Supervisory Letters and annual roll-up reports of examination (ROEs), and made a number of SRs to address supervisory concerns. As noted in FDIC (2023), in retrospect, the FDIC could have escalated supervisory actions sooner. Additionally, examination work products could have been timelier and communication with SBNY’s board and management could have been more effective.

**Graph 4: SBNY share price and crypto-related developments**



Source: FDIC (2023a).

For example, from 2017 through March 11, 2023, the FDIC New York Regional Office (NYRO) assigned a Composite “2” CAMELS rating to SBNY, indicating that the overall condition of the bank was satisfactory.<sup>12</sup> In 2019, the NYRO downgraded SBNY’s Liquidity component rating to “3” reflecting a need for improvement. However, the NYRO rated SBNY’s board and management performance as satisfactory until March 11, 2023. Given the recurring liquidity control weaknesses, SBNY’s unrestrained growth, and management’s slow response to address findings, it would have been prudent to downgrade the Management component rating to “3,” (ie needs improvement) as early as the second half of 2021 (FDIC, 2023).

The FDIC’s communication of examination results to SBNY’s board and management was often not timely. Targeted review Supervisory Letters and annual roll-up ROEs frequently exceeded elapsed-day benchmarks and in some cases were significantly delayed. There were opportunities for examiners to engage more frequently with bank management and the board and to provide clearer, timelier messages to SBNY executives regarding identified weaknesses (FDIC, 2023).

The FDIC experienced resource challenges with examination staff that affected the timeliness and quality of SBNY examinations. From 2017 to 2023, the FDIC was not able to adequately staff an examination team dedicated to SBNY. Certain targeted reviews were not completed in a timely manner or at all because of resource shortages. Although the key issues related to liquidity risk management were identified, these vacancies and the adequacy of the skillsets of the FDIC’s SBNY supervisory team prior to 2022 contributed to timeliness and work quality issues and slowed earlier identification and reporting of some SBNY weaknesses. In 2022, a new supervisory team was in place that began identifying additional weaknesses at the institution. As a result, the FDIC was in the process of downgrading the institution’s ratings and initiating enforcement actions at the time of the bank’s failure due to contagion.

<sup>12</sup> FDIC bank examiners review and evaluate an institution’s condition using the Uniform Financial Institutions Rating System, also known as CAMELS (Capital, Asset quality, Management, Earnings, Liquidity, and Sensitivity to market risk). CAMELS ratings are scored on a scale of “1” (best) to “5” (worst). Examiners assign a rating for each CAMELS component and an overall Composite rating.



## Credit Suisse<sup>13</sup>

While CS came out of the GFC in a better position than UBS and other peer banks, it was subsequently and repeatedly at the centre of various scandals. This included incurring a series of losses, most notably due to the Archegos and Greensill failures in 2021, and a high number of partially public supervisory enforcement actions. The continuous stream of scandals and negative results progressively led to a serious loss of confidence in the bank by its clients, market participants, rating agencies and regulators.

The enforcement actions undertaken by the Swiss Financial Market Supervisory Authority (FINMA) revealed serious and continued weaknesses in governance, risk control, and risk management across a broad range of areas. Nonetheless, capital and liquidity ratios remained solid throughout this period, partly due to a CHF 1.65bn capital raise (via mandatory convertible notes) in 2021 following the loss related to Archegos. High liquidity buffers were required by FINMA since the March 2020 Covid-19 market turmoil.

After experiencing two consecutive quarterly net losses, the bank issued a profit warning in June 2022, pointing to another net loss for the second quarter of 2022. Market indicators worsened significantly and rating agencies downgraded the bank.

In the second half of 2022, amid a difficult market environment driven by geopolitical events and worsening macroeconomic conditions, CS announced a thorough strategy review. However, CS's liquidity suddenly and significantly worsened in October 2022 with very material liquidity outflows. These developments were due to CS clients, mainly in its Wealth Management Division, withdrawing significant amounts following negative market rumours about the financial health of the bank.

The announcement of the revised strategy, which included raising CHF 4 billion in capital to finance the transformation, did not restore confidence in the firm. The bank was again downgraded and market indicators continued to worsen (Graph 5). At that stage, CS had become an outlier among global systemically-important banks (G-SIBs) based on ratings, credit default swap (CDS) spreads and market capitalisation.

CS was able to withstand the October 2022 outflows only due to the very high liquidity buffers required by FINMA from March 2020. However, the significant deposit and asset outflows further weakened its Wealth Management franchise, a supposed cornerstone of the bank's revised strategy.

In March 2023 CS announced a technical delay in the publication of its 2022 annual report due to ongoing discussions related to weaknesses regarding its financial accounting controls.

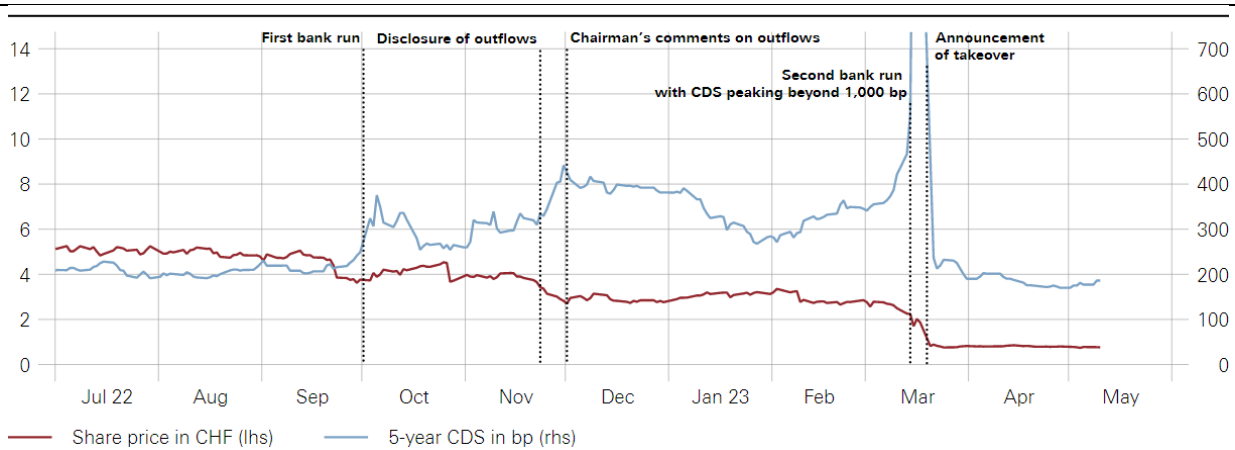
Following the mid-March 2023 failure of SVB and SBNY in the US, markets turned to the weakest link: CS. Notwithstanding immaterial exposure to SVB and SBNY, in the week of 13 March, the CS stock price (which had lost more than 70% since 1 January 2023) came under pressure. CDS spreads increased and peaked at 1082bps on 16 March. These market events triggered a renewed loss of confidence in CS's ability to execute its strategic restructuring and to return to profitability according to plan. Liquidity outflows accelerated again very materially.

On 15 March 2023, FINMA and SNB issued a joint statement where FINMA confirmed that CS was still meeting capital and liquidity requirements.<sup>14</sup> In the same statement, SNB indicated it was ready to provide emergency liquidity assistance (ELA) to CS as needed. Briefly after the announcement of the authorities, CS informed the market that it intended to draw up to CHF 50bn from ELA.

<sup>13</sup> This section draws on contributions provided by the SNB and FINMA.

<sup>14</sup> FINMA and SNB (2023).

**Graph 5: Credit Suisse share price and CDS**



Sources: Refinitiv and Bloomberg.

However, these actions did not reassure the markets. In the following days, large outflows continued and market participants started to take precautionary measures when dealing with CS (such as pre-funding to operate the settlement of payments and FX trades for CS), further increasing the pressure on its liquidity position and management. It became clear that CS would not have been able to regain market and client confidence. CS was fast approaching a point of non-viability due to massive cumulative liquidity outflows and its increasing difficulties to transact with other market participants.

On the backdrop of these events, Swiss authorities (the Swiss Federal Council, SNB, and FINMA) decided to take action.<sup>15</sup> On 16 and 19 March 2023, in strict alignment and coordination with SNB and FINMA, the Swiss Federal Council adopted emergency measures aimed at ensuring the viability of CS and ultimately paving the way for a takeover by UBS. These emergency measures were established to protect financial stability (at national and international level) and the Swiss economy:

- First, the Swiss Federal Council introduced rules allowing SNB to provide additional emergency liquidity (so-called ELA+) up to CHF 100bn in total to CS and UBS by granting a privileged hierarchy to ELA+ credits in case of bankruptcy.
- Second, a public liquidity backstop was enacted which made it possible for SNB to provide an additional CHF 100bn in liquidity to CS secured by a public guarantee issued by the Swiss Confederation.
- Third, the Swiss Confederation provided a public guarantee to UBS for CHF 9bn on losses that might materialise in reference to specific assets on CS's balance sheet which UBS intends to exit in the course of the integration process and for which UBS agreed to take a first CHF 5bn loss post takeover.<sup>16</sup>

The following additional measures were also taken:

- The AT1 instruments issued by CS contractually state that they will be completely written down in a "Viability Event", in particular if extraordinary government support is granted or when FINMA orders this to avoid insolvency. Since CS was granted extraordinary liquidity assistance loans secured by a federal default guarantee on 19 March 2023 to avoid its insolvency, these

<sup>15</sup> Swiss authorities constantly kept CS Core College and Crisis College members informed about the developments and the actions taken.

<sup>16</sup> On 8 August 2023, UBS announced the voluntary termination of the CHF 9 billion Loss Protection Agreement with the Swiss government.

contractual conditions were met for the AT1 instruments issued by the bank. The Emergency Ordinance enacted by the Swiss Federal Council on 19 March also authorises FINMA to order the borrower and the financial group to write down AT1 capital. Based on the contractual agreements and the Emergency Ordinance, FINMA instructed CS to write down all its AT1 bonds.<sup>17</sup>

- In a deviation from the applicable Swiss law on mergers, the emergency measures enacted by the Government allowed for the transaction to be concluded without approval from the General Assembly of both firms involved since the takeover was orchestrated in agreement with FINMA.
- Finally, FINMA gave its provisional approval to the takeover of CS in lieu of the Swiss Competition Commission.

The extraordinary measures taken by the Swiss authorities over the weekend of 19 March 2023 achieved their objective to ensure financial stability in Switzerland and globally. During the period of 20 March to 24 April 2023, CS's stock price stabilised and its CDS spreads decreased significantly. CS has been able to actively tap the ELA+ granted by the SNB (with peak-usage of about CHF 169bn) and liquidity has overall been stabilising while still observing some cash deposit outflows, though at much lower levels.

Box B offers additional observations on CS' experience with liquidity and capital requirements.

### **Box B:** Observations on liquidity and capital following the distress of CS

As discussed above, in October 2022 and again in mid-March 2023, CS faced two waves of massive and rapid liquidity outflows. Existing liquidity buffers allowed CS to withstand the October 2022 episode. However, these outflows depleted a substantial part of the liquidity the bank held in excess of its LCR requirement. The remaining liquidity was not sufficient to cover the second run.

Consequently, the SNB supported CS with ample liquidity assistance. In terms of size, the combined facilities would have covered all deposits maturing within 30 days. Such coverage was considered necessary given the loss of confidence.

Based on this experience, the following observations seem relevant regarding the LCR:

- In the case of CS, at entity levels, a large part of the buffer of high-quality liquid assets (HQLA) held to meet the LCR requirements were reserved for purposes other than covering the outflows in the 30-day stress scenario foreseen in the LCR framework. First, a large part of the corresponding liquidity was needed to ensure that all payments could be properly met for day-to-day business as intraday liquidity needs. Second, due to the loss of confidence, counterparties required very substantial prepositioning from CS. Finally, in periods of stress, the technical need for liquidity increases substantially.
- Supervisory and market scrutiny were additional impediments to the use of the LCR buffer. While the LCR standard specifies a lagged disclosure of an average LCR, CS was of the view that "breaches" of regulatory requirements needed to be communicated to comply with ad hoc disclosure requirements. Furthermore, the bank was cautious to fall below regulatory LCR levels and was wary of the signalling implications when using ELA.
- Some of CS's client deposit outflows (eg high value retail deposits) turned out to be larger than those assumed in the LCR calibration. If one considers the October 2022 stress episode over a 30-day horizon, the overall deposit outflows were broadly in line with LCR assumptions. Yet in mid-March 2023, the liquidity outflows equalled the HQLA needed to meet the LCR requirement were already exhausted within 10 business days around the time of the takeover of CS by UBS.

Moving to capital, the ability of AT1 instruments to increase the financial capacity of CS by absorbing losses on a going concern basis was limited. In fact, to avoid stigma, CS continued to make expensive replacement issuances. In the past years, it was market practice to repay AT1 debt instruments at the earliest possible opportunity. In some cases, replacements of AT1 debt instruments took place with higher spreads (eg due to increased idiosyncratic risk and general market risk aversion) which then further increased funding costs. For

<sup>17</sup> FINMA (2023).

example, in June 2022 CS replaced an AT1 debt instrument of \$1.5 billion with a new AT1 issuance of \$1.65 billion; the spread increased from 510 bp to 638bp. The replacement resulted in an increased funding cost until the next cancellation opportunity (in five years) by approximately \$100 million in total. The increasing funding put pressure on the bank's profitability and its ratings.

In addition, CS did not exercise the discretionary element of AT1 instruments to cancel all or part of any interest payment to decrease funding costs, primarily because of negative signalling effects. Even though CS had to pay approximately CHF 1 billion interest per year on its outstanding publicly issued AT1 instruments, CS decided not to benefit from the positive P&L and capital impact of a cancellation, irrespective of several quarters of reported losses. AT1 instruments absorbed losses only in the context of the state intervention, after the market had lost confidence in the bank.

## First Republic Bank<sup>18</sup>

FRC was established in 1985. The bank focused on offering banking services to high net worth (HNW) individuals, including residential real estate lending, private banking, business banking, wealth management, trust, and brokerage services. Single-family residential (SFR) loans were the primary loan product and included nonconforming jumbo mortgages with interest-only repayment terms. FRC used these products to acquire HNW customers and expanded the banking relationship by providing trust and wealth-management services, among other personalised banking products.

As of 31 March 2023, the bank had total assets of \$232.9 billion and total deposits of \$104.5 billion. FRC was the fourteenth largest bank in the US, and the second largest bank supervised by the FDIC.

Examination products reported that FRC had historically been a respected, well-run bank and was responsive to supervisory feedback and recommendations. Reports of examination noted that the bank grew consistently, but implemented and maintained infrastructure, controls, and risk management processes commensurate with its size and risk profile. Notwithstanding, there were attributes of FRC's business model and management strategies that made it more vulnerable to interest rate changes and the contagion that ensued following the failure of SVB. Those attributes included:

- Rapid growth and loan and funding concentrations.
- Overreliance on uninsured deposits and depositor loyalty.
- Failure to sufficiently mitigate interest rate risk.

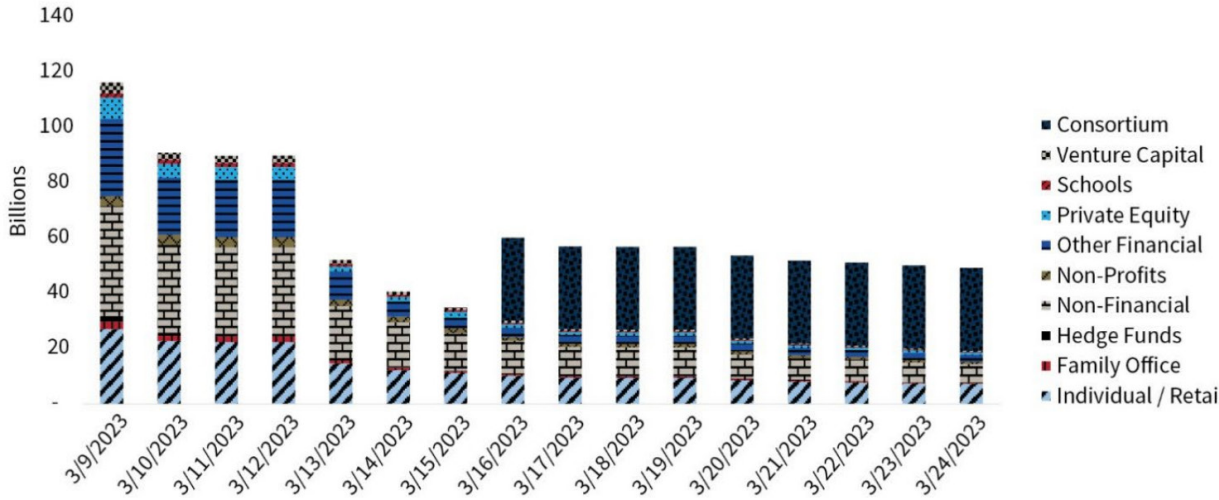
FRC experienced a lack of market and depositor confidence following the sudden failure of SVB and SBNY during the weekend of 10 March which resulted in significant uninsured deposit outflows and loss of liquidity (Graph 6). The bank had balance sheet characteristics that were similar to SVB's, mainly high levels of uninsured deposits and substantial differences in the fair value of loans versus loan book values. As of 31 March 2023, approximately 49 percent of its deposits were uninsured. FRC also operated in the same geographic market as SVB and had VC clients. Following SVB and SBNY's failures, FRC experienced dramatic and severe contagion effects causing immediate liquidity stress due to significant uninsured deposit outflow, which depleted the bank's on-balance sheet liquidity.

The continuous withdrawal demands required the bank to borrow substantial amounts from the Federal Home Loan Bank (FHLB) and the Federal Reserve Discount Window. On 16 March 2023, a consortium of 11 major US banks placed \$30 billion in deposits at FRC that slowed the rate of deposit outflows. However, a 24 April 2023 earnings call, which disclosed that First Republic lost over \$100 billion in deposits during the first quarter of 2023, prompted a negative market response, a significant decline in the bank's stock price, and a resumption of significant deposit outflows. Given the deterioration in the

<sup>18</sup> This section draws heavily on FDIC (2023b) and Gruenberg (2023).

bank's condition, lack of progress in restoring confidence, and dim prospects for improving the bank's condition, the FDIC and CADFPI downgraded the bank to problem status on 28 April 2023. The bank's rating downgrade effectively eliminated FRC's ability to continue borrowing money from the Federal Reserve Discount Window.

**Graph 6:** First Republic's daily uninsured deposit balances by industry type



Source: FDIC (2023b).

On 1 May 2023, FRC was closed by the CADFPI, which simultaneously appointed the FDIC as receiver. The FDIC entered into a purchase and assumption agreement with JPMorgan Chase Bank to assume all of the deposits and substantially all of the assets of FRC. As part of the transaction, FRC's 84 offices in eight states reopened that same morning as branches of JPMorgan Chase Bank. All depositors of FRC became depositors of JPMorgan Chase Bank.

As part of the transaction, the FDIC and JPMorgan Chase Bank entered into a loss-share agreement on the single-family mortgage and commercial loan portfolios it purchased from FRC. The FDIC and JPMorgan Chase Bank will share in the losses and potential recoveries on the loans covered by the loss-share agreement, which is projected to maximise recoveries on the assets by keeping them in the private sector.

The FDIC estimates that the cost to the Deposit Insurance Fund will be \$13 billion. This initial loss estimate is subject to further revision, and the final cost will be determined when the FDIC terminates the receivership.

## Section 2: What are the initial lessons learnt and takeaways for supervision?

While the main takeaway from the turmoil is the importance of banks' own risk management and governance practices, Section 1 also highlighted supervisory-related issues stemming from the recent turmoil. In some instances, these issues have commonalities with other banking stresses and have been previously identified in the BCPs. However, the previous section also highlighted novel elements, which set recent events apart from previous experience. These include: the unprecedented speed of deposit withdrawals that were experienced, particularly among uninsured (high value) depositors; outlier business models that aggressively take on risks; and the way in which concerns about banks in one jurisdiction, including ones that were not considered internationally active, affected confidence in banking sectors and markets in a much wider range of other jurisdictions.

Another element that, while not new, played an important role in events at SVB, SBNY and FRC was the rapid growth of the business in the few years preceding the crisis, and the difficulty the banks experienced in keeping up with needed enhancements in governance, risk management and controls. This also created challenges for supervisors.

Building on these observations, the rest of the section outlines initial lessons learnt and takeaways for supervision.

### Analysis of banks' business models, including the identification of outliers, remains a core component of supervision

Although SVB, SBNY, FRC and CS had different business models, they all had elements that indicated they were outlier banks compared to their peers, for example in terms of their customer base, balance sheet structure (eg concentration, interest rate risk), asset growth, management and corporate culture.

Previous work by the Committee has outlined that, as part of the Pillar 2 supervisory review process, many supervisors assess banks' business models including their sustainability and ability to operate in a safe and sound manner in evolving market and business environments.<sup>19</sup> Doing so helps ensure that banks have an appropriate "process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels" and allows supervisors to "intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank".<sup>20</sup>

The events outlined in Section 1 underline the importance of supervisors developing a thorough understanding of the viability/sustainability of banks' business models as part of their supervisory process, including identifying any areas in which a bank is an outlier, so they can identify, assess and take action to address any weaknesses at an early stage.

This emphasises the importance of supervisors considering:

- **How to assess the viability/sustainability of banks' business models in a holistic manner.** For example, in assessing banks' business models, there are benefits in looking at a diverse range of quantitative indicators as well as qualitative information, so as to identify vulnerabilities of novel/outlier business models in a timely manner. This includes going beyond regulatory ratios. As highlighted during the recent turmoil, a bank's regulatory capital ratio at a given point in time does not always adequately capture its actual resilience in a forward-looking perspective. This is because such ratios rely on accounting valuations, which in many cases are not forward-looking

<sup>19</sup> BCBS (2019b).

<sup>20</sup> Ibid.

in nature and do not reflect future expectations. A bank's risk-adjusted profitability is also essential for its capacity to withstand adverse events.<sup>21</sup> They also highlight the importance for supervisors to make use of a broad set of risk indicators when assessing banks' resilience, including not only regulatory and market-based metrics but also confidential supervisory reporting, internal records and management information.<sup>22</sup>

- **Proactive engagement with outlier banks.** To the extent that a bank is identified as an outlier, for example because of its business model or rapid growth, concentrated funding sources or exposures, supervisors should consider how to proactively engage with the bank concerned to further understand the risks and make sure that the bank is capable of effectively managing them. Such engagement should intensify in accordance with the significance of the issues/risks posed.
- **The impact of changes in external environment.** Banks' ability to generate stable and sustainable returns is crucial for their safety and soundness. To assess such stability, supervisors benefit from assessing banks' business models in a forward-looking manner, taking into account potential changes in their operating environment over a medium/long term. This could include the potential impact of market conditions, such as material changes in the interest rate environment; or the potential impact of regulatory change on a bank's profitability, such as the implementation of Basel III.

### The importance of supervisors assessing a bank's governance and risk management as the foundational step in ensuring its safety and soundness.

Events outlined in Section 1 reinforce the importance of banks having in place robust corporate governance as well as internal risk management and controls capable of ensuring informed and prudent risk taking. This includes the robust implementation by banks of the Basel III framework and expectations outlined in previous Committee outputs, such as the *Corporate governance principles for banks*.<sup>23</sup>

A core element of supervisory work is therefore ensuring that banks have effective and robust governance and risk management. This includes but is not limited to: the composition of the board and the extent to which its members have relevant experience, including banking and financial expertise; the board's ability to effectively challenge the bank's management, oversee the bank's risk profile and steer its strategy; the independence and empowerment of the risk management and internal audit functions; the enterprise-wide risk culture, including how embedded it is in corporate and business processes; and the incentives provided by senior management compensation schemes.

The supervisory assessment exercise can be the basis of this assessment. Supervisors should take prompt action to ensure that any deficiencies are addressed.

### Liquidity supervision may need to evolve in light of recent experience

The Committee issued supervisory principles for managing liquidity risk in 2008, and found that they remain fit for purpose in 2019.<sup>24</sup> Nevertheless, the recent turmoil highlighted clear challenges in

<sup>21</sup> In the case of CS, the negative profitability outlook led to a low market capitalisation and high CDS premia, limiting the bank's ability to raise capital and to issue debt at reasonable prices. Together, these factors raised doubts about the bank's financial capacity to implement a complex and protracted restructuring plan, despite the fact that it was meeting the regulatory capital requirements.

<sup>22</sup> The BCPs specify that "the supervisor has the power to: (a) have full access to banks' and banking groups' Boards, management, staff and records in order to review compliance with internal rules and limits as well as external laws and regulations".

<sup>23</sup> BCBS (2015a).

<sup>24</sup> BCBS (2008, 2019a).

overseeing banks' liquidity risk. These challenges related to: the speed and volume of deposit outflows and changes in banks' funding profile (eg see Box A); the importance of banks being operationally prepared for liquidity stress scenarios (eg by having credible and tested contingency funding plans, operational readiness to access central bank liquidity facilities, etc); and the role of social media and the digitalisation of financing in hastening the speed and impact of a bank's distress.<sup>25</sup>

These developments, in turn prompt considerations for supervisors around whether:

- their monitoring of bank, sectoral and market information, including the LCR, Net Stable Funding Ratio (NSFR) and liquidity supervisory review processes (which rely on liquidity monitoring metrics) provides the relevant information, in a timely manner, for them to identify when material liquidity outflows start to take place;
- the frequency of monitoring can be increased both during times of stress (for example to daily or even intra-day monitoring) and business as usual times (eg weekly liquidity monitoring), given possible negative signalling effects or other challenges of ramping-up reporting requirements in moments of stress;
- monitoring can leverage on different sources of information and high-frequency data, complementing the normal supervisory reporting;
- monitoring of concentration risks is warranted, and ways to implement it;
- the specific features of the bank's business model or asset/liability structure are adequately taken into account, both by the bank and by the supervisor;
- liquidity can be expected to be freely transferable and available to the consolidated level of banking groups in times of stress;
- the liquidity stress testing conducted by banks (including their ability to monetise liquid assets and potential interactions with other risks and capital as well as increased intraday needs) and their contingency funding plans (including the use of emergency facilities at the central bank where available) are sufficiently robust;
- bank stress testing is (or could be) supplemented by supervisory stress testing of liquidity; and
- they have sufficient tools to ensure banks take appropriate action to remediate supervisory concerns with respect to their liquidity risk management and funding profile and that the tools can be deployed sufficiently quickly.

### Supervisory judgement is a critical element of supervisory approaches, to ensure that the intent as well as the letter of regulation is addressed

A rules-based approach to regulation typically sets minimum requirements for banks (or groups of banks) that trigger immediate actions by supervisors where rules are breached. It is therefore, by nature, static and necessarily assumes a base level of commonalities in the business model and risks across all the banks to which the rules apply. This approach plays an important role in ensuring a core level of compliance and predictability of the consequences and supervisory actions that follow a breach. But it can also overlook

<sup>25</sup> Advances in the digitalisation of finance – including faster payment / settlement services and on-demand access to banking services through mobile apps – are removing many of the frictions that may have previously slowed down the magnitude of liquidity outflows (in some jurisdictions, limits on the amount of online credit transfers have been introduced by banks in response to digital fraud incidents, which may potentially reduce the speed and magnitude of outflows). Second, the proliferation and prevalence of a wide range of social media channels – including public platforms, encrypted messaging channels, internal corporate messaging services and specialist forums – are accelerating the spread of (founded or unfounded) concerns about banks' viability and uninsured depositors' fear about incurring losses in the event of resolution.



the unique risks associated with novel/outlier business models as well as any technological developments. In doing so, it can provide false comfort to supervisors and the public that risks are appropriately addressed and dis-empower supervisors to engage with banks until a regulatory trigger is exercised, which may often be too late.

As noted earlier in this section, the banks at the centre of events covered by this report had elements that indicated they were outliers in some aspects of their business models or operations, and which a rules-based approach, on its own, may not be sufficient.

A key takeaway is therefore that a rules-based approach on its own is unlikely to appropriately identify, assess and allow the timely mitigation of key risks to a bank's safety and soundness and broader financial stability. This does not diminish the role of a rules-based approach in setting minimum standards. Rather, it prompts considerations for supervisors around how they can effectively complement such standards by exercising judgement – and therefore intervene proactively even when specific rules have not been breached – to make bank supervision dynamic and adapted to a bank's specific business model and operations, and the risks that they present. This is particularly important as banks are adapting to accelerating digitalisation, the diversifying needs of customers and new types of business models; associated risks that emerge may not be fully captured by existing rules.

At the same time, some supervisory authorities could potentially face constraints in pursuing and enforcing (pre-emptive) actions. For example, it can be very difficult for some authorities to impose actions on banks that meet regulatory requirements (eg where a bank is not in breach of regulatory ratios or other prudential requirements), even though the authority may have identified risks that could threaten the bank's safety and soundness. This is because supervision may be deemed to lack a legal basis for intervention, and therefore be subject to legal challenge and damage to the supervisor's reputation. In these cases, the authorities may have to rely on less robust tools to incentivise banks to address risks, which may prove less effective. More generally, the ultimate responsibility for developing and executing business strategies lies with banks' board and senior management; direct supervisory intervention in such realms could potentially increase moral hazard.

## Supervisors need to have effective tools available that will drive real change at banks

As outlined in Section 1, supervisors had identified and notified the distressed banks at appropriate governance levels, of the risks posed to their safety and soundness. However, these warnings did not drive sufficient change to prevent stress at the banks as events unfolded.

The Committee has previously published guidance on supervisory techniques and tools, including through the BCPs and the *Framework for early supervisory intervention*.<sup>26</sup> The latter sets out a ladder of increasing supervisory intervention from 'normal/low risk' activities such as supervisory reviews through to 'mandated actions/imminent risk' including the use of formal powers to require change or enforcement actions.

However, legislative and regulatory frameworks differ across jurisdictions. Therefore, a takeaway from the events covered in this report would be for supervisory authorities to review their supervisory toolkits to ensure they are sufficient to drive concrete action at banks, including in light of any legislative/regulatory constraints on how or when they might be applied.

Supervisory authorities could also review whether the guidance and processes given to individual supervisory teams appropriately incentivises a willingness to act early, accompanied by a clarity of process on how to do so.

<sup>26</sup> BCBS (2018).

## Cross-border supervisory cooperation

Two of the four banks covered by this report had overseas operations: CS had an extensive international footprint while SVB operated with a number of overseas branches and subsidiaries. Timely and effective cross-border supervisory cooperation was therefore a key element in responding to the turmoil and mitigating risks to global financial stability.

There are several positive elements in which central banks and supervisory authorities cooperated across jurisdictions:

- Host authorities of significant entities within the relevant banking groups covered by this report (for example members of the CS Core College, or supervisors of SVB's overseas subsidiary) have, in general, reported positive feedback from their experience of the information sharing and collaboration that took place before, in the run up to, and during the bank events. Despite the pressures faced by home authorities during the acute "weekend" period of each bank's distress, there generally continued to be timely and effective communication, which helped facilitate a relatively smooth rescue (CS) and resolution (SVB) of the distressed banks.
- The Committee actively facilitated the sharing of information and discussions among its members in a timely and recurring matter during the initial phase of the turmoil. This included an ad-hoc meeting on 14 March 2023 for members to discuss the failures of SVB and SBNY, followed by an extensive discussion of the turmoil (including the rescue of CS) at the Committee's meeting on 24-25 March 2023. These discussions helped provide a common baseline of information sharing across a wider set of central banks and supervisory authorities. They also facilitated the Committee's prompt action in agreeing to review developments from the turmoil.

However, the size, scale and reach of CS's operations and the impact that SVB's resolution had on confidence in international banking markets meant that the plans and actions being taken by their supervisors, central banks and resolution authorities was also of keen interest to a much wider range of international authorities due to global financial stability concerns. For example, some authorities in Asia noted their desire to understand what actions were being taken with respect to CS before their markets opened which was several hours before Swiss markets, so they could take appropriate action to safeguard financial stability in their own jurisdictions.

Consideration could therefore be given as to whether broader information sharing protocols are merited for events like the ones covered by this report, building on existing Committee guidance on supervisory cooperation.<sup>27</sup> For example, enhancements could be considered to enable greater coordination between home supervisors and supervisors of G-SIBs that have significant exposures to the stressed bank or which are active in the same markets where systemic spillovers could arise. This would necessarily have to take into account constraints on the ability of authorities to share confidential information; existing information-sharing arrangements (eg supervisory colleges and crisis management groups), and resource implications.

## The importance of monitoring and managing risks at a consolidated group and legal entity level

The Basel Framework relies on a consolidated level approach but recognises the importance of monitoring the distributions of resources among legal entities. This is particularly important, for example, in the context of liquidity risk where appropriate and efficient allocation and management of liquidity resources and collateral at group level to individual entities within the group is a key factor. Since the distribution of

<sup>27</sup> For example, BCBS (1975, 2012, and 2018).

resources could either alleviate local liquidity pressures or spread them throughout the group, it is necessary to closely monitor this aspect.

A key takeaway from recent events – most notably regarding the distress of CS – is therefore the importance of supervisors monitoring risk dynamics throughout the group (including at an individual entity level and/or at a relevant sub-group level), and ensuring that bank risk management is also doing this appropriately, in order to have a comprehensive view of the group's / entity's exposures. Supervisors should also take into account possible limitations to the free transferability of capital and liquidity resources within banking groups that may arise (eg from national laws, supervisory approaches or banks' internal managerial practices), as these can limit or restrict actions by banks or supervisors in stress.

## Section 3: What are the initial lessons learnt and takeaways for regulation?

The recent banking turmoil also raises important regulatory issues. This section outlines a series of regulatory factors that are of relevance to the Basel Framework. In addition to these specific areas, the turmoil also highlighted some issues related to the complexity of the regulatory framework, including the role and design of AT1 instruments, the usability of liquidity buffers and the design of proportionality frameworks. These are covered in the respective sub-sections below.

The discussion in this section seeks to capture a range of perspectives on these areas, and is not prejudging future revisions to the existing Basel Framework. As noted above, the Committee will pursue targeted analytical work to assess whether specific features of the Basel Framework performed as intended during the turmoil, and, over the medium term, assess the need to explore policy options.

### Liquidity standards

All of the banks discussed in Section 1 experienced a series of liquidity distress episodes. Even though many of these banks were not subject to Basel III, the turmoil raises questions about the design and calibration of the Basel III liquidity standards.

On the one hand, the experience with CS at an entity level raises doubts about the operationalisation of the HQLA buffer needed to meet LCR requirements. A large part of CS' HQLA held to meet its minimum LCR requirement was reserved for purposes other than to cover the outflows in a 30-day stress scenario as foreseen in the LCR framework. For example, CS set aside HQLA to cover daily operational and intraday liquidity needs. This raises issues about the design and operationalisation of liquidity requirements. The amended Swiss Liquidity Ordinance, which entered into force on 1 July 2022, allows FINMA to impose institution-specific surcharges, in particular for intraday liquidity needs. The affected banks will have to comply with the new requirements by the beginning of 2024.

As noted above, supervisory and market scrutiny were considered by CS as an impediment to the use of its LCR buffer. CS was of the view that "breaches" of Pillar 1 or Pillar 2 liquidity requirements needed to be communicated to comply with ad hoc disclosure requirements, which in turn may have affected its willingness to draw down the LCR buffer in a manner as envisaged in Basel III.

A related issue is the calibration of the LCR. In the case of CS, during a severe stress event, a large part of its Pillar 1 LCR requirement was needed to cover daily operational/intraday liquidity needs – which are not covered by the LCR – instead of potential outflows over the envisaged 30-day horizon, which raises questions about the design of the LCR, including the scope of risks captured. In a similar vein, the speed and scale of deposit outflows for the distressed banks suggests that banks may not always be able to rely on an extended (eg 30-day) window of time to address their liquidity problems. As such, while acknowledging that the LCR/NSFR cannot prevent all runs and must be complemented by other tools, the turmoil calls into question the scope of risks covered by the LCR (eg intraday liquidity risk, trapped liquidity and the necessity to preposition liquidity to cover for operational needs) and the outflows rates currently assumed in the LCR. It also underlined the importance for banks and supervisors to monitor and manage liquidity risks robustly. Put differently, greater focus could be placed on the role of the LCR to "buy time" for banks and authorities to act in times of liquidity stress.

Another question raised by the turmoil is whether the NSFR performed its role as an indicator of banks' structural liquidity mismatch, particularly for banks that faced a "slower burn" liquidity stress. For example, the NSFR for CS increased from 126% in the third quarter of 2021 to 136% a year later – in contrast, the aggregate NSFR for European banks during this period remained flat at about 120% – before

falling to 117% by the end of 2022.<sup>28</sup> CS never reported an NSFR below 100% during this period. As the NSFR was designed as a structural measure, the “available stable funding” factors of deposits were calibrated at levels that do not correspond with the outflow rates faced by CS (see box A).

The turmoil also raises questions about the role and frequency of standardised stress indicators to complement the analytical toolbox available to supervisors under Pillar 2. For example, to what extent should existing indicators be reported/disclosed on a more frequent basis? Is there added value in developing additional indicators, such as a bank’s “five-day forward counterbalancing capacity” (ie their liquidity positions in five working days’ time), survival period and/or a simple non-risk-based liquidity metric that does not rely on run-off assumptions (broadly analogous to the role of the leverage ratio in the capital framework) Another issue is whether liquidity standards should more clearly mitigate risks related to the accounting treatment of HQLA assets (see the sub-section on HTM securities below).

On the other hand, another perspective is that existing liquidity standards are adequate, and that the focus should be on their effective implementation. For example, the operational requirements for HQLA in the LCR standard already consider the issue of buffer availability at a consolidated level and note the potential of intraday liquidity needs. Moreover, there are already additional Pillar 2 liquidity metrics included in the LCR standard, including those related to funding concentration, maturity ladders and the monetisation of HQLA. This perspective suggests that recent events have demonstrated that the liquidity regulations alone cannot prevent all liquidity runs on banks in an age characterised by easy access to information as well as banking services via various digital tools.

## IRRBB

A recurring theme related to the distress of the US banks discussed in Section 1 was the common and concentrated exposure to IRRBB. While these banks were not subject to the existing IRRBB standard, the turmoil raises questions about the current regulatory treatment of IRRBB in the Basel Framework.

One perspective is that an appropriate implementation of the Committee’s IRRBB standard can adequately mitigate the risks faced by banks by enabling timely and effective actions from authorities. Adequate implementation would include sufficiently detailed reporting, application of the standard’s outlier/materiality test and in-depth reviews of the drivers of banks’ interest rate risk. Best practice implementation should not only capture future impacts of interest rate developments, but also the risks arising from unrealised losses due to interest rate changes that have already occurred. Moreover, the implementation of the required disclosure in the standard based on common metrics can exert market discipline to induce banks to more prudently manage interest rate risk.

Another perspective is that the current Pillar 2/3 approach does not adequately mitigate such risks. According to this view, the standard does not yield sufficient information regarding contractual interest rate risk and methods banks use to identify, measure and backtest interest rate risk. More granular reporting – covering inter alia positions with and without hedging, contractual maturities of banking book items and modelling assumptions – would strengthen the current IRRBB framework and allow supervisors to transparently evaluate IRRBB risk. Moreover, this view notes that the current framework can lead to vastly different outcomes, with some jurisdictions applying capital add-ons across their banks while others having no such add-ons irrespective of duration risks, as a suggestion of the shortcomings of the Pillar 2/3 approach.

<sup>28</sup> These numbers are derived from CS (2021, 2022) and BCBS (2023a).

## The definition of regulatory capital

### Treatment of held-to-maturity assets

As discussed in Section 1, unrealised interest rate losses on fixed income assets held at amortised cost was an important driver in the failure of several banks during the recent turmoil. If banks need to sell such securities before their maturity date to meet liquidity needs, unrealised losses on those securities become realised losses and reduce both equity and regulatory capital. Moreover, the large-scale and ad-hoc firesales by some troubled banks to meet large-scale and simultaneous deposit withdrawals may also require reflection on how best to reflect the risks from second-round fire-sales. This, in turn, raises two issues.

The first issue is whether the treatment of unrealised gains and losses for assets that are HTM should be similar to those that are held as AFS. One view is that, in times of stress and/or resolution, banks may need to sell or monetise all types of securities – potentially at a discount – including those that were intended to be HTM. As such, regulatory capital might overstate banks' shock-absorbing capacity if unrealised losses of HTM securities are not adequately reflected.

The second, related, issue is whether HTM assets should be eligible as HQLA for the purpose of the LCR and NSFR. The LCR requires the stock of HQLA to be measured at an amount no greater than their current market value, which helps ensure that reported LCRs do not include unrealised losses in the valuation of the HQLA buffer. Nevertheless, this could potentially be an insufficient safeguard, since the LCR does not distinguish between the accounting classification of HQLA-eligible securities. As such, distressed banks that monetise HQLA held on an HTM basis in times of stress may still incur unrealised losses for capital purposes under the current definition of regulatory capital, which could further exacerbate their solvency and liquidity problems. At the same time, it should be acknowledged that HTM assets could be monetised not only via outright sale but also via repo transactions. Therefore, banks could generate liquidity from such assets irrespective of their accounting classification without reporting a loss in financial statements.

Another perspective is that such a move could have potentially far-reaching structural consequences for banks' balance sheets and business models, as it would lead to an increase in the volatility and procyclicality of prudential capital, not only in the event of unrealised capital losses but also in the event of unrealised capital gains. According to this view, other regulatory standards – such as the LCR and IRRBB standards – and supervisory measures may allow banks and supervisors to assess the unrealised capital losses of the securities resulting from changes in rates, regardless of the accounting classification of these securities. In addition, Pillar 3 disclosures of unrealised losses provide additional information that can help signal the accumulation of risks, although it may be relevant to review such disclosures to make sure they are sufficiently informative.

### Role of Additional Tier 1 capital instruments in the capital framework

Recent events have shown that investors and markets did not fully internalise the various trigger events that could lead to loss participation of AT1 instruments, even though the Basel Framework contains explicit language on those trigger events and Pillar 3 disclosure requirements, and despite contractual documentation clearly highlighting the corresponding risk factors of such instruments.<sup>29</sup> In addition, the fact that CS continued to make expensive replacement issuances to avoid negative signalling effects and to pay a substantial amount of discretionary interest on these instruments (alongside dividend payments for common shares), despite the fact that it was reporting losses over several consecutive quarters, raises questions about the ability of such instruments to absorb losses on a going-concern basis.

<sup>29</sup> Namely in CAP10.11(11) and (16)

While many jurisdictions issued supervisory guidance or restrictions related to the selling of AT1 instruments to retail investors, the recent turmoil suggests that even relatively sophisticated investors were still uncertain about how, at which point in time, and in which order their holdings would participate in losses in certain jurisdictions. This, in turn, may indicate either that investors are not prepared to accept the loss-absorbing hierarchy of such instruments, or that the rules on AT1 instruments may be too complex and/or opaque so as to be appropriately reflected in AT1 market prices. That said, it could also be argued that some investors were not so much surprised by the write-off of the instruments as they were by the fact that shareholders still had some return.

Accordingly, there may be merit in further assessing the complexity, transparency and understanding of AT1 instruments in a holistic manner. Such reflections could cover the rules on AT1, the respective disclosure requirements as well as interactions with other frameworks. For example, one potential regulatory implication of recent events is whether the Basel Framework needs additional qualifications regarding which trigger events are possible for an instrument to be eligible as AT1 capital. Another potential issue to reflect on relates to the loss-absorbing hierarchy. The Basel Framework prescribes that common shares eligible as Common Equity Tier 1 should represent the most subordinated claim in liquidation of the bank.<sup>30</sup> It also clarifies that in cases where capital instruments have a permanent write-down feature in liquidation, this criterion is still deemed to be met by common shares. Finally, the Basel Framework also states that the paid-in amount should be neither secured nor covered by a guarantee of the issuer or related entity or subject to any other arrangement that legally or economically enhances the seniority of the claim.

## General application of the Basel Framework

### Determination of internationally active banks

The Basel Framework applies on a consolidated basis to internationally active banks. It does not define the concept of internationally active banks. Jurisdictions have full responsibility in deciding on the scope of banks beyond internationally active ones and have opted for different approaches in implementing Basel III. Regardless of the approach pursued by each jurisdiction, the BCPs set out a general principle that banks should be subject to supervision commensurate to their risk profile and systemic importance.

As recent events have shown, however, the failure of a bank can have systemic implications through multiple channels, including first- and second- round propagation effects. For example, the distress of relatively small banks (which are not subject to the full Basel III Framework) can trigger broader and cross-border systemic concerns and contagion effects.

One perspective is that requirements in accordance with the Basel Framework should apply consistently to all institutions that can potentially threaten global financial stability. Moreover, there may be merit in further reflecting on whether additional guidance on the identification of domestic systemically important banks could be useful. Another idea is to complement existing “entity-based” approaches to assessing and mitigating systemic risk with an “activity-based” approaches that place greater weight on the resilience of a systemic activity (eg trends in concentrated uninsured deposits relative to HQLA buffers), regardless of the type of entity that performs it.

### Application of proportionality to non-internationally active banks

Jurisdictions may opt to apply the Basel Framework to non-internationally active banks, including smaller ones. In such cases, they can apply the framework in a proportionate manner. While member jurisdictions are wholly responsible for deciding on whether and how to apply and design proportionate frameworks,

<sup>30</sup> In the case of CS, however, the write-down occurred on the basis of contractual terms, outside of insolvency proceedings or a liquidation.

the recent turmoil highlighted how the distress of banks subject to domestic proportionality regimes could have cross-border financial stability effects.

The Committee's high-level considerations on proportionality – while informative in nature and not binding – provide guidance in this respect as they call for an equal treatment of the same type of risks irrespective of the type of institution.<sup>31</sup> When opting for proportionality for such banks (or a subset of them), the objective would be to reflect jurisdictions' circumstances and supervisory capacity, as well as the nature and business models of their non-internationally active banks but not to dilute the effectiveness in addressing the relevant risk. The high-level considerations also note that any simpler proportionate approaches should be more conservative to compensate for their lower risk sensitivity. In addition, the BCPs note that any simpler proportionate approaches should be robust and commensurate with a bank's actual risk profile and systemic importance.

The turmoil raises questions about whether the design of proportionality frameworks can impede effective supervision by reducing standards, increasing complexity and promoting a less assertive supervisory approach.<sup>32</sup> There may therefore be merit for jurisdictions to continue sharing experiences in applying proportionality, monitoring the scope of banks subject to proportionate approaches, and in ensuring that these objectives are adequately met.

### Level of consolidation

As noted in Section 2, the Basel Framework is applied to internationally active banks on a fully consolidated basis, and additionally, at every tier within an internationally active banking group, also on a fully consolidated basis. Furthermore, supervisors are expected to ensure that capital recognised in a group's capital adequacy measures is adequately distributed amongst the legal entities of a banking group. The leverage ratio framework, LCR and large exposure rules are applied in a similar way, including consolidation criteria, as used for the risk-based capital framework. With respect to liquidity, banks are expected to actively monitor and control liquidity risk exposures and funding needs at the level of individual legal entities as well as at the level of the group as a whole.

The distress of CS showed that a bank may comfortably meet regulatory requirements (eg the LCR) at a consolidated group level, while encountering more difficulties at a standalone legal entity level. In principle, the sum of standalone legal entity requirements can be much larger than a group's requirement, which suggests the minimum LCR requirements calculated at the consolidated group level can (significantly) overestimate the liquidity risk resilience of legal entities. An important question for banks' risk management practices, supervision and regulation is therefore how best to factor solvency and liquidity developments at both a group and standalone legal entity level.

While the Basel Framework clearly recognises the essential value of supplementing consolidated supervision with ensuring adequate capitalisation and liquidity distribution among legal entities within a banking group, it limits itself to noting the need for supervisors to test such adequacy on a standalone basis. It does not therefore prescribe in detail how such requirements for banks at the legal-entity level should be set, but rather provides regulatory and supervisory authorities of individual jurisdictions with flexibility in this regard. Jurisdictions currently apply different approaches with regard to sub-consolidated or legal-entity capital and liquidity requirements. One perspective is that there may be merit to continue to reflect on the potential regulatory implications stemming from the recent turmoil on approaches pursued to the allocation of capital and liquidity within banking groups.

<sup>31</sup> BCBS (2022)

<sup>32</sup> FRB (2023).



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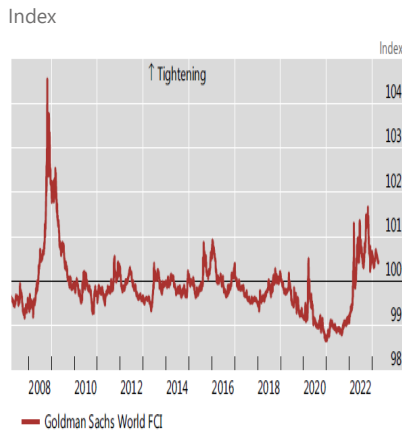
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## Annex: Macrofinancial backdrop and market impact of turmoil

### Macrofinancial backdrop to recent banking turmoil

Graph 7

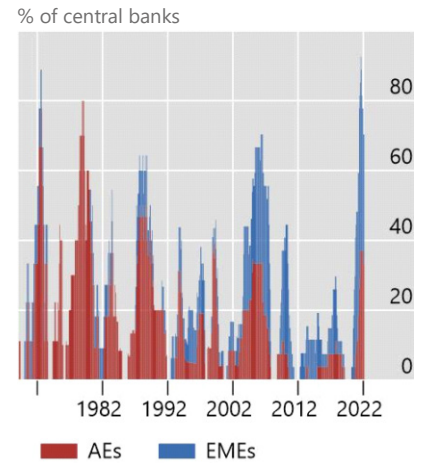
A. Global financial conditions index<sup>1</sup>



B. Household debt levels in selected jurisdictions



C. Central bank tightening episodes<sup>2</sup>



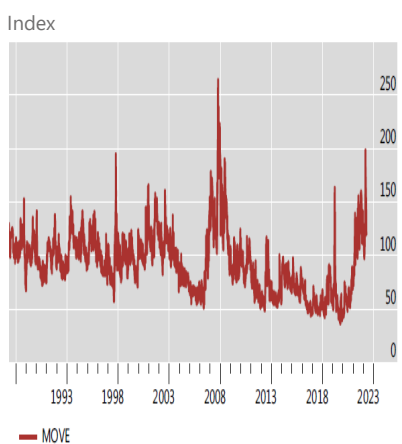
<sup>1</sup> The Goldman Sachs Financial Conditions Index is a weighted average of country-specific risk-free interest rates, exchange rates, equity valuations and credit spreads, with weights that correspond to the estimated impact of each variable on GDP. <sup>2</sup> For each country, tightening episodes are identified as months between the trough and peak in the policy rate around periods when the seven-month centred moving average of the policy rate is increasing. Episodes in which the policy rate increases by less than 1 percentage point or more than 20 percentage points, or episodes that last less than six months or more than 48 months, are excluded from the analysis. Based on data for 11 AEs and 16 EMEs from Jan 1970 to Feb 2023 (subject to country availability); 154 tightening episodes.

Sources: BIS (2023).

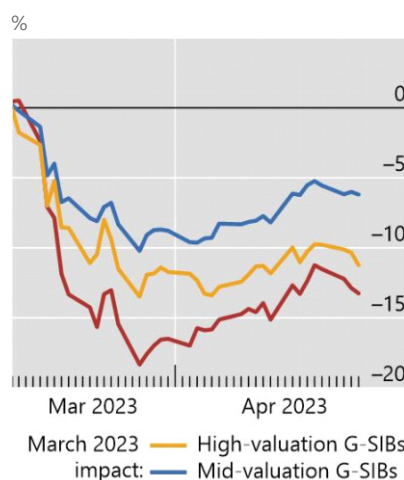
### Impact of banking turmoil on banks

Graph 8

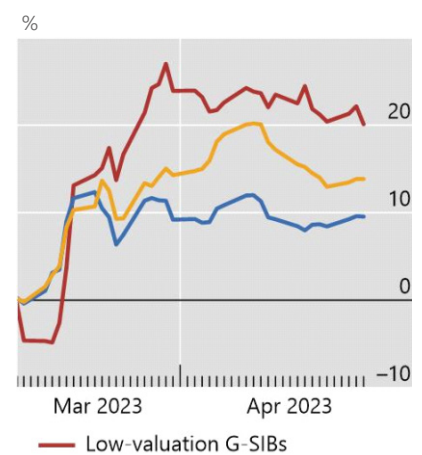
A. MOVE Index<sup>1</sup>



B. G-SIB stock price returns relative to market<sup>2</sup>

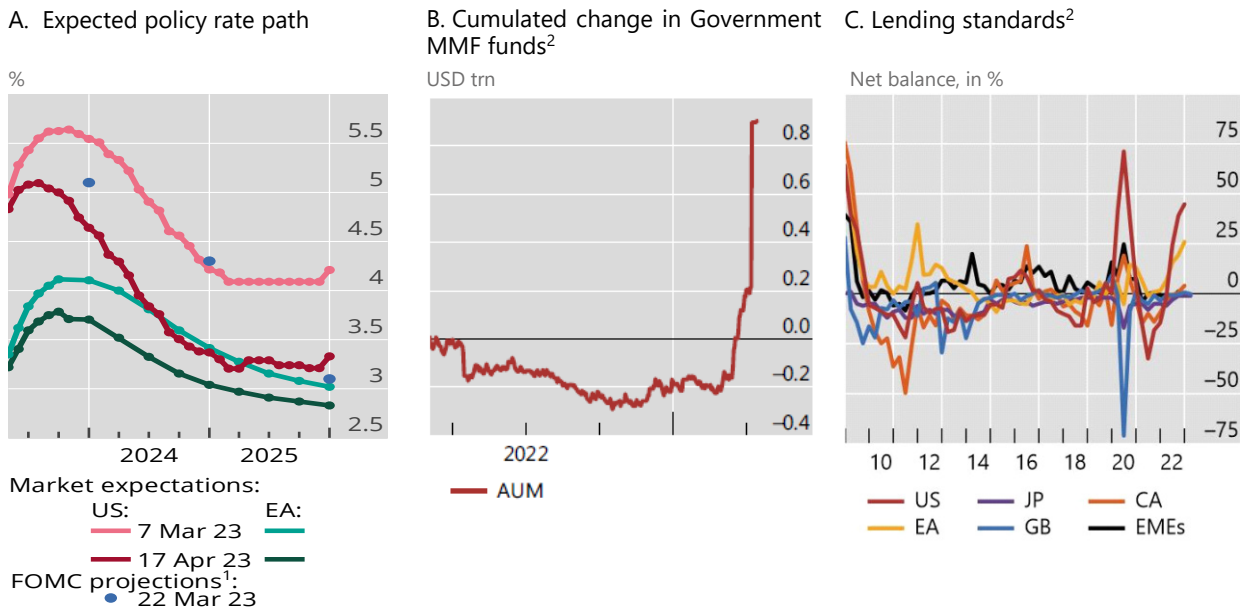


C. G-SIB CDS spreads relative to market<sup>3</sup>



<sup>1</sup> Merrill Lynch Option Volatility Estimate; a yield curve weighted index of the normalised implied volatility on 1-month Treasury options which are weighted on the 2, 5, 10 and 30 year contracts over the next 30 days. <sup>2</sup> Banks are grouped based on their mean price-to-book ratio (PBR) over the period from 2014 to 2022: "High" >1, "Mid" from 0.6 to 1, "Low" < 0.6. Market benchmark is MSCI All Country World index <sup>3</sup> Market benchmark is Markit North American investment grade index. See footnote 2 for definition of groupings.

Sources: FSB (2022), BCBS (2023a) and BIS (2023).



<sup>1</sup> Median projections of the meeting participants. <sup>2</sup> Since March 2022; includes government, treasury, treasury repo and municipal (tax-free) money market funds. <sup>3</sup> Credit supply conditions for loans to the corporate sector, definition varies across countries. Positive figures indicate a tightening in credit conditions.

Sources: FSB (2022), BCBS (2023a) and BIS (2023).